Чтобы оптимизировать производственные расходы, металлургический комбинат ООО «Так закаляем сталь» решил уменьшить потребление электроэнергии на этапе обработки стали. Нам предстоит построить модель, которая предскажет температуру стали.

Описание этапа обработки

Сталь обрабатывают в металлическом ковше вместимостью около 100 тонн. Чтобы ковш выдерживал высокие температуры, изнутри его облицовывают огнеупорным кирпичом. Расплавленную сталь заливают в ковш и подогревают до нужной температуры графитовыми электродами. Они установлены в крышке ковша.

Из сплава выводится сера (десульфурация), добавлением примесей корректируется химический состав и отбираются пробы. Сталь легируют — изменяют её состав — подавая куски сплава из бункера для сыпучих материалов или проволоку через специальный трайб-аппарат (англ. tribe, «масса»).

Перед тем как первый раз ввести легирующие добавки, измеряют температуру стали и производят её химический анализ. Потом температуру на несколько минут повышают, добавляют легирующие материалы и продувают сплав инертным газом. Затем его перемешивают и снова проводят измерения. Такой цикл повторяется до достижения целевого химического состава и оптимальной температуры плавки.

Тогда расплавленная сталь отправляется на доводку металла или поступает в машину непрерывной разливки. Оттуда готовый продукт выходит в виде заготовок-слябов (англ. *slab*, «плита»).

Описание данных

Данные состоят из файлов, полученных из разных источников:

- data_arc.csv данные об электродах;
- data bulk.csv данные о подаче сыпучих материалов (объём);
- data_bulk_time.csv данные о подаче сыпучих материалов (время);
- data_gas.csv данные о продувке сплава газом;
- data_temp.csv результаты измерения температуры;
- data wire.csv данные о проволочных материалах (объём);
- data wire time.csv данные о проволочных материалах (время).

In [137]:

```
import pandas as pd
import matplotlib
import matplotlib.pyplot as plt
import numpy as np
pd.set_option('display.max_rows', 500)
pd.set_option('display.max_columns', 500)
pd.set_option('display.width', 1000)
import warnings
warnings.filterwarnings('ignore')
from sklearn.linear_model import LinearRegression
from sklearn.ensemble import RandomForestRegressor
from catboost import CatBoostRegressor
from lightgbm.sklearn import LGBMRegressor
from sklearn.model_selection import (cross_val_score, train_test_split,
                                     GridSearchCV, RandomizedSearchCV)
from sklearn.metrics import mean absolute error
import seaborn as sns
from sklearn.preprocessing import StandardScaler
from pylab import *
```

1. Загрузка и предобработка данных

```
In [138]:
```

```
#coздaдum функцию, pacкpывaющую дamacemы, noмoгaющую изучить дaнные

def load_df(path):
    df=[]
    df = pd.read_csv(path)
    print(df.info())
    print()
    print(df.head(15))
    print()
    print(df.describe())
    return df
```

Данные об электродах

```
In [139]:
```

data_arc = load_df('/datasets/final_steel/data_arc.csv')

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 14876 entries, 0 to 14875

Data columns (total 5 columns):

key14876 non-null int64Начало нагрева дугой14876 non-null objectКонец нагрева дугой14876 non-null objectАктивная мощность14876 non-null float64Реактивная мощность14876 non-null float64

dtypes: float64(2), int64(1), object(2)

memory usage: 581.2+ KB

None

key Начало нагрева дуго	й Конец нагрева дугой	Активная мощность	Реак
тивная мощность 0 1 2019-05-03 11:02:1	4 2019-05-03 11:06:02	0.976059	
0.687084			
	8 2019-05-03 11:10:33	0.805607	
0.520285 2 1 2019-05-03 11:11:4	4 2019-05-03 11:14:36	0 7//363	
0.498805	4 2019-03-03 11.14.30	0.744303	
3 1 2019-05-03 11:18:1	4 2019-05-03 11:24:19	1.659363	
1.062669			
4 1 2019-05-03 11:26:0 0.414397	9 2019-05-03 11:28:37	0.692755	
5 2 2019-05-03 11:34:1	4 2019-05-03 11:36:31	0.438063	
0.283043	- 2019 03 03 11.30.31	0.450005	
6 2 2019-05-03 11:38:5	0 2019-05-03 11:44:28	1.296415	
0.892914			
7 2 2019-05-03 11:46:1	9 2019-05-03 11:48:25	0.490377	
0.305281			
8 2 2019-05-03 11:49:4	8 2019-05-03 11:53:18	0.827743	
0.516874	4 2010 05 02 12:11:24	1 062052	
9 3 2019-05-03 12:06:5 0.671494	4 2019-05-03 12:11:34	1.062053	
10 3 2019-05-03 12:13:5	2 2019-05-03 12:15:56	0.484206	
0.312100	2 2013 03 03 12:13:30	0.404200	
11 3 2019-05-03 12:18:5	6 2019-05-03 12:20:45	0.429355	
0.271774			
12 3 2019-05-03 12:25:4	3 2019-05-03 12:27:00	0.299989	
0.187806			
13 3 2019-05-03 12:31:1	4 2019-05-03 12:32:19	0.250280	
0.155901	7 2010 05 02 12 12 01	0.075343	
14 4 2019-05-03 12:39:3 0.614404	/ 2019-05-03 12:43:04	0.8/5313	
15 4 2019-05-03 12:44:4	7 2010-05-03 12:46:26	0 125602	
0.268482	2013-03-03 12:40:20	0.423032	
16 4 2019-05-03 12:48:1	4 2019-05-03 12:50:51	0.687289	
0.422692			
17 4 2019-05-03 12:53:1	2 2019-05-03 12:57:50	1.220955	
0.754719			
18 5 2019-05-03 13:11:1	3 2019-05-03 13:15:24	0.950026	
0.690523			
19 5 2019-05-03 13:18:2	1 2019-05-03 13:20:33	0.508026	
0.332352 20 5 2019-05-03 13:23:3	2 2010 05 02 12.20.27	1 631665	
1.047776	2 2019-03-03 13.30.27	1.021005	
21 5 2019-05-03 13:32:4	4 2019-05-03 13:33:55	0.267457	
0.181992			
22 6 2019-05-03 13:46:5	1 2019-05-03 13:48:34	0.334140	
0.230438			
23 6 2019-05-03 13:50:3	9 2019-05-03 13:57:17	1.653073	
no.//iumytorbub proktikum oomiooo muluoorkuoo	r 0 067020702/phoopyort/html/4404h	PE4 4E44 4E4- 00-E 04-0440040	Ch invert

1.2367	721					
24	6	2019-05-03	14:00:00	2019-05-03	14:02:56	0.770170
0.4782	253					
25	6	2019-05-03	14:04:49	2019-05-03	14:09:24	1.197724
0.743	763					
26	7	2019-05-03	14:16:46	2019-05-03	14:18:44	0.387086
0.2363	391					
27	7	2019-05-03	14:21:06	2019-05-03	14:27:03	1.406704
0.8599	944					
28	7	2019-05-03	14:28:53	2019-05-03	14:30:32	0.374826
0.2299	962					
29	7	2019-05-03	14:39:36	2019-05-03	14:41:15	0.378760
0.2349	998					

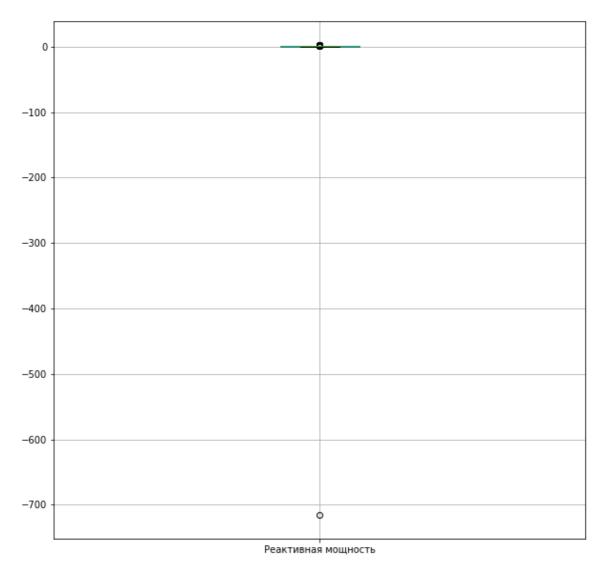
	key	Активная мощность	Реактивная мощность
count	14876.000000	14876.000000	14876.000000
mean	1615.220422	0.670441	0.452592
std	934.571502	0.408159	5.878702
min	1.000000	0.030002	-715.504924
25%	806.000000	0.395297	0.290991
50%	1617.000000	0.555517	0.415962
75%	2429.000000	0.857034	0.637371
max	3241.000000	3.731596	2.676388

```
In [140]:
```

data_arc.boxplot('Реактивная мощность', figsize=(10,10))

Out[140]:

<matplotlib.axes._subplots.AxesSubplot at 0x7fcfb4a33d10>



In [141]:

```
arc_new = data_arc.loc[data_arc['Реактивная мощность']<0]
```

In [142]:

```
arc_new.info()
```

<class 'pandas.core.frame.DataFrame'>
Int64Index: 1 entries, 9780 to 9780
Data columns (total 5 columns):

key 1 non-null int64 Начало нагрева дугой 1 non-null object Конец нагрева дугой 1 non-null object Активная мощность 1 non-null float64 Реактивная мощность 1 non-null float64 dtypes: float64(2), int64(1), object(2) memory usage: 48.0+ bytes

только одно значение ниже 0

http://electrokaprizam.net/content/35-chto-takoe-kva-kwt-kvar (http://electrokaprizam.net/content/35-chto-takoe-kva-kwt-kvar)

In [143]:

```
#изменим названия столбцов
data_arc.columns = ['key','time_begin','time_end','activ_power','reactiv_power']
```

In [144]:

```
#изменим mun
data_arc[['time_begin', 'time_end']] = data_arc[['time_begin','time_end']].apply(pd.to_
datetime)
```

In [145]:

```
data_arc.head(15)
```

Out[145]:

	key	time_begin	time_end	activ_power	reactiv_power
0	1	2019-05-03 11:02:14	2019-05-03 11:06:02	0.976059	0.687084
1	1	2019-05-03 11:07:28	2019-05-03 11:10:33	0.805607	0.520285
2	1	2019-05-03 11:11:44	2019-05-03 11:14:36	0.744363	0.498805
3	1	2019-05-03 11:18:14	2019-05-03 11:24:19	1.659363	1.062669
4	1	2019-05-03 11:26:09	2019-05-03 11:28:37	0.692755	0.414397
5	2	2019-05-03 11:34:14	2019-05-03 11:36:31	0.438063	0.283043
6	2	2019-05-03 11:38:50	2019-05-03 11:44:28	1.296415	0.892914
7	2	2019-05-03 11:46:19	2019-05-03 11:48:25	0.490377	0.305281
8	2	2019-05-03 11:49:48	2019-05-03 11:53:18	0.827743	0.516874
9	3	2019-05-03 12:06:54	2019-05-03 12:11:34	1.062053	0.671494
10	3	2019-05-03 12:13:52	2019-05-03 12:15:56	0.484206	0.312100
11	3	2019-05-03 12:18:56	2019-05-03 12:20:45	0.429355	0.271774
12	3	2019-05-03 12:25:43	2019-05-03 12:27:00	0.299989	0.187806
13	3	2019-05-03 12:31:14	2019-05-03 12:32:19	0.250280	0.155901
14	4	2019-05-03 12:39:37	2019-05-03 12:43:04	0.875313	0.614404

In [146]:

```
# удалим выбросы
data_arc= data_arc.query('reactiv_power>0')
```

In [147]:

```
#создадим функцию, группирующую по партии и рангующую по дате. выберем последнюю дату и
соответствующие мощности
def rank(df, i):
    df_g = df.groupby('key')
   def add(df_g):
        df_g['rank'] = df_g['time_end'].rank(pct=True)
        return df_g
    res = df_g.apply(add)
    result = res.query('rank == @i')
    return result
```

In [148]:

```
result_data_arc_1 = rank(data_arc, 1)
```

In [149]:

result_data_arc_1

Out[149]:

	key	time_begin	time_end	activ_power	reactiv_power	rank
4	1	2019-05-03 11:26:09	2019-05-03 11:28:37	0.692755	0.414397	1.0
8	2	2019-05-03 11:49:48	2019-05-03 11:53:18	0.827743	0.516874	1.0
13	3	2019-05-03 12:31:14	2019-05-03 12:32:19	0.250280	0.155901	1.0
17	4	2019-05-03 12:53:12	2019-05-03 12:57:50	1.220955	0.754719	1.0
21	5	2019-05-03 13:32:44	2019-05-03 13:33:55	0.267457	0.181992	1.0
14854	3237	2019-08-31 23:01:32	2019-08-31 23:03:48	0.606049	0.419084	1.0
14857	3238	2019-08-31 23:38:38	2019-08-31 23:41:28	0.717559	0.520623	1.0
14865	3239	2019-09-01 02:13:38	2019-09-01 02:15:43	0.488352	0.317727	1.0
14870	3240	2019-09-01 03:31:47	2019-09-01 03:34:08	0.548882	0.416994	1.0
14875	3241	2019-09-01 04:34:47	2019-09-01 04:36:08	0.306580	0.196708	1.0

3214 rows × 6 columns

In [150]:

можем сделать дополнительные признаки по промежуточным стадиям каждой партии, но не б

result_data_arc_2 = rank(data_arc, 0.2)

In [151]:

```
result_data_arc_2
```

Out[151]:

	key	time_begin	time_end	activ_power	reactiv_power	rank
0	1	2019-05-03 11:02:14	2019-05-03 11:06:02	0.976059	0.687084	0.2
9	3	2019-05-03 12:06:54	2019-05-03 12:11:34	1.062053	0.671494	0.2
34	9	2019-05-03 15:33:42	2019-05-03 15:36:18	0.509361	0.410399	0.2
45	11	2019-05-03 16:49:14	2019-05-03 16:52:03	0.590658	0.431572	0.2
66	15	2019-05-03 20:53:55	2019-05-03 20:57:01	0.591491	0.464639	0.2
14762	3216	2019-08-31 06:28:11	2019-08-31 06:30:11	0.389077	0.371934	0.2
14793	3223	2019-08-31 12:53:21	2019-08-31 12:55:54	0.562438	0.379323	0.2
14850	3237	2019-08-31 22:41:18	2019-08-31 22:43:17	0.405685	0.320431	0.2
14866	3240	2019-09-01 02:35:24	2019-09-01 02:37:25	0.411601	0.274390	0.2
14871	3241	2019-09-01 03:58:58	2019-09-01 04:01:35	0.533670	0.354439	0.2

770 rows × 6 columns

In [152]:

```
#добавим признак полная мощность
result_data_arc_1['apparent_power'] = (result_data_arc_1['activ_power']**2+result_data_
arc_1['reactiv_power']**2)**0.5
```

In [153]:

result_data_arc_1

Out[153]:

	key	time_begin	time_end	activ_power	reactiv_power	rank	apparent_power
4	1	2019-05-03 11:26:09	2019-05-03 11:28:37	0.692755	0.414397	1.0	0.807239
8	2	2019-05-03 11:49:48	2019-05-03 11:53:18	0.827743	0.516874	1.0	0.975867
13	3	2019-05-03 12:31:14	2019-05-03 12:32:19	0.250280	0.155901	1.0	0.294865
17	4	2019-05-03 12:53:12	2019-05-03 12:57:50	1.220955	0.754719	1.0	1.435385
21	5	2019-05-03 13:32:44	2019-05-03 13:33:55	0.267457	0.181992	1.0	0.323503
14854	3237	2019-08-31 23:01:32	2019-08-31 23:03:48	0.606049	0.419084	1.0	0.736835
14857	3238	2019-08-31 23:38:38	2019-08-31 23:41:28	0.717559	0.520623	1.0	0.886532
14865	3239	2019-09-01 02:13:38	2019-09-01 02:15:43	0.488352	0.317727	1.0	0.582613
14870	3240	2019-09-01 03:31:47	2019-09-01 03:34:08	0.548882	0.416994	1.0	0.689315
14875	3241	2019-09-01 04:34:47	2019-09-01 04:36:08	0.306580	0.196708	1.0	0.364260

3214 rows × 7 columns

In [154]:

#сразу удалим ненужные столбцы с временем и рангом result_data_arc_1 = result_data_arc_1.drop(['time_begin','time_end','rank'], axis=1)

In [155]:

result_data_arc_1

Out[155]:

	key	activ_power	reactiv_power	apparent_power
4	1	0.692755	0.414397	0.807239
8	2	0.827743	0.516874	0.975867
13	3	0.250280	0.155901	0.294865
17	4	1.220955	0.754719	1.435385
21	5	0.267457	0.181992	0.323503
14854	3237	0.606049	0.419084	0.736835
14857	3238	0.717559	0.520623	0.886532
14865	3239	0.488352	0.317727	0.582613
14870	3240	0.548882	0.416994	0.689315
14875	3241	0.306580	0.196708	0.364260

3214 rows × 4 columns

Данные о подаче сыпучих материалов (объём)

```
In [156]:
```

data_bulk= load_df('/datasets/final_steel/data_bulk.csv')

None

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3129 entries, 0 to 3128
Data columns (total 16 columns):
           3129 non-null int64
key
Bulk 1
           252 non-null float64
Bulk 2
           22 non-null float64
Bulk 3
           1298 non-null float64
           1014 non-null float64
Bulk 4
Bulk 5
           77 non-null float64
Bulk 6
           576 non-null float64
Bulk 7
           25 non-null float64
           1 non-null float64
Bulk 8
Bulk 9
           19 non-null float64
           176 non-null float64
Bulk 10
Bulk 11
           177 non-null float64
Bulk 12
           2450 non-null float64
Bulk 13
           18 non-null float64
Bulk 14
           2806 non-null float64
           2248 non-null float64
Bulk 15
dtypes: float64(15), int64(1)
memory usage: 391.2 KB
```

Bulk 3 Bulk 4 Bulk 5 Bulk 6 Bulk 1 Bulk 2 Bulk 7 Bulk 8 В 9 Bulk 12 ulk Bulk 10 Bulk 11 Bulk 13 Bulk 14 Bulk 15 0 1 NaN NaN NaN 43.0 NaN NaN NaN NaN 206.0 150.0 154.0 NaN NaN NaN NaN 1 2 NaN NaN NaN 73.0 NaN NaN NaN NaN NaN NaN NaN 206.0 NaN 149.0 154.0 2 3 NaN NaN NaN NaN NaN 34.0 NaN NaN NaN NaN NaN 205.0 NaN 152.0 153.0 3 4 NaN NaN 81.0 NaN NaN NaN NaN NaN NaN NaN NaN 207.0 NaN 153.0 154.0 5 4 NaN NaN 78.0 NaN NaN NaN NaN NaN NaN NaN NaN 203.0 NaN 151.0 152.0 5 6 117.0 NaN NaN NaN NaN NaN NaN NaN 154.0 NaN NaN NaN 204.0 NaN 201.0 6 7 NaN NaN NaN 117.0 NaN NaN NaN NaN NaN 204.0 NaN 152.0 154.0 NaN NaN 7 8 NaN NaN NaN 99.0 NaN NaN NaN NaN NaN NaN 410.0 NaN 252.0 153.0 NaN 9 8 NaN 117.0 NaN NaN NaN NaN NaN NaN 107.0 NaN NaN NaN NaN 99.0 203.0 9 10 NaN 203.0 NaN 102.0 204.0 10 11 NaN NaN NaN 69.0 NaN NaN NaN NaN 207.0 202.0 NaN NaN NaN NaN 101.0 11 12 46.0 NaN NaN 34.0 NaN NaN NaN NaN NaN NaN NaN 618.0 NaN 406.0 203.0 12 NaN NaN 72.0 13 NaN NaN NaN NaN NaN NaN NaN 410.0 NaN 151.0 204.0 NaN 13 14 NaN 71.0 NaN NaN NaN NaN NaN NaN NaN NaN NaN 204.0 NaN 152.0 203.0 14 15 NaN NaN 77.0 NaN NaN NaN NaN NaN 251.0 203.0 NaN NaN NaN NaN NaN 15 16 NaN NaN NaN NaN NaN NaN NaN NaN 100.0 203.0 NaN NaN NaN 206.0 NaN 17 16 NaN 153.0 202.0 NaN NaN 17 18 NaN NaN NaN NaN NaN 76.0 NaN NaN NaN NaN NaN 206.0 103.0 203.0 NaN

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                                               260.0
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                                       Bulk 2
                                                     Bulk 3
                                                                    Bulk 4
                key
Bulk 5
             Bulk 6
                          Bulk 7
                                  Bulk 8
                                                Bulk 9
                                                            Bulk 10
                                                                          Bulk 11
Bulk 12
             Bulk 13
                           Bulk 14
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                                                                              77.
count
       3129.000000
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mean
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                                                 113.879045
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                                                                             107.
025974 118.925347
                      305.600000
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                                             76.315789
                                                          83.284091
                                                                       76.819209
                                         160.513345
260.471020 181.111111
                           170.284747
                                                  75,483494
                                                                 48.184126
std
        933.337642
                       18.277654
                                    21.180578
                                                                              81.
790646
         72.057776
                      191.022904
                                      NaN
                                             21.720581
                                                          26.060347
                                                                       59.655365
120.649269
              46.088009
                            65.868652
                                          51.765319
                                                   6.000000
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min
           1.000000
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25%
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                       27.000000
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max
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                                            147.000000
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1849,000000
             305.000000
                            636.000000
                                          405,000000
```

In [157]:

```
#заменим NAN на 0
data bulk=data bulk.fillna(0)
```

In [158]:

data_bulk.head(30)

Out[158]:

	key	Bulk 1	Bulk 2	Bulk 3	Bulk 4	Bulk 5	Bulk 6	Bulk 7	Bulk 8	Bulk 9	Bulk 10	Bulk 11	Bulk 12	Bulk 13
0	1	0.0	0.0	0.0	43.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	206.0	0.0
1	2	0.0	0.0	0.0	73.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	206.0	0.0
2	3	0.0	0.0	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	205.0	0.0
3	4	0.0	0.0	0.0	81.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	207.0	0.0
4	5	0.0	0.0	0.0	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	203.0	0.0
5	6	0.0	0.0	0.0	117.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	204.0	0.0
6	7	0.0	0.0	0.0	117.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	204.0	0.0
7	8	0.0	0.0	0.0	99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	410.0	0.0
8	9	0.0	0.0	0.0	117.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	107.0	0.0
9	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	203.0	0.0
10	11	0.0	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	207.0	0.0
11	12	46.0	0.0	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	618.0	0.0
12	13	0.0	0.0	0.0	0.0	0.0	72.0	0.0	0.0	0.0	0.0	0.0	410.0	0.0
13	14	0.0	0.0	71.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	204.0	0.0
14	15	0.0	0.0	0.0	0.0	0.0	77.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	206.0	0.0
16	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	18	0.0	0.0	0.0	0.0	0.0	76.0	0.0	0.0	0.0	0.0	0.0	206.0	0.0
18	19	0.0	0.0	0.0	0.0	0.0	219.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	21	0.0	0.0	151.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	233.0	0.0
21	22	0.0	0.0	63.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	104.0	0.0
23	24	0.0	0.0	89.0	0.0	0.0	108.0	0.0	0.0	0.0	0.0	0.0	412.0	0.0
24	25	0.0	0.0	132.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	205.0	0.0
25	26	0.0	0.0	67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	205.0	0.0
27	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	105.0	0.0
28	29	0.0	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	205.0	0.0
29	30	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	105.0	0.0
<														>

In [159]:

```
#изменим названия столбцов
data_bulk.columns = ['key','bulk_1','bulk_2','bulk_3','bulk_4','bulk_5','bulk_6',\
                      'bulk_7', 'bulk_8', 'bulk_9', 'bulk_10', 'bulk_11', 'bulk_12', 'bulk_13'
,'bulk_14','bulk_15']
```

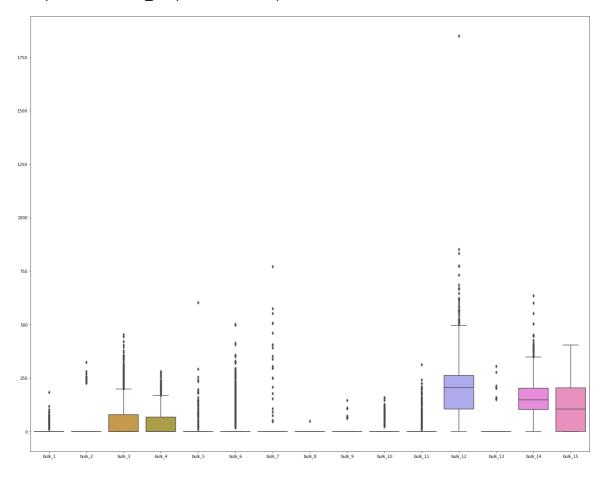
In [160]:

```
print("Диаграмма размаха сыпучих материалов")
plt.figure(figsize=(25,20))
sns.boxplot(data=data_bulk[['bulk_1','bulk_2','bulk_3','bulk_4','bulk_5','bulk_6',\
                      'bulk_7', 'bulk_8', 'bulk_9', 'bulk_10', 'bulk_11', 'bulk_12', 'bulk_13'
,'bulk_14','bulk_15']])
```

Диаграмма размаха сыпучих материалов

Out[160]:

<matplotlib.axes._subplots.AxesSubplot at 0x7fcfb718c310>



In [161]:

```
#уберем выбросы
data bulk = data bulk.query('bulk 3<250 & bulk 4<200 & bulk 12<500 & bulk 14<300')
```

In [162]:

```
data_bulk['bulk_sum'] = data_bulk['bulk_1']+data_bulk['bulk_2']+data_bulk['bulk_3']+dat
a_bulk['bulk_4']+data_bulk['bulk_5']+\
                        data_bulk['bulk_6']+data_bulk['bulk_7']+data_bulk['bulk_8']+dat
a_bulk['bulk_9']+data_bulk['bulk_10']+\
data_bulk['bulk_11']+data_bulk['bulk_12']+data_bulk['bulk_13']+data_bulk['bulk_14']+dat
a_bulk['bulk_15']
```

Данные о подаче сыпучих материалов (время)

```
In [163]:
```

data_bulk_time =load_df('/datasets/final_steel/data_bulk_time.csv')

```
<class 'pandas.core.frame.DataFrame'>
 RangeIndex: 3129 entries, 0 to 3128
 Data columns (total 16 columns):
 key
                      3129 non-null int64
                      252 non-null object
Bulk 1 252 non-null object
Bulk 2 22 non-null object
Bulk 3 1298 non-null object
Bulk 4 1014 non-null object
Bulk 5 77 non-null object
Bulk 6 576 non-null object
Bulk 7 25 non-null object
Bulk 8 1 non-null object
Bulk 9 19 non-null object
Bulk 10 176 non-null object
Bulk 11 177 non-null object
Bulk 12 2450 non-null object
Bulk 13 18 non-null object
 Bulk 1
 Bulk 13 18 non-null object
 Bulk 14
                      2806 non-null object
 Bulk 15
                      2248 non-null object
 dtypes: int64(1), object(15)
 memory usage: 391.2+ KB
 None
```

key	Bulk 1	Bulk 2		Bulk 3		Bul
key k 4 Bulk 5	Bu]	k 6 Bulk 7 E	Bulk 8 Bu	ulk 9 Bulk	10 Bulk 1	1
BUTK 15 BUTK 13		Bulk 14		Bulk 15		
0 1	NaN	l NaN		NaN	2019-05-03	3 11:2
					NaN Na	aN 201
9-05-03 11:03:52	NaN 26	19-05-03 11	03:52	2019-05-03	11:03:52	
1 2	NaN	l NaN		NaN	2019-05-03	3 11:4
6:38 NaN		NaN NaN	NaN	NaN	NaN Na	aN 201
9-05-03 11:40:20	NaN 20	19-05-03 11	40:20	2019-05-03	11:40:20	
2 3	NaN	l NaN		NaN	2019-05-03	3 12:3
1:06 NaN		NaN NaN	NaN	NaN	NaN Na	aN 201
9-05-03 12:09:40	NaN 26	19-05-03 12	09:40	2019-05-03	12:09:40	
3 4	NaN	l NaN		NaN	2019-05-03	3 12:4
8:43 NaN		NaN NaN	NaN	NaN	NaN Na	aN 201
9-05-03 12:41:24	NaN 26	19-05-03 12	41:24	2019-05-03	12:41:24	
4 5	NaN	l NaN		NaN	2019-05-03	3 13:1
8:50 NaN			NaN		NaN Na	aN 201
9-05-03 13:12:56	NaN 26	19-05-03 13	12:56	2019-05-03	13:12:56	
5 6	NaN	l NaN		NaN	2019-05-03	3 13:5
9:24 NaN		NaN NaN		NaN	NaN Na	aN 201
9-05-03 13:53:27	NaN 20	19-05-03 13	53:27	2019-05-03	13:53:27	
6 7	NaN	l NaN		NaN	2019-05-03	3 14:2
9:14 NaN		NaN NaN	NaN	NaN	NaN Na	aN 201
9-05-03 14:22:19	NaN 20	19-05-03 14	22:19	2019-05-03	14:22:19	
7 8	NaN	l NaN		NaN	2019-05-03	3 15:0
4:05 NaN		NaN NaN			-	aN 201
9-05-03 14:55:46	NaN 20	19-05-03 14	55:46	2019-05-03	14:55:46	
8 9	NaN	l NaN		NaN	2019-05-03	3 15:4
7:34 NaN		NaN NaN			NaN Na	aN 201
9-05-03 15:41:00	NaN 26	19-05-03 15	41:00	2019-05-03	15:41:00	
9 10	NaN	l NaN		NaN		
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-05-03 16:18:52	NaN 201	.9-05-03 16: 3	L8:52 20	019-05-03 1	16:18:52	
10 11	NaN	l NaN		NaN	2019-05-03	3 17:1
6:34 NaN		NaN NaN	NaN	NaN	NaN Na	aN 201
9-05-03 17:03:52			:03:52	2019-05-03	17:03:52	
11 12 2019-05-03	17:50:19				2019-05-03	3 18:0
3:59 NaN		NaN NaN	NaN	NaN	NaN Na	aN 201

std

min

933.337642

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9-05-03 17:45:21 NaN 2019-05-03 17:45:21 2019-05-03 17:45:21
12
                      NaN
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    NaN 2019-05-03 18:52:57 NaN
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-05-03 18:43:48 NaN 2019-05-03 18:43:48 2019-05-03 18:43:48
                          NaN 2019-05-03 20:13:36
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-05-03 20:05:47
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      NaN 2019-05-03 23:53:11 NaN
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-05-04 03:28:30
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                      NaN NaN 2019-05-04 04:29:57
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-05-04 05:26:16
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                          NaN 2019-05-04 06:44:51
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-05-04 06:04:41
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24
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-05-04 06:29:52
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                      2019-05-04 06:29:52 2019-05-04 06:29:52
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-05-04 08:30:00
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28
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                                           NaN
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                                                          NaN
                         NaN
-05-04 09:38:29
                      2019-05-04 09:38:29 2019-05-04 09:38:29
                 NaN
             key
count 3129.000000
mean 1624.383509
```

https://jupyterhub.praktikum-services.ru/user/user-0-967930702/nbconvert/html/4424bb51-f5d1-45fe-96e5-8fc2d428d96b.ipynb?download=false 23/267

```
25%
        816.000000
50%
       1622.000000
75%
       2431.000000
       3241.000000
max
```

In [164]:

```
#изменим названия столбцов
data_bulk_time.columns = ['key','bulk_1','bulk_2','bulk_3','bulk_4','bulk_5','bulk_6',\
                           'bulk_7', 'bulk_8', 'bulk_9', 'bulk_10', 'bulk_11', 'bulk_12', 'bul
k_13','bulk_14','bulk_15']
```

In [165]:

```
#изменим тип
data_bulk_time[['bulk_1','bulk_2','bulk_3','bulk_4','bulk_5','bulk_6','bulk_7', \
                'bulk_8','bulk_9','bulk_10','bulk_11','bulk_12','bulk_13','bulk_14',\
                'bulk_15']] = data_bulk_time[['bulk_1','bulk_2','bulk_3','bulk_4',\
                'bulk_5','bulk_6','bulk_7','bulk_8','bulk_9','bulk_10','bulk_11',\
                'bulk_12','bulk_13','bulk_14','bulk_15']].apply(pd.to_datetime)
```

In [166]:

```
#заполним NAN пробелом
data_bulk_time = data_bulk_time.fillna('')
```

In [167]:

data_bulk_time.head(5)

Out[167]:

	key	bulk_1	bulk_2	bulk_3	bulk_4	bulk_5	bulk_6	bulk_7	bulk_8	bulk_9	bulk _.
0	1				2019- 05-03 11:21:30						
1	2				2019- 05-03 11:46:38						
2	3				2019- 05-03 12:31:06						
3	4				2019- 05-03 12:48:43						
4	5				2019- 05-03 13:18:50						
5	6				2019- 05-03 13:59:24						
6	7				2019- 05-03 14:29:14						
7	8				2019- 05-03 15:04:05						
8	9				2019- 05-03 15:47:34						
9	10										
10	11				2019- 05-03 17:16:34						
11	12	2019- 05-03 17:50:19			2019- 05-03 18:03:59						
12	13						2019- 05-03 18:52:57				
13	14			2019- 05-03 20:13:36							
14	15						2019- 05-03 21:15:20				
15	16										
16	17										
17	18						2019- 05-03 23:53:11				

0	•	112 1350 1 104 1 1010 0000 01024 1204005									
	key	bulk_1	bulk_2	bulk_3	bulk_4	bulk_5	bulk_6	bulk_7	bulk_8	bulk_9	bulk
18	19						2019- 05-04 00:53:02				
19	20										
20	21			2019- 05-04 03:47:10							
21	22			2019- 05-04 04:29:57							
22	23										
23	24			2019- 05-04 06:44:51			2019- 05-04 06:44:51				
24	25			2019- 05-04 06:35:56							
25	26			2019- 05-04 07:28:33							
26	27										
27	28										
28	29			2019- 05-04 09:19:45							
29	30			2019- 05-04 09:59:18							

Данные о продувке сплава газом

```
In [168]:
```

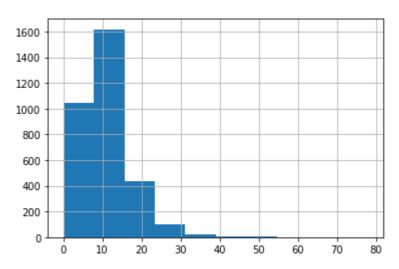
```
data_gas = load_df('/datasets/final_steel/data_gas.csv')
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3239 entries, 0 to 3238
Data columns (total 2 columns):
         3239 non-null int64
key
         3239 non-null float64
Газ 1
dtypes: float64(1), int64(1)
memory usage: 50.7 KB
None
    key
             Газ 1
0
      1
         29.749986
1
      2
         12.555561
2
      3
         28.554793
3
      4
         18.841219
4
      5
          5.413692
5
      6
         11.273392
6
      7
          9.836267
7
      8
         15.171553
8
      9
          8.216623
9
     10
          6.529891
10
     11
          3.639128
11
     12
         11.026259
12
     13
         11.443643
13
     14
          5.098945
14
     15
         11.085451
15
     16
          7.991257
16
     17
         15.175933
17
     18
         14.660061
18
     19
          6.556234
19
     20
         10.698530
20
     21
         14.615434
21
     22
         13.210861
22
     23
         14.515347
23
     24
         11.487776
24
     25
          9.060018
25
     26
          9.631086
26
     27
         10.404299
27
     28
         11.997002
     29
28
          5.955136
29
     30
         13.494307
                            Газ 1
                key
count
       3239.000000
                     3239.000000
       1621.861377
                       11.002062
mean
std
        935.386334
                        6.220327
min
          1.000000
                        0.008399
25%
        812.500000
                        7.043089
50%
       1622.000000
                        9.836267
75%
       2431.500000
                       13.769915
       3241.000000
                       77.995040
max
In [169]:
data_gas.columns = ['key', 'gas_1']
```

In [170]:

```
data_gas['gas_1'].hist()
```

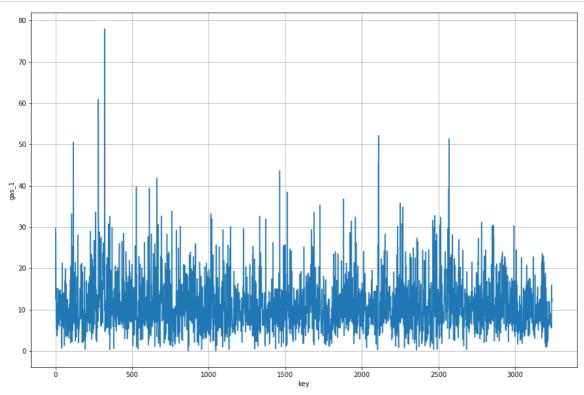
Out[170]:

<matplotlib.axes._subplots.AxesSubplot at 0x7fcfb7cce2d0>



In [171]:

```
fig, ax = plt.subplots(figsize=(15, 10))
ax.plot(data_gas['key'], data_gas['gas_1'])
ax.set(xlabel='key', ylabel='gas_1')
      # title='About as simple as it gets, folks')
ax.grid()
#fig.savefig("test.png")
plt.show()
```



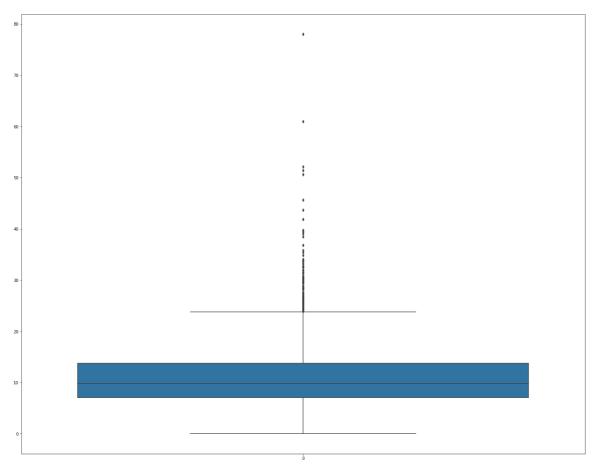
In [172]:

```
print("Диаграмма размаха по продувке сплава газом")
plt.figure(figsize=(25,20))
sns.boxplot(data=data_gas['gas_1'])
```

Диаграмма размаха по продувке сплава газом

Out[172]:

<matplotlib.axes._subplots.AxesSubplot at 0x7fcfb4c18ed0>



Наблюдаем выбросы в данных по продувке сплава газом

Результаты измерения температуры

In [173]:

```
data_temp = load_df('/datasets/final_steel/data_temp.csv')
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 15907 entries, 0 to 15906
Data columns (total 3 columns):
                15907 non-null int64
key
                15907 non-null object
Время замера
                13006 non-null float64
Температура
dtypes: float64(1), int64(1), object(1)
memory usage: 372.9+ KB
None
    key
                Время замера Температура
0
      1
         2019-05-03 11:16:18
                                    1571.0
1
      1
         2019-05-03 11:25:53
                                    1604.0
2
        2019-05-03 11:29:11
                                    1618.0
3
         2019-05-03 11:30:01
      1
                                    1601.0
4
         2019-05-03 11:30:39
                                    1613.0
5
      2
        2019-05-03 11:37:27
                                    1581.0
6
      2
         2019-05-03 11:38:00
                                    1577.0
7
      2
         2019-05-03 11:49:38
                                    1589.0
8
      2
         2019-05-03 11:55:50
                                    1604.0
9
      2
         2019-05-03 11:58:24
                                    1608.0
10
      2
         2019-05-03 11:59:12
                                    1602.0
11
      3
         2019-05-03 12:13:17
                                    1596.0
12
      3
         2019-05-03 12:18:36
                                    1597.0
13
      3
         2019-05-03 12:25:06
                                    1598.0
14
      3
         2019-05-03 12:30:48
                                    1599.0
15
      3
         2019-05-03 12:34:57
                                    1599.0
16
      4
         2019-05-03 12:52:57
                                    1601.0
17
      4
         2019-05-03 12:58:43
                                    1623.0
18
      4
         2019-05-03 12:59:25
                                    1625.0
19
         2019-05-03 13:23:19
                                    1576.0
20
      5
         2019-05-03 13:36:01
                                    1602.0
21
      6
         2019-05-03 13:49:24
                                    1543.0
22
      6
         2019-05-03 14:04:31
                                    1581.0
23
      6
         2019-05-03 14:11:11
                                    1600.0
24
         2019-05-03 14:11:50
                                    1600.0
25
         2019-05-03 14:12:29
      6
                                    1596.0
26
      7
         2019-05-03 14:19:43
                                    1586.0
      7
27
         2019-05-03 14:20:19
                                    1582.0
      7
28
         2019-05-03 14:32:07
                                    1599.0
29
      7
         2019-05-03 14:38:48
                                    1595.0
                key
                       Температура
count 15907.000000
                     13006.000000
mean
        1607.880870
                       1591.840920
std
         942.212073
                         21.375851
           1.000000
                      1191.000000
min
25%
         790.000000
                      1581.000000
50%
        1618.000000
                       1591.000000
75%
        2427.000000
                       1601.000000
max
        3241.000000
                      1705.000000
```

отсутствуют данные в столбце температура. ничего не остается, как их дропнуть.

будем использовать только последнюю температуру

In [174]:

```
data_temp = data_temp.dropna()
```

In [175]:

```
#изменим названия колонок
data_temp.columns = ['key','time_end','temp']
```

In [176]:

```
#изменим тип
data_temp['time_end'] = data_temp['time_end'].apply(pd.to_datetime)
data_temp['temp'] = data_temp['temp'].astype(int)
```

In [177]:

```
data_temp
```

Out[177]:

	key	time_end	temp
0	1	2019-05-03 11:16:18	1571
1	1	2019-05-03 11:25:53	1604
2	1	2019-05-03 11:29:11	1618
3	1	2019-05-03 11:30:01	1601
4	1	2019-05-03 11:30:39	1613
15878	3237	2019-08-31 22:44:04	1569
15883	3238	2019-08-31 23:30:31	1584
15886	3239	2019-09-01 01:31:47	1598
15894	3240	2019-09-01 02:39:01	1617
15902	3241	2019-09-01 04:03:30	1586

13006 rows × 3 columns

In [178]:

```
#уберем все значения кроме последнего замера температуры.
#значение последней измеренной температуры будет нашим целевым признаком
result_data_temp_1 = rank(data_temp, 1)
```

In [179]:

```
result_data_temp_1
```

Out[179]:

key		time_end	temp	rank
4	1	2019-05-03 11:30:39	1613	1.0
10	2	2019-05-03 11:59:12	1602	1.0
15	3	2019-05-03 12:34:57	1599	1.0
18	4	2019-05-03 12:59:25	1625	1.0
20	5	2019-05-03 13:36:01	1602	1.0
15878	3237	2019-08-31 22:44:04	1569	1.0
15883	3238	2019-08-31 23:30:31	1584	1.0
15886	3239	2019-09-01 01:31:47	1598	1.0
15894	3240	2019-09-01 02:39:01	1617	1.0
15902	3241	2019-09-01 04:03:30	1586	1.0

3216 rows × 4 columns

In [180]:

```
#сразу удалим ненужные столбцы с временем и температурой
result_data_temp_1 = result_data_temp_1.drop(['time_end', 'rank'], axis=1)
```

In [181]:

```
#создадим функцию, группирующую по партии и рангующую по дате. выберем только первое из
мерение температуры
def temp_first(df):
    df_g = df.groupby('key')
    def add(df_g):
        df_g['rank'] = df_g['time_end'].rank()
        return df_g
    res = df_g.apply(add)
    result = res.query('rank == 1')
    return result
```

In [182]:

```
#данные по первой температуре
temp_1 = temp_first(data_temp)
```

In [183]:

```
temp_1
```

Out[183]:

key		time_end	temp	rank	
0	1	2019-05-03 11:16:18	1571	1.0	
5	2	2019-05-03 11:37:27	1581	1.0	
11	3	2019-05-03 12:13:17	1596	1.0	
16	4	2019-05-03 12:52:57	1601	1.0	
19	5	2019-05-03 13:23:19	1576	1.0	
15878	3237	2019-08-31 22:44:04	1569	1.0	
15883	3238	2019-08-31 23:30:31	1584	1.0	
15886	3239	2019-09-01 01:31:47	1598	1.0	
15894	3240	2019-09-01 02:39:01	1617	1.0	
15902	3241	2019-09-01 04:03:30	1586	1.0	

3216 rows × 4 columns

In [187]:

```
#сразу удалим ненужные столбцы с временем и температурой
temp_1 = temp_1.drop(['time_end', 'rank'], axis=1)
```

Данные о проволочных материалах (объём)

```
In [188]:
```

data_wire = load_df('/datasets/final_steel/data_wire.csv')

<class 'pandas.core.frame.DataFrame'> RangeIndex: 3081 entries, 0 to 3080 Data columns (total 10 columns): key 3081 non-null int64 Wire 1 3055 non-null float64 Wire 2 1079 non-null float64 Wire 3 63 non-null float64 Wire 4 14 non-null float64 Wire 5 1 non-null float64 Wire 6 73 non-null float64 Wire 7 11 non-null float64 Wire 8 19 non-null float64 Wire 9 29 non-null float64 dtypes: float64(9), int64(1) memory usage: 240.8 KB

None

	key Wire 1	Wire 2	Wire 3	Wire 4	Wire 5	Wire 6	Wire
7	Wire 8 Wire 9						
0	1 60.059998	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
1	2 96.052315	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
2	3 91.160157	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
3	4 89.063515	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
4	5 89.238236	9.114560	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
5	6 99.109917	9.114560	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
6	7 98.061600	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
7	8 155.282394	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
8	9 113.393279	9.143681	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
9	10 81.244796	12.376000	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
10	11 99.197281	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN						
11	12 153.578873	NaN	NaN	NaN	NaN	NaN	Na
N	NaN NaN	F0 446000					
12	13 77.269920	52.416003	NaN	NaN	NaN	NaN	Na
N	NaN NaN	27 026004	NI - NI	NI - NI	NI - NI	NI - NI	NI-
13	14 120.251038	37.826881	NaN	NaN	NaN	NaN	Na
N	NaN NaN	F2 00F680	N - N	N - N	N-N	NI-NI	N
14	15 71.285759 NaN NaN	52.095680	NaN	NaN	NaN	NaN	Na
N 1 E		42 007500	NaN	NaN	NaN	NaN	Ma
15 N	16 100.114563 NaN NaN	43.097599	NaN	NaN	NaN	NaN	Na
16	NaN NaN 17 110.204636	50.144638	NaN	NaN	NaN	NaN	Na
N	NaN NaN	30.144030	IValv	IValv	IVAIV	IValv	IVa
17	18 88.233596	32.148487	NaN	NaN	NaN	NaN	Na
N N	NaN NaN	32.140407	ivaiv	IVAIN	IVAIV	Ivaiv	IVa
18	19 113.218552	75.304322	NaN	NaN	NaN	NaN	Na
N	NaN NaN	73.304322	IVAIV	IVAIN	IVAIV	IVAIN	Na
19	20 105.137756	72.275840	NaN	NaN	NaN	NaN	Na
N	NaN NaN	72.273040	IVAIN	INGIN	INGIN	INGIN	INC
20	21 119.290081	98.367363	NaN	NaN	NaN	NaN	Na
N	NaN NaN	20.207202	IVAIN	Nan	Nan	Nan	ING
1 1	IVAIN IVAIN						

12.2020	9		44240051-1	Ju 1-4316-3063-010	24420490b	
21	22 144.755523	99.910721	250.041794	NaN	NaN NaN	Na
N	NaN NaN					
22	23 100.158234	114.907524	276.324066	NaN	NaN NaN	Na
N	NaN NaN					
23	24 101.730722	50.319363	NaN	NaN	NaN NaN	Na
N	NaN NaN	64 500453				
24	25 127.065117	64.588157	NaN	NaN	NaN NaN	Na
N	NaN NaN	NI-NI	NeN	N-N	NaN NaN	N
25 N	26 170.133591	NaN	NaN	NaN	NaN NaN	Na
N 26	NaN NaN 27 118.241760	20 051042	NaN	NaN	NaN NaN	Na
N N	NaN NaN	30.031042	IVAIN	IVAIV	ivalv ivalv	IVa
27	28 99.153595	NaN	NaN	NaN	NaN NaN	Na
N N	NaN NaN	Naiv	IVAIV	IVAIV	ivalv ivalv	Na
28	29 120.119995	NaN	NaN	NaN	NaN NaN	Na
N	NaN NaN					
29	30 44.160480	23.033920	NaN	NaN	NaN NaN	Na
N	NaN NaN					
					Wire 4	Wire
5	Wire 6 W					
cour					14.000000	1.0
00	73.000000 11.0					
mear					57.442841	15.1
32	48.016974 10.0				20.024667	
std		42.012518		99.513444	28.824667	N
aN min		510584 16.8	81728 19.931 0.030160	0.144144	24.148801	15 1
		1.918800 234208 45.0	76721 4.622		24.140001	15.1
25%		72.115684	20.193680	95.135044	40.807002	15.1
32			94879 22.058		+0.007002	17.1
50%	1619.000000	100.158234			45.234282	15.1
32			79999 30.066		131231202	
75%	2434.000000				76.124619	15.1
32		886057 48.0				
max					113.231044	15.1
32	180.454575 32.	847674 102.7	62401 90.053	3604		

In [189]:

```
#изменим названия столбцов
data_wire.columns = ['key','wire_1','wire_2','wire_3','wire_4','wire_5','wire_6','wire_
7',\
                          'wire_8','wire_9']
```

In [190]:

```
#уберем NAN, заменив на 0
data_wire = data_wire.fillna(0)
```

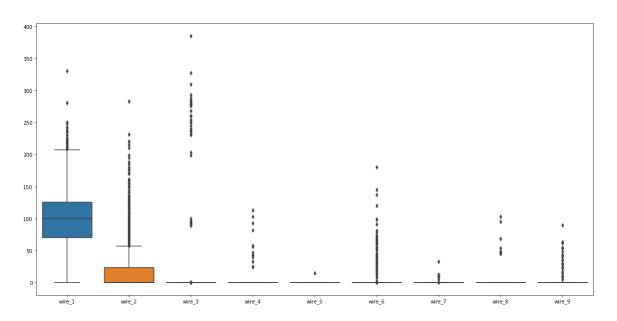
In [191]:

```
print("Диаграмма размаха по проволочным материалам (объём)")
plt.figure(figsize=(20,10))
sns.boxplot(data=data_wire[['wire_1','wire_2','wire_3','wire_4','wire_5','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_6','wire_
 _7',\
                                                                                                                                                                                                                                                                                           'wire_8','wire_9']])
```

Диаграмма размаха по проволочным материалам (объём)

Out[191]:

<matplotlib.axes._subplots.AxesSubplot at 0x7fcfb7dd4b50>



In [192]:

```
#уберем выбросы
data_wire = data_wire.query('wire_1<220 & wire_2<70')</pre>
```

In [193]:

#посчитаем суммарный объем проволоки

In [194]:

```
data_wire['wire_sum']=data_wire['wire_1']+data_wire['wire_2']+data_wire['wire_3']+data_
wire['wire_4']+data_wire['wire_5']+\
                      data_wire['wire_6']+data_wire['wire_7']+data_wire['wire_8']+ data
_wire['wire_9']
```

Данные о проволочных материалах (время)

```
In [195]:
```

data_wire_time = load_df('/datasets/final_steel/data_wire_time.csv')

<class 'pandas.core.frame.DataFrame'> RangeIndex: 3081 entries, 0 to 3080 Data columns (total 10 columns): key 3081 non-null int64 Wire 1 3055 non-null int64
Wire 2 1079 non-null object
Wire 3 63 non-null object
Wire 4 14 non-null object
Wire 5 1 non-null object
Wire 6 73 non-null object
Wire 7 11 non-null object
Wire 8 19 non-null object
Wire 9 29 non-null object
dtwpos: int64(1) object(9) dtypes: int64(1), object(9) memory usage: 240.8+ KB None

	key	Wire 1	Wire 2	Wire 3 Wir
e 4		Vire 7 Wire 8 Wire		
0	1 2019-05-03	3 11:11:41	NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
1	2 2019-05-03	3 11:46:10	NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
2			NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
3	4 2019-05-03	3 12:48:05	NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
4	5 2019-05-03	3 13:18:15 2019-05	-03 13:32:06	NaN
NaN	NaN NaN	NaN NaN Na	V	
5	6 2019-05-03	3 13:59:02 2019-05	-03 13:59:54	NaN
NaN	NaN NaN	NaN NaN Na	V	
6	7 2019-05-03	3 14:28:46	NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
7	8 2019-05-03	3 15:03:42	NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
8	9 2019-05-03	3 15:42:43 2019-05	-03 15:58:12	NaN
NaN	NaN NaN	NaN NaN Na	V	
9	10 2019-05-03	3 16:20:25 2019-05	-03 16:21:02	NaN
NaN	NaN NaN	NaN NaN Na	V	
10	11 2019-05-03		NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
11	12 2019-05-03	3 17:51:14	NaN	NaN
NaN	NaN NaN	NaN NaN Na	V	
12	13 2019-05-03	8 18:52:04 2019-05	-03 18:52:34	NaN
NaN	NaN NaN	NaN NaN Na	V	
13	14 2019-05-03	3 20:12:21 2019-05	-03 20:13:16	NaN
NaN	NaN NaN	NaN NaN Na	V	
14	15 2019-05-03	3 21:07:40 2019-05	-03 21:15:12	NaN
NaN	NaN NaN	NaN NaN Na	V	
15	16 2019-05-03	3 22:17:29 2019-05	-03 22:18:30	NaN
NaN	NaN NaN	NaN NaN Na	V	
16	17 2019-05-03	3 22:52:33 2019-05	-03 23:05:53	NaN
NaN	NaN NaN	NaN NaN Na	V	
17	18 2019-05-03	3 23:35:52 2019-05	-03 23:37:11	NaN
NaN		NaN NaN Na		
18	19 2019-05-04	00:53:30 2019-05	-04 00:54:36	NaN
NaN				
19		01:50:12 2019-05	-04 01:51:13	NaN
NaN	NaN NaN			
20		03:46:19 2019-05	-04 03:48:09	NaN
NaN	NaN NaN	NaN NaN Na	V	

```
22 2019-05-04 04:00:38 2019-05-04 04:31:27 2019-05-04 04:47:53
21
NaN
       NaN
              NaN
                     NaN
                            NaN
                                   NaN
22
     23 2019-05-04 05:18:03 2019-05-04 05:20:43
                                                    2019-05-04 05:40:08
NaN
       NaN
              NaN
                     NaN
                            NaN
                                    NaN
23
     24 2019-05-04 06:10:47 2019-05-04 06:45:47
                                                                     NaN
                            NaN
       NaN
                     NaN
NaN
              NaN
                                   NaN
24
     25 2019-05-04 06:36:11 2019-05-04 06:36:50
                                                                     NaN
NaN
       NaN
                            NaN
              NaN
                     NaN
25
     26 2019-05-04 07:16:17
                                               NaN
                                                                     NaN
       NaN
NaN
              NaN
                     NaN
                            NaN
                                    NaN
     27 2019-05-04 07:55:27 2019-05-04 08:08:58
26
                                                                     NaN
NaN
       NaN
              NaN
                     NaN
                            NaN
                                    NaN
27
     28 2019-05-04 08:35:59
                                               NaN
                                                                     NaN
NaN
       NaN
              NaN
                     NaN
                            NaN
                                    NaN
28
     29 2019-05-04 09:08:09
                                               NaN
                                                                     NaN
NaN
       NaN
              NaN
                     NaN
                            NaN
                                    NaN
29
     30 2019-05-04 09:58:42 2019-05-04 09:59:37
                                                                     NaN
NaN
       NaN
              NaN
                     NaN
                            NaN
                                    NaN
               key
count 3081.000000
mean
       1623.426485
        932,996726
std
min
          1.000000
25%
        823.000000
50%
       1619.000000
75%
       2434.000000
       3241.000000
max
```

In [196]:

```
#изменим названия столбцов
data_wire_time.columns = ['key','wire_1','wire_2','wire_3','wire_4','wire_5','wire_6',
'wire_7',\
                           'wire_8','wire_9']
```

In [197]:

```
#уберем NAN, заменив на пробел
data_wire_time = data_wire_time.fillna('')
```

In [198]:

```
#изменим тип
data_wire_time[['wire_1','wire_2','wire_3','wire_4','wire_5','wire_6','wire_7',\
                          'wire_8','wire_9']] = data_wire_time[['wire_1','wire_2','wire
3','wire 4','wire 5','wire 6','wire 7',\
                          'wire_8','wire_9']].apply(pd.to_datetime)
```

Объединение итоговой таблицы

In [199]:

```
# из данных датасетов будем делать делать датафрейм с признаками
# result_data_arc_1, data_bulk, data_gas, data_wire, temp_1
#result data temp 1 - в данном датафрейме находится наш целевой признак
```

In [200]:

```
full = result data arc 1.merge(data bulk, on='key').merge(data gas, on='key').merge(dat
a_wire, on='key').merge(result_data_temp_1, on='key').merge(temp_1, on='key')#merge(res
ult data temp 1, on='key').merge(result data temp 2, on='key')#.merge(result data temp
3, on='key').merge(result_data_temp_4, on='key').merge(result_data_temp_5, on='key')
```

In [201]:

```
full.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 2433 entries, 0 to 2432
Data columns (total 33 columns):
                  2433 non-null int64
key
                  2433 non-null float64
activ_power
reactiv_power
                  2433 non-null float64
                  2433 non-null float64
apparent power
bulk 1
                  2433 non-null float64
bulk 2
                  2433 non-null float64
bulk_3
                  2433 non-null float64
bulk 4
                  2433 non-null float64
bulk_5
                  2433 non-null float64
bulk 6
                  2433 non-null float64
                  2433 non-null float64
bulk 7
bulk 8
                  2433 non-null float64
                  2433 non-null float64
bulk 9
                  2433 non-null float64
bulk 10
bulk_11
                  2433 non-null float64
bulk 12
                  2433 non-null float64
bulk 13
                  2433 non-null float64
bulk 14
                  2433 non-null float64
                  2433 non-null float64
bulk 15
                  2433 non-null float64
bulk_sum
                  2433 non-null float64
gas_1
                  2433 non-null float64
wire 1
                  2433 non-null float64
wire 2
wire 3
                  2433 non-null float64
wire 4
                  2433 non-null float64
                  2433 non-null float64
wire 5
wire 6
                  2433 non-null float64
wire 7
                  2433 non-null float64
                  2433 non-null float64
wire 8
                  2433 non-null float64
wire 9
wire_sum
                  2433 non-null float64
                  2433 non-null int64
temp_x
                  2433 non-null int64
temp_y
dtypes: float64(30), int64(3)
memory usage: 646.3 KB
```

In [202]:

```
full = full.drop duplicates(keep='first')
```

In [203]:

full

Out[203]:

	key	activ_power	reactiv_power	apparent_power	bulk_1	bulk_2	bulk_3	bulk_4	bu
0	1	0.692755	0.414397	0.807239	0.0	0.0	0.0	43.0	
1	2	0.827743	0.516874	0.975867	0.0	0.0	0.0	73.0	
2	3	0.250280	0.155901	0.294865	0.0	0.0	0.0	34.0	
3	4	1.220955	0.754719	1.435385	0.0	0.0	0.0	81.0	
4	5	0.267457	0.181992	0.323503	0.0	0.0	0.0	78.0	
2428	3237	0.606049	0.419084	0.736835	0.0	0.0	170.0	0.0	
2429	3238	0.717559	0.520623	0.886532	0.0	0.0	126.0	0.0	
2430	3239	0.488352	0.317727	0.582613	0.0	0.0	0.0	0.0	
2431	3240	0.548882	0.416994	0.689315	0.0	0.0	0.0	0.0	
2432	3241	0.306580	0.196708	0.364260	0.0	0.0	0.0	0.0	
2433 rows × 33 columns									
2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3									
<									>

Выбор признаков

In [204]:

```
corr=full.corr() #выделим признаки, которые влияют конечную температуру
print("Значения корреляции цены и факторов")
print( corr['temp_x'])
```

```
Значения корреляции цены и факторов
                -0.139860
key
activ_power
                0.007202
reactiv_power
                -0.013174
apparent_power -0.000917
bulk 1
                -0.015897
bulk_2
                0.022789
bulk_3
bulk_4
                -0.047278
                0.105926
bulk_5
                -0.010571
bulk_6
                -0.118795
bulk 7
                -0.018331
bulk_8
                -0.016341
bulk 9
                -0.035255
bulk 10
                 0.055314
bulk 11
                -0.107891
bulk 12
                0.100407
bulk_13
                -0.000824
bulk_14
                0.033457
bulk 15
                0.108221
bulk_sum
                 0.079655
gas_1
                 0.035761
wire 1
                0.207774
wire_2
                -0.078648
wire_3
wire_4
                0.006654
                -0.084192
wire 5
                0.036892
wire_6
                -0.036054
wire_7
                0.044737
wire 8
               -0.034174
wire_9
               -0.000210
wire_sum
                0.122803
                 1.000000
temp_x
                0.523041
temp y
Name: temp_x, dtype: float64
```

Вывод:

Необходимые библиотеки добавлены, общая информация по датафрейму изучена. Была провена предобработка данных. Изменены типы данных, удалены выбросы. Данные объединины в один датафрейм для удобства дальнешней работы. Проведен анализ корреляции признаков. Все признаки минимально коррелируют с целевым признаком, кроме самой первой температуры, суммарного объема проволоки, объема первого вида проволоки.

Подготовка выборок

https://pythonru.com/uroki/osnovy-pandas-3-vazhnye-metody-formatirovanija-dannyh (https://pythonru.com/uroki/osnovy-pandas-3-vazhnye-metody-formatirovanija-dannyh)

In [205]:

```
#создадим переменные для признаков и целевого признака:
features = full.drop(['key','temp_x'], axis=1) #'wire_3','wire_4','wire_5','wire_6','wi
re_7',\
                           #'wire_8', 'wire_9', 'bulk_1', 'bulk_3', 'bulk_4', 'bulk_6', \
                           #'bulk_10', 'bulk_11', 'bulk_12', 'bulk_14', 'bulk_15'
target= full['temp_x']
```

In [206]:

```
# разделим выборки, на тестовую и обучающую выборку признаков и целев признака
features_train, features_test, target_train, target_test = train_test_split(features, t
arget, test_size=0.3, random_state=12345)
```

In [207]:

```
# #Произведем масштабирование
# numeric = features.columns
# numeric
```

Out[207]:

```
Index(['activ_power', 'reactiv_power', 'apparent_power', 'bulk_1', 'bulk_
2', 'bulk_3', 'bulk_4', 'bulk_5', 'bulk_6', 'bulk_7', 'bulk_8', 'bulk_9',
'bulk_10', 'bulk_11', 'bulk_12', 'bulk_13', 'bulk_14', 'bulk_15', 'bulk_su
m', 'gas_1', 'wire_1', 'wire_2', 'wire_3', 'wire_4', 'wire_5', 'wire_6', 'wire_7', 'wire_8', 'wire_9', 'wire_sum', 'temp_y'], dtype='object')
```

In [208]:

```
# scaler = StandardScaler()
# scaler.fit(features train[numeric])
# features_train[numeric] = scaler.transform(features_train[numeric])
# features_test[numeric] = scaler.transform(features_test[numeric])
```

Без масштабирования значение МАЕ меньше, поэтому было решено в данном проекте масштабирование не использовать.

Обучение моделей и подбор гиперпараметров

In [209]:

```
#обучим модель линейной регрессии
model_LR = LinearRegression().fit(features_train, target_train)
predict_LR = model_LR.predict(features_train)
mae_LR = mean_absolute_error(target_train, predict_LR)
mae_LR
```

Out[209]:

9.51563010331799

In [211]:

```
#подберем гиперпараметры для модели Catboost
model = CatBoostRegressor()
parameters = {'depth'
                               : [3, 5, 8],
                   'learning_rate' : [0.03, 0.1]
#,'iterations' : [30, 100]
                  }
grid = GridSearchCV(estimator=model, scoring= 'neg_mean_absolute_error', param_grid = p
arameters, cv = 2)
gs_results_CB = grid.fit(features_train, target_train)
print("BEST PARAMETERS: " + str(gs_results_CB.best_params_))
```

```
learn: 14.7006972
                                  total: 937us
0:
                                                   remaining: 937ms
1:
        learn: 14.6060888
                                  total: 2.53ms
                                                   remaining: 1.26s
        learn: 14.5024509
2:
                                  total: 3.81ms
                                                   remaining: 1.27s
3:
        learn: 14.4055849
                                  total: 4.73ms
                                                   remaining: 1.18s
4:
        learn: 14.3178006
                                                   remaining: 1.12s
                                  total: 5.63ms
5:
        learn: 14.2255952
                                  total: 6.97ms
                                                   remaining: 1.15s
        learn: 14.1430158
                                  total: 7.92ms
6:
                                                   remaining: 1.12s
                                  total: 8.85ms
                                                   remaining: 1.1s
7:
        learn: 14.0544926
8:
        learn: 13.9694446
                                  total: 9.92ms
                                                   remaining: 1.09s
9:
        learn: 13.8972548
                                  total: 11.3ms
                                                   remaining: 1.12s
10:
        learn: 13.8265174
                                  total: 12.1ms
                                                   remaining: 1.09s
        learn: 13.7579774
                                                   remaining: 1.07s
11:
                                  total: 13ms
        learn: 13.6885932
                                                   remaining: 1.14s
12:
                                  total: 15ms
        learn: 13.6133885
                                  total: 16.1ms
13:
                                                   remaining: 1.14s
14:
        learn: 13.5519911
                                  total: 17.7ms
                                                   remaining: 1.16s
        learn: 13.4861897
                                                   remaining: 1.14s
15:
                                  total: 18.6ms
16:
        learn: 13.4165570
                                  total: 19.9ms
                                                   remaining: 1.15s
        learn: 13.3522947
                                  total: 21ms
17:
                                                   remaining: 1.15s
18:
        learn: 13.3004599
                                  total: 22.2ms
                                                   remaining: 1.14s
19:
        learn: 13.2582780
                                  total: 23.2ms
                                                   remaining: 1.14s
20:
        learn: 13.2124567
                                  total: 24.8ms
                                                   remaining: 1.16s
21:
        learn: 13.1552053
                                  total: 26.4ms
                                                   remaining: 1.17s
22:
        learn: 13.1083710
                                  total: 102ms
                                                   remaining: 4.32s
23:
        learn: 13.0655819
                                  total: 103ms
                                                   remaining: 4.19s
24:
        learn: 13.0166362
                                  total: 104ms
                                                   remaining: 4.06s
25:
        learn: 12.9784511
                                  total: 105ms
                                                   remaining: 3.93s
        learn: 12.9404653
                                  total: 106ms
                                                   remaining: 3.81s
26:
27:
        learn: 12.8866552
                                  total: 106ms
                                                   remaining: 3.7s
28:
        learn: 12.8363840
                                  total: 107ms
                                                   remaining: 3.59s
29:
        learn: 12.7977056
                                  total: 108ms
                                                   remaining: 3.49s
30:
        learn: 12.7655304
                                  total: 109ms
                                                   remaining: 3.4s
                                                   remaining: 3.31s
31:
        learn: 12.7288528
                                  total: 109ms
32:
        learn: 12.6921350
                                  total: 110ms
                                                   remaining: 3.23s
33:
        learn: 12.6587283
                                  total: 112ms
                                                   remaining: 3.17s
34:
        learn: 12.6300461
                                  total: 112ms
                                                   remaining: 3.1s
        learn: 12.5945597
                                  total: 113ms
35:
                                                   remaining: 3.03s
        learn: 12.5679714
                                  total: 114ms
36:
                                                   remaining: 2.96s
                                                   remaining: 2.9s
37:
        learn: 12.5325037
                                  total: 114ms
38:
        learn: 12.5055873
                                  total: 115ms
                                                   remaining: 2.84s
        learn: 12.4657209
39:
                                  total: 116ms
                                                   remaining: 2.78s
40:
        learn: 12.4527839
                                  total: 196ms
                                                   remaining: 4.58s
41:
        learn: 12.4404914
                                  total: 197ms
                                                   remaining: 4.49s
42:
        learn: 12.4149460
                                  total: 198ms
                                                   remaining: 4.39s
43:
        learn: 12.3897645
                                  total: 198ms
                                                   remaining: 4.31s
44:
        learn: 12.3602357
                                  total: 199ms
                                                   remaining: 4.23s
45:
        learn: 12.3326749
                                  total: 202ms
                                                   remaining: 4.18s
46:
        learn: 12.3073467
                                  total: 202ms
                                                   remaining: 4.1s
        learn: 12.2819011
47:
                                  total: 203ms
                                                   remaining: 4.03s
48:
        learn: 12.2602567
                                                   remaining: 3.95s
                                  total: 204ms
49:
        learn: 12.2407400
                                  total: 204ms
                                                   remaining: 3.88s
50:
        learn: 12.2183853
                                  total: 205ms
                                                   remaining: 3.81s
                                                   remaining: 3.75s
51:
        learn: 12.1977087
                                  total: 206ms
52:
        learn: 12.1777061
                                  total: 206ms
                                                   remaining: 3.69s
53:
        learn: 12.1547833
                                  total: 207ms
                                                   remaining: 3.63s
54:
        learn: 12.1367897
                                  total: 208ms
                                                   remaining: 3.57s
55:
        learn: 12.1169665
                                  total: 208ms
                                                   remaining: 3.51s
        learn: 12.0950801
                                  total: 209ms
                                                   remaining: 3.46s
56:
57:
        learn: 12.0717090
                                  total: 215ms
                                                   remaining: 3.5s
58:
        learn: 12.0608620
                                  total: 289ms
                                                   remaining: 4.6s
59:
        learn: 12.0438908
                                                   remaining: 4.54s
                                  total: 290ms
60:
        learn: 12.0287477
                                  total: 291ms
                                                   remaining: 4.47s
```

```
learn: 12.0099597
61:
                                  total: 291ms
                                                   remaining: 4.41s
62:
        learn: 11.9923847
                                  total: 292ms
                                                   remaining: 4.34s
        learn: 11.9741348
                                  total: 293ms
63:
                                                   remaining: 4.28s
64:
        learn: 11.9621535
                                  total: 293ms
                                                   remaining: 4.22s
65:
        learn: 11.9498687
                                  total: 294ms
                                                   remaining: 4.16s
        learn: 11.9334500
                                  total: 295ms
                                                   remaining: 4.1s
66:
67:
        learn: 11.9144133
                                  total: 296ms
                                                   remaining: 4.05s
        learn: 11.8992777
                                                   remaining: 4s
68:
                                  total: 297ms
        learn: 11.8825926
                                  total: 298ms
                                                   remaining: 3.95s
69:
70:
        learn: 11.8636067
                                  total: 299ms
                                                   remaining: 3.91s
                                  total: 300ms
71:
        learn: 11.8458802
                                                   remaining: 3.87s
72:
        learn: 11.8345179
                                  total: 301ms
                                                   remaining: 3.82s
73:
        learn: 11.8230144
                                  total: 302ms
                                                   remaining: 3.78s
74:
        learn: 11.8005745
                                  total: 304ms
                                                   remaining: 3.74s
75:
        learn: 11.7868518
                                  total: 309ms
                                                   remaining: 3.75s
76:
        learn: 11.7715127
                                  total: 383ms
                                                   remaining: 4.58s
                                                   remaining: 4.53s
77:
        learn: 11.7607538
                                  total: 383ms
78:
        learn: 11.7509042
                                  total: 384ms
                                                   remaining: 4.48s
79:
        learn: 11.7340518
                                  total: 385ms
                                                   remaining: 4.43s
80:
        learn: 11.7175611
                                  total: 386ms
                                                   remaining: 4.38s
81:
        learn: 11.7022530
                                  total: 388ms
                                                   remaining: 4.34s
82:
        learn: 11.6921087
                                  total: 389ms
                                                   remaining: 4.29s
83:
        learn: 11.6870196
                                  total: 390ms
                                                   remaining: 4.25s
84:
        learn: 11.6708210
                                  total: 391ms
                                                   remaining: 4.21s
                                  total: 392ms
                                                   remaining: 4.17s
85:
        learn: 11.6583664
86:
        learn: 11.6467814
                                  total: 394ms
                                                   remaining: 4.13s
87:
        learn: 11.6444764
                                  total: 395ms
                                                   remaining: 4.09s
88:
        learn: 11.6341522
                                  total: 396ms
                                                   remaining: 4.05s
        learn: 11.6178841
89:
                                  total: 397ms
                                                   remaining: 4.01s
90:
        learn: 11.6081286
                                  total: 398ms
                                                   remaining: 3.98s
91:
        learn: 11.6021223
                                  total: 477ms
                                                   remaining: 4.7s
        learn: 11.5899540
                                  total: 477ms
92:
                                                   remaining: 4.66s
93:
        learn: 11.5776207
                                  total: 478ms
                                                   remaining: 4.61s
94:
                                  total: 479ms
        learn: 11.5652698
                                                   remaining: 4.56s
95:
                                  total: 480ms
        learn: 11.5557144
                                                   remaining: 4.52s
                                  total: 481ms
96:
        learn: 11.5487966
                                                   remaining: 4.48s
97:
        learn: 11.5378747
                                  total: 482ms
                                                   remaining: 4.43s
98:
        learn: 11.5245314
                                  total: 483ms
                                                   remaining: 4.39s
99:
        learn: 11.5128383
                                  total: 484ms
                                                   remaining: 4.35s
100:
        learn: 11.5034038
                                  total: 484ms
                                                   remaining: 4.31s
        learn: 11.4977344
                                  total: 485ms
                                                   remaining: 4.27s
101:
102:
        learn: 11.4866931
                                  total: 486ms
                                                   remaining: 4.23s
        learn: 11.4697869
                                  total: 487ms
103:
                                                   remaining: 4.19s
        learn: 11.4597295
104:
                                  total: 487ms
                                                   remaining: 4.16s
105:
        learn: 11.4506098
                                                   remaining: 4.12s
                                  total: 488ms
106:
        learn: 11.4423565
                                  total: 489ms
                                                   remaining: 4.08s
107:
        learn: 11.4292231
                                  total: 490ms
                                                   remaining: 4.04s
                                                   remaining: 4.01s
108:
        learn: 11.4228464
                                  total: 490ms
109:
        learn: 11.4144258
                                  total: 569ms
                                                   remaining: 4.61s
110:
        learn: 11.4092665
                                  total: 570ms
                                                   remaining: 4.57s
111:
        learn: 11.4012139
                                  total: 571ms
                                                   remaining: 4.53s
112:
        learn: 11.3951291
                                  total: 572ms
                                                   remaining: 4.49s
113:
        learn: 11.3844958
                                  total: 573ms
                                                   remaining: 4.45s
114:
        learn: 11.3776786
                                  total: 575ms
                                                   remaining: 4.43s
        learn: 11.3596113
115:
                                  total: 576ms
                                                   remaining: 4.39s
116:
        learn: 11.3532828
                                                   remaining: 4.35s
                                  total: 577ms
117:
        learn: 11.3476113
                                  total: 578ms
                                                   remaining: 4.32s
        learn: 11.3392480
                                  total: 578ms
118:
                                                   remaining: 4.28s
119:
        learn: 11.3325109
                                  total: 579ms
                                                   remaining: 4.25s
120:
        learn: 11.3234844
                                  total: 580ms
                                                   remaining: 4.22s
        learn: 11.3156513
121:
                                  total: 582ms
                                                   remaining: 4.19s
```

```
learn: 11.3086242
122:
                                  total: 583ms
                                                   remaining: 4.16s
123:
        learn: 11.3009325
                                  total: 584ms
                                                   remaining: 4.13s
        learn: 11.2966041
                                  total: 585ms
124:
                                                   remaining: 4.1s
125:
        learn: 11.2916363
                                  total: 587ms
                                                   remaining: 4.07s
126:
        learn: 11.2838755
                                  total: 663ms
                                                   remaining: 4.56s
127:
        learn: 11.2736667
                                  total: 664ms
                                                   remaining: 4.52s
128:
        learn: 11.2647634
                                  total: 664ms
                                                   remaining: 4.49s
129:
        learn: 11.2556457
                                                   remaining: 4.45s
                                  total: 665ms
        learn: 11.2511391
                                  total: 666ms
                                                   remaining: 4.42s
130:
        learn: 11.2446695
                                  total: 667ms
131:
                                                   remaining: 4.38s
132:
        learn: 11.2360923
                                  total: 667ms
                                                   remaining: 4.35s
        learn: 11.2276957
                                                   remaining: 4.32s
133:
                                  total: 668ms
134:
        learn: 11.2225810
                                  total: 669ms
                                                   remaining: 4.29s
        learn: 11.2125196
                                  total: 670ms
135:
                                                   remaining: 4.25s
136:
        learn: 11.2062090
                                  total: 670ms
                                                   remaining: 4.22s
137:
        learn: 11.2006179
                                  total: 671ms
                                                   remaining: 4.19s
                                  total: 672ms
138:
        learn: 11.1896846
                                                   remaining: 4.16s
139:
        learn: 11.1782659
                                  total: 673ms
                                                   remaining: 4.13s
140:
        learn: 11.1702693
                                  total: 673ms
                                                   remaining: 4.1s
141:
        learn: 11.1624114
                                  total: 674ms
                                                   remaining: 4.07s
142:
        learn: 11.1563373
                                  total: 675ms
                                                   remaining: 4.04s
143:
        learn: 11.1479233
                                  total: 757ms
                                                   remaining: 4.5s
144:
        learn: 11.1423688
                                                   remaining: 4.47s
                                  total: 758ms
145:
        learn: 11.1383500
                                  total: 758ms
                                                   remaining: 4.44s
                                  total: 759ms
        learn: 11.1308196
146:
                                                   remaining: 4.41s
147:
        learn: 11.1262492
                                  total: 760ms
                                                   remaining: 4.38s
148:
        learn: 11.1179219
                                  total: 761ms
                                                   remaining: 4.34s
149:
        learn: 11.1128140
                                  total: 762ms
                                                   remaining: 4.32s
                                  total: 764ms
150:
        learn: 11.1060705
                                                   remaining: 4.3s
        learn: 11.0994004
151:
                                  total: 765ms
                                                   remaining: 4.27s
152:
        learn: 11.0862111
                                  total: 766ms
                                                   remaining: 4.24s
        learn: 11.0822544
153:
                                  total: 767ms
                                                   remaining: 4.21s
154:
        learn: 11.0775126
                                  total: 768ms
                                                   remaining: 4.18s
        learn: 11.0748004
                                                   remaining: 4.16s
155:
                                  total: 768ms
        learn: 11.0681498
156:
                                  total: 769ms
                                                   remaining: 4.13s
                                  total: 770ms
157:
        learn: 11.0619321
                                                   remaining: 4.1s
158:
        learn: 11.0561693
                                  total: 771ms
                                                   remaining: 4.08s
159:
        learn: 11.0496191
                                  total: 771ms
                                                   remaining: 4.05s
160:
        learn: 11.0412188
                                  total: 853ms
                                                   remaining: 4.44s
161:
        learn: 11.0366328
                                  total: 854ms
                                                   remaining: 4.42s
        learn: 11.0335235
                                  total: 855ms
                                                   remaining: 4.39s
162:
        learn: 11.0263416
163:
                                  total: 855ms
                                                   remaining: 4.36s
        learn: 11.0145323
                                  total: 856ms
164:
                                                   remaining: 4.33s
        learn: 11.0086512
165:
                                  total: 857ms
                                                   remaining: 4.3s
        learn: 11.0036433
                                                   remaining: 4.28s
166:
                                  total: 858ms
167:
        learn: 10.9988986
                                  total: 859ms
                                                   remaining: 4.25s
        learn: 10.9930395
                                  total: 859ms
168:
                                                   remaining: 4.22s
169:
                                                   remaining: 4.2s
        learn: 10.9891809
                                  total: 860ms
170:
        learn: 10.9857135
                                  total: 861ms
                                                   remaining: 4.17s
                                  total: 861ms
171:
        learn: 10.9794249
                                                   remaining: 4.14s
172:
        learn: 10.9722814
                                  total: 862ms
                                                   remaining: 4.12s
173:
        learn: 10.9689741
                                                   remaining: 4.1s
                                  total: 863ms
174:
        learn: 10.9637170
                                                   remaining: 4.07s
                                  total: 864ms
175:
        learn: 10.9562789
                                  total: 864ms
                                                   remaining: 4.05s
        learn: 10.9510103
176:
                                  total: 865ms
                                                   remaining: 4.02s
        learn: 10.9443861
                                                   remaining: 4.33s
177:
                                  total: 937ms
178:
        learn: 10.9315624
                                  total: 937ms
                                                   remaining: 4.3s
179:
        learn: 10.9197083
                                  total: 938ms
                                                   remaining: 4.27s
180:
        learn: 10.9117267
                                  total: 939ms
                                                   remaining: 4.25s
181:
        learn: 10.9061573
                                  total: 940ms
                                                   remaining: 4.22s
        learn: 10.8979228
182:
                                  total: 940ms
                                                   remaining: 4.2s
```

```
learn: 10.8906256
183:
                                  total: 941ms
                                                   remaining: 4.17s
184:
        learn: 10.8816475
                                  total: 942ms
                                                   remaining: 4.15s
                                  total: 943ms
185:
        learn: 10.8777414
                                                   remaining: 4.13s
186:
        learn: 10.8683310
                                  total: 944ms
                                                   remaining: 4.1s
187:
        learn: 10.8632275
                                  total: 945ms
                                                   remaining: 4.08s
        learn: 10.8555788
                                  total: 946ms
188:
                                                   remaining: 4.06s
189:
        learn: 10.8545432
                                  total: 947ms
                                                   remaining: 4.04s
190:
        learn: 10.8466132
                                                   remaining: 4.01s
                                  total: 947ms
        learn: 10.8439320
                                  total: 948ms
                                                   remaining: 3.99s
191:
        learn: 10.8365040
                                  total: 949ms
192:
                                                   remaining: 3.97s
                                  total: 950ms
193:
        learn: 10.8338624
                                                   remaining: 3.95s
194:
        learn: 10.8289039
                                                   remaining: 3.92s
                                  total: 951ms
195:
        learn: 10.8220657
                                  total: 1.03s
                                                   remaining: 4.22s
        learn: 10.8175915
196:
                                  total: 1.03s
                                                   remaining: 4.2s
197:
        learn: 10.8092331
                                  total: 1.03s
                                                   remaining: 4.17s
198:
        learn: 10.8023670
                                  total: 1.03s
                                                   remaining: 4.15s
                                                   remaining: 4.13s
199:
        learn: 10.7982981
                                  total: 1.03s
200:
        learn: 10.7938052
                                  total: 1.03s
                                                   remaining: 4.1s
                                  total: 1.03s
201:
        learn: 10.7862337
                                                   remaining: 4.08s
202:
        learn: 10.7812921
                                                   remaining: 4.06s
                                  total: 1.03s
        learn: 10.7767205
                                  total: 1.03s
203:
                                                   remaining: 4.04s
204:
        learn: 10.7687459
                                  total: 1.03s
                                                   remaining: 4.01s
205:
        learn: 10.7613844
                                  total: 1.03s
                                                   remaining: 3.99s
206:
        learn: 10.7585530
                                  total: 1.04s
                                                   remaining: 3.97s
                                                   remaining: 3.95s
207:
        learn: 10.7534803
                                  total: 1.04s
208:
        learn: 10.7489109
                                  total: 1.04s
                                                   remaining: 3.93s
209:
        learn: 10.7440493
                                  total: 1.04s
                                                   remaining: 3.91s
210:
        learn: 10.7378833
                                  total: 1.04s
                                                   remaining: 3.89s
211:
        learn: 10.7332594
                                  total: 1.04s
                                                   remaining: 3.87s
212:
        learn: 10.7294601
                                  total: 1.11s
                                                   remaining: 4.12s
213:
        learn: 10.7261077
                                  total: 1.11s
                                                   remaining: 4.09s
214:
        learn: 10.7205159
                                  total: 1.11s
                                                   remaining: 4.07s
215:
        learn: 10.7137199
                                  total: 1.12s
                                                   remaining: 4.05s
216:
        learn: 10.7061982
                                  total: 1.12s
                                                   remaining: 4.03s
217:
        learn: 10.7017015
                                  total: 1.12s
                                                   remaining: 4.01s
                                                   remaining: 3.99s
218:
        learn: 10.6934030
                                  total: 1.12s
219:
        learn: 10.6896013
                                  total: 1.12s
                                                   remaining: 3.97s
220:
        learn: 10.6864907
                                  total: 1.12s
                                                   remaining: 3.95s
221:
        learn: 10.6815947
                                  total: 1.12s
                                                   remaining: 3.93s
222:
        learn: 10.6769018
                                  total: 1.12s
                                                   remaining: 3.91s
223:
        learn: 10.6688480
                                                   remaining: 3.89s
                                  total: 1.12s
224:
        learn: 10.6662163
                                  total: 1.12s
                                                   remaining: 3.87s
        learn: 10.6622125
225:
                                  total: 1.12s
                                                   remaining: 3.85s
        learn: 10.6582255
226:
                                  total: 1.13s
                                                   remaining: 3.85s
                                                   remaining: 3.83s
227:
        learn: 10.6532178
                                  total: 1.13s
228:
        learn: 10.6483237
                                  total: 1.13s
                                                   remaining: 3.81s
229:
        learn: 10.6452254
                                  total: 1.21s
                                                   remaining: 4.04s
                                                   remaining: 4.02s
230:
        learn: 10.6419002
                                  total: 1.21s
231:
        learn: 10.6338712
                                  total: 1.21s
                                                   remaining: 4s
232:
        learn: 10.6299063
                                  total: 1.21s
                                                   remaining: 3.98s
233:
        learn: 10.6281325
                                  total: 1.21s
                                                   remaining: 3.96s
234:
        learn: 10.6207890
                                                   remaining: 3.94s
                                  total: 1.21s
235:
        learn: 10.6072099
                                                   remaining: 3.92s
                                  total: 1.21s
        learn: 10.6050294
236:
                                  total: 1.21s
                                                   remaining: 3.9s
        learn: 10.6016501
237:
                                  total: 1.21s
                                                   remaining: 3.88s
238:
        learn: 10.5966970
                                                   remaining: 3.87s
                                  total: 1.21s
239:
        learn: 10.5935685
                                  total: 1.21s
                                                   remaining: 3.85s
240:
        learn: 10.5891972
                                  total: 1.22s
                                                   remaining: 3.83s
241:
        learn: 10.5842131
                                  total: 1.22s
                                                   remaining: 3.81s
242:
        learn: 10.5826322
                                  total: 1.22s
                                                   remaining: 3.79s
        learn: 10.5756380
243:
                                  total: 1.22s
                                                   remaining: 3.77s
```

```
244:
        learn: 10.5716194
                                  total: 1.22s
                                                   remaining: 3.75s
245:
        learn: 10.5676637
                                  total: 1.22s
                                                   remaining: 3.74s
246:
        learn: 10.5639830
                                  total: 1.3s
                                                   remaining: 3.96s
247:
        learn: 10.5571535
                                  total: 1.3s
                                                   remaining: 3.95s
248:
        learn: 10.5495420
                                  total: 1.3s
                                                   remaining: 3.93s
249:
        learn: 10.5442682
                                  total: 1.3s
                                                   remaining: 3.91s
250:
        learn: 10.5419173
                                  total: 1.3s
                                                   remaining: 3.89s
251:
        learn: 10.5354927
                                                   remaining: 3.88s
                                  total: 1.3s
252:
        learn: 10.5322042
                                  total: 1.31s
                                                   remaining: 3.86s
        learn: 10.5233342
                                  total: 1.31s
253:
                                                   remaining: 3.84s
254:
        learn: 10.5166130
                                  total: 1.31s
                                                   remaining: 3.82s
255:
        learn: 10.5068580
                                                   remaining: 3.81s
                                  total: 1.31s
256:
        learn: 10.4992100
                                  total: 1.31s
                                                   remaining: 3.79s
        learn: 10.4957749
257:
                                  total: 1.31s
                                                   remaining: 3.77s
258:
        learn: 10.4893500
                                  total: 1.31s
                                                   remaining: 3.76s
259:
        learn: 10.4809223
                                  total: 1.31s
                                                   remaining: 3.74s
                                                   remaining: 3.73s
260:
        learn: 10.4755241
                                  total: 1.31s
261:
        learn: 10.4729155
                                  total: 1.32s
                                                   remaining: 3.71s
                                  total: 1.39s
262:
        learn: 10.4654762
                                                   remaining: 3.9s
263:
        learn: 10.4537081
                                  total: 1.39s
                                                   remaining: 3.89s
264:
        learn: 10.4475590
                                  total: 1.39s
                                                   remaining: 3.87s
265:
        learn: 10.4445962
                                  total: 1.4s
                                                   remaining: 3.85s
266:
        learn: 10.4417262
                                  total: 1.4s
                                                   remaining: 3.83s
267:
        learn: 10.4382076
                                  total: 1.4s
                                                   remaining: 3.82s
268:
        learn: 10.4295707
                                  total: 1.4s
                                                   remaining: 3.8s
269:
        learn: 10.4268565
                                  total: 1.4s
                                                   remaining: 3.78s
270:
        learn: 10.4186000
                                  total: 1.4s
                                                   remaining: 3.76s
271:
        learn: 10.4126871
                                  total: 1.4s
                                                   remaining: 3.75s
272:
        learn: 10.4063951
                                  total: 1.4s
                                                   remaining: 3.73s
        learn: 10.3990289
273:
                                  total: 1.4s
                                                   remaining: 3.71s
274:
        learn: 10.3919656
                                  total: 1.4s
                                                   remaining: 3.7s
                                  total: 1.4s
275:
        learn: 10.3886467
                                                   remaining: 3.68s
276:
        learn: 10.3830750
                                  total: 1.4s
                                                   remaining: 3.66s
277:
        learn: 10.3804266
                                  total: 1.4s
                                                   remaining: 3.65s
278:
        learn: 10.3771508
                                  total: 1.41s
                                                   remaining: 3.63s
                                                   remaining: 3.62s
279:
        learn: 10.3709735
                                  total: 1.41s
280:
        learn: 10.3684514
                                  total: 1.41s
                                                   remaining: 3.6s
281:
        learn: 10.3602968
                                  total: 1.48s
                                                   remaining: 3.78s
282:
        learn: 10.3582299
                                  total: 1.49s
                                                   remaining: 3.77s
283:
        learn: 10.3435833
                                  total: 1.49s
                                                   remaining: 3.75s
284:
        learn: 10.3379930
                                  total: 1.49s
                                                   remaining: 3.73s
285:
        learn: 10.3321903
                                  total: 1.49s
                                                   remaining: 3.71s
        learn: 10.3254535
                                  total: 1.49s
286:
                                                   remaining: 3.7s
        learn: 10.3181688
287:
                                  total: 1.49s
                                                   remaining: 3.68s
288:
        learn: 10.3139317
                                                   remaining: 3.67s
                                  total: 1.49s
289:
        learn: 10.3094288
                                  total: 1.49s
                                                   remaining: 3.65s
290:
        learn: 10.3073593
                                  total: 1.49s
                                                   remaining: 3.63s
                                  total: 1.49s
291:
        learn: 10.3047576
                                                   remaining: 3.62s
292:
        learn: 10.2991427
                                  total: 1.49s
                                                   remaining: 3.6s
293:
        learn: 10.2971238
                                  total: 1.49s
                                                   remaining: 3.59s
294:
        learn: 10.2909748
                                  total: 1.49s
                                                   remaining: 3.57s
295:
        learn: 10.2857918
                                  total: 1.5s
                                                   remaining: 3.56s
296:
        learn: 10.2823736
                                                   remaining: 3.55s
                                  total: 1.5s
297:
        learn: 10.2784494
                                  total: 1.5s
                                                   remaining: 3.53s
        learn: 10.2701133
298:
                                  total: 1.58s
                                                   remaining: 3.7s
299:
        learn: 10.2637306
                                                   remaining: 3.68s
                                  total: 1.58s
300:
        learn: 10.2567960
                                  total: 1.58s
                                                   remaining: 3.67s
301:
        learn: 10.2496597
                                  total: 1.58s
                                                   remaining: 3.65s
302:
        learn: 10.2426886
                                  total: 1.58s
                                                   remaining: 3.64s
303:
        learn: 10.2385307
                                  total: 1.58s
                                                   remaining: 3.62s
304:
        learn: 10.2341133
                                  total: 1.58s
                                                   remaining: 3.6s
```

```
305:
        learn: 10.2293260
                                 total: 1.58s
                                                   remaining: 3.59s
306:
        learn: 10.2270624
                                 total: 1.58s
                                                   remaining: 3.57s
307:
        learn: 10.2192276
                                 total: 1.58s
                                                   remaining: 3.56s
308:
        learn: 10.2137896
                                 total: 1.58s
                                                   remaining: 3.54s
309:
        learn: 10.2042226
                                 total: 1.58s
                                                   remaining: 3.53s
        learn: 10.2001917
                                 total: 1.59s
310:
                                                   remaining: 3.51s
311:
        learn: 10.1920460
                                 total: 1.59s
                                                   remaining: 3.5s
312:
        learn: 10.1901601
                                                   remaining: 3.48s
                                 total: 1.59s
313:
        learn: 10.1816430
                                 total: 1.59s
                                                   remaining: 3.47s
314:
        learn: 10.1765051
                                 total: 1.59s
                                                   remaining: 3.46s
315:
        learn: 10.1713490
                                 total: 1.67s
                                                   remaining: 3.62s
316:
        learn: 10.1613714
                                                   remaining: 3.6s
                                 total: 1.67s
317:
        learn: 10.1560223
                                 total: 1.67s
                                                   remaining: 3.59s
        learn: 10.1483165
                                 total: 1.67s
318:
                                                   remaining: 3.57s
319:
        learn: 10.1405004
                                 total: 1.67s
                                                   remaining: 3.56s
320:
        learn: 10.1350304
                                 total: 1.68s
                                                   remaining: 3.54s
321:
        learn: 10.1294673
                                 total: 1.68s
                                                   remaining: 3.53s
322:
        learn: 10.1273880
                                 total: 1.68s
                                                   remaining: 3.51s
323:
                                 total: 1.68s
        learn: 10.1227362
                                                   remaining: 3.5s
324:
        learn: 10.1119252
                                 total: 1.68s
                                                   remaining: 3.48s
325:
        learn: 10.1073686
                                 total: 1.68s
                                                   remaining: 3.47s
326:
        learn: 10.1012492
                                 total: 1.68s
                                                   remaining: 3.46s
327:
        learn: 10.0987256
                                 total: 1.68s
                                                   remaining: 3.44s
328:
        learn: 10.0952549
                                 total: 1.68s
                                                   remaining: 3.43s
                                                   remaining: 3.42s
329:
        learn: 10.0868381
                                 total: 1.68s
330:
        learn: 10.0818992
                                 total: 1.68s
                                                   remaining: 3.4s
331:
        learn: 10.0792339
                                 total: 1.69s
                                                   remaining: 3.39s
                                                   remaining: 3.53s
332:
        learn: 10.0726924
                                 total: 1.76s
                                 total: 1.76s
333:
        learn: 10.0706481
                                                   remaining: 3.52s
334:
        learn: 10.0659761
                                 total: 1.76s
                                                   remaining: 3.5s
335:
        learn: 10.0614566
                                 total: 1.76s
                                                   remaining: 3.49s
        learn: 10.0585915
                                 total: 1.77s
336:
                                                   remaining: 3.48s
337:
        learn: 10.0545808
                                 total: 1.77s
                                                   remaining: 3.46s
338:
        learn: 10.0493078
                                 total: 1.77s
                                                   remaining: 3.45s
        learn: 10.0431254
339:
                                 total: 1.77s
                                                   remaining: 3.43s
                                 total: 1.77s
                                                   remaining: 3.42s
340:
        learn: 10.0412884
341:
        learn: 10.0289822
                                 total: 1.77s
                                                   remaining: 3.41s
342:
        learn: 10.0246676
                                 total: 1.77s
                                                   remaining: 3.39s
343:
        learn: 10.0185683
                                 total: 1.77s
                                                   remaining: 3.38s
344:
        learn: 10.0145757
                                 total: 1.77s
                                                   remaining: 3.37s
345:
        learn: 10.0075503
                                                   remaining: 3.35s
                                 total: 1.77s
346:
        learn: 10.0056965
                                 total: 1.77s
                                                   remaining: 3.34s
347:
        learn: 10.0000573
                                 total: 1.77s
                                                   remaining: 3.33s
        learn: 9.9981388
348:
                                 total: 1.78s
                                                   remaining: 3.31s
349:
        learn: 9.9946092
                                 total: 1.78s
                                                   remaining: 3.3s
350:
        learn: 9.9920687
                                 total: 1.85s
                                                   remaining: 3.42s
351:
        learn: 9.9872869
                                 total: 1.85s
                                                   remaining: 3.4s
                                                   remaining: 3.39s
352:
        learn: 9.9801869
                                 total: 1.85s
353:
        learn: 9.9724577
                                 total: 1.85s
                                                   remaining: 3.38s
354:
        learn: 9.9712836
                                 total: 1.85s
                                                   remaining: 3.37s
355:
        learn: 9.9675071
                                 total: 1.85s
                                                   remaining: 3.35s
356:
        learn: 9.9661170
                                 total: 1.85s
                                                   remaining: 3.34s
357:
        learn: 9.9624132
                                                   remaining: 3.33s
                                 total: 1.85s
358:
        learn: 9.9606081
                                 total: 1.85s
                                                   remaining: 3.31s
359:
        learn: 9.9539610
                                 total: 1.86s
                                                   remaining: 3.3s
360:
        learn: 9.9492209
                                                   remaining: 3.29s
                                 total: 1.86s
361:
        learn: 9.9457172
                                 total: 1.86s
                                                   remaining: 3.27s
362:
        learn: 9.9435892
                                 total: 1.86s
                                                   remaining: 3.26s
363:
        learn: 9.9419914
                                 total: 1.86s
                                                   remaining: 3.25s
364:
        learn: 9.9402693
                                 total: 1.86s
                                                   remaining: 3.24s
365:
        learn: 9.9353602
                                 total: 1.86s
                                                   remaining: 3.22s
```

```
learn: 9.9342618
366:
                                  total: 1.86s
                                                   remaining: 3.21s
367:
        learn: 9.9280435
                                  total: 1.86s
                                                   remaining: 3.2s
        learn: 9.9255848
                                  total: 1.88s
368:
                                                   remaining: 3.21s
369:
        learn: 9.9165546
                                  total: 1.94s
                                                   remaining: 3.31s
370:
        learn: 9.9115190
                                  total: 1.94s
                                                   remaining: 3.29s
        learn: 9.9055950
                                  total: 1.94s
371:
                                                   remaining: 3.28s
372:
        learn: 9.8990228
                                  total: 1.94s
                                                   remaining: 3.27s
373:
        learn: 9.8945787
                                  total: 1.94s
                                                   remaining: 3.25s
374:
        learn: 9.8856533
                                  total: 1.95s
                                                   remaining: 3.24s
375:
        learn: 9.8797916
                                  total: 1.95s
                                                   remaining: 3.23s
        learn: 9.8766346
376:
                                  total: 1.95s
                                                   remaining: 3.22s
377:
        learn: 9.8753368
                                  total: 1.95s
                                                   remaining: 3.21s
378:
        learn: 9.8724747
                                  total: 1.95s
                                                   remaining: 3.19s
379:
        learn: 9.8659421
                                  total: 1.95s
                                                   remaining: 3.18s
380:
        learn: 9.8646132
                                  total: 1.95s
                                                   remaining: 3.17s
381:
        learn: 9.8585364
                                  total: 1.95s
                                                   remaining: 3.16s
382:
        learn: 9.8527322
                                  total: 1.95s
                                                   remaining: 3.14s
383:
        learn: 9.8480235
                                  total: 1.95s
                                                   remaining: 3.13s
384:
        learn: 9.8395445
                                  total: 1.95s
                                                   remaining: 3.12s
385:
        learn: 9.8321117
                                  total: 1.95s
                                                   remaining: 3.11s
386:
        learn: 9.8284568
                                  total: 2.03s
                                                   remaining: 3.22s
387:
        learn: 9.8247575
                                  total: 2.04s
                                                   remaining: 3.21s
388:
        learn: 9.8163704
                                  total: 2.04s
                                                   remaining: 3.2s
389:
        learn: 9.8143439
                                  total: 2.04s
                                                   remaining: 3.19s
                                                   remaining: 3.17s
390:
        learn: 9.8109082
                                  total: 2.04s
391:
        learn: 9.8072071
                                  total: 2.04s
                                                   remaining: 3.16s
392:
        learn: 9.8046756
                                  total: 2.04s
                                                   remaining: 3.15s
393:
        learn: 9.8021727
                                  total: 2.04s
                                                   remaining: 3.14s
394:
        learn: 9.7978582
                                  total: 2.04s
                                                   remaining: 3.13s
395:
        learn: 9.7968162
                                  total: 2.04s
                                                   remaining: 3.12s
396:
        learn: 9.7930596
                                  total: 2.04s
                                                   remaining: 3.11s
                                  total: 2.05s
397:
        learn: 9.7889510
                                                   remaining: 3.1s
398:
        learn: 9.7832655
                                  total: 2.05s
                                                   remaining: 3.08s
399:
        learn: 9.7791759
                                  total: 2.13s
                                                   remaining: 3.19s
400:
        learn: 9.7738442
                                  total: 2.13s
                                                   remaining: 3.18s
                                  total: 2.13s
                                                   remaining: 3.17s
401:
        learn: 9.7718664
402:
        learn: 9.7658636
                                  total: 2.13s
                                                   remaining: 3.16s
403:
        learn: 9.7574410
                                  total: 2.13s
                                                   remaining: 3.15s
404:
        learn: 9.7540717
                                  total: 2.13s
                                                   remaining: 3.13s
405:
        learn: 9.7512820
                                  total: 2.13s
                                                   remaining: 3.12s
406:
        learn: 9.7494997
                                  total: 2.13s
                                                   remaining: 3.11s
407:
        learn: 9.7439821
                                  total: 2.13s
                                                   remaining: 3.1s
        learn: 9.7402145
                                  total: 2.13s
408:
                                                   remaining: 3.09s
        learn: 9.7371621
409:
                                  total: 2.14s
                                                   remaining: 3.07s
410:
        learn: 9.7362259
                                  total: 2.14s
                                                   remaining: 3.06s
411:
        learn: 9.7345362
                                  total: 2.14s
                                                   remaining: 3.05s
412:
        learn: 9.7300358
                                  total: 2.14s
                                                   remaining: 3.04s
                                  total: 2.14s
                                                   remaining: 3.03s
413:
        learn: 9.7276616
414:
        learn: 9.7241946
                                  total: 2.14s
                                                   remaining: 3.02s
415:
        learn: 9.7232533
                                  total: 2.14s
                                                   remaining: 3s
416:
        learn: 9.7187681
                                  total: 2.14s
                                                   remaining: 2.99s
        learn: 9.7172645
417:
                                  total: 2.14s
                                                   remaining: 2.98s
418:
        learn: 9.7163436
                                  total: 2.22s
                                                   remaining: 3.08s
419:
        learn: 9.7146838
                                  total: 2.22s
                                                   remaining: 3.07s
420:
        learn: 9.7072922
                                  total: 2.22s
                                                   remaining: 3.06s
421:
        learn: 9.7017189
                                  total: 2.22s
                                                   remaining: 3.04s
422:
        learn: 9.6955809
                                  total: 2.22s
                                                   remaining: 3.03s
423:
        learn: 9.6946847
                                  total: 2.22s
                                                   remaining: 3.02s
424:
        learn: 9.6869267
                                  total: 2.23s
                                                   remaining: 3.01s
425:
        learn: 9.6809189
                                  total: 2.23s
                                                   remaining: 3s
426:
        learn: 9.6776000
                                  total: 2.23s
                                                   remaining: 2.99s
```

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427:
        learn: 9.6705654
                                  total: 2.23s
                                                   remaining: 2.98s
428:
        learn: 9.6656194
                                  total: 2.23s
                                                   remaining: 2.96s
429:
        learn: 9.6554869
                                  total: 2.23s
                                                   remaining: 2.95s
430:
        learn: 9.6543953
                                  total: 2.23s
                                                   remaining: 2.94s
431:
        learn: 9.6528596
                                  total: 2.23s
                                                   remaining: 2.93s
432:
        learn: 9.6517911
                                  total: 2.23s
                                                   remaining: 2.92s
433:
        learn: 9.6485698
                                  total: 2.23s
                                                   remaining: 2.91s
434:
        learn: 9.6432087
                                  total: 2.23s
                                                   remaining: 2.9s
435:
        learn: 9.6358840
                                  total: 2.23s
                                                   remaining: 2.89s
436:
        learn: 9.6319982
                                  total: 2.23s
                                                   remaining: 2.88s
        learn: 9.6263559
437:
                                  total: 2.23s
                                                   remaining: 2.87s
438:
        learn: 9.6255057
                                                   remaining: 2.96s
                                  total: 2.31s
439:
        learn: 9.6188242
                                  total: 2.31s
                                                   remaining: 2.94s
440:
        learn: 9.6150392
                                  total: 2.31s
                                                   remaining: 2.94s
441:
        learn: 9.6135724
                                  total: 2.32s
                                                   remaining: 2.92s
442:
        learn: 9.6105077
                                  total: 2.32s
                                                   remaining: 2.91s
443:
        learn: 9.6071802
                                  total: 2.32s
                                                   remaining: 2.9s
444:
        learn: 9.6014447
                                  total: 2.32s
                                                   remaining: 2.89s
445:
        learn: 9.5985998
                                  total: 2.32s
                                                   remaining: 2.88s
446:
        learn: 9.5928490
                                  total: 2.32s
                                                   remaining: 2.87s
447:
        learn: 9.5918382
                                  total: 2.32s
                                                   remaining: 2.86s
448:
        learn: 9.5897500
                                  total: 2.33s
                                                   remaining: 2.85s
449:
        learn: 9.5859821
                                  total: 2.33s
                                                   remaining: 2.84s
450:
        learn: 9.5830096
                                  total: 2.33s
                                                   remaining: 2.83s
                                  total: 2.33s
451:
        learn: 9.5794473
                                                   remaining: 2.82s
452:
        learn: 9.5740082
                                  total: 2.33s
                                                   remaining: 2.81s
453:
        learn: 9.5730293
                                  total: 2.33s
                                                   remaining: 2.8s
454:
        learn: 9.5700699
                                  total: 2.41s
                                                   remaining: 2.88s
455:
        learn: 9.5626840
                                  total: 2.41s
                                                   remaining: 2.87s
456:
        learn: 9.5587769
                                  total: 2.41s
                                                   remaining: 2.86s
457:
        learn: 9.5568145
                                  total: 2.41s
                                                   remaining: 2.85s
                                  total: 2.41s
458:
        learn: 9.5556550
                                                   remaining: 2.84s
459:
        learn: 9.5475197
                                  total: 2.41s
                                                   remaining: 2.83s
460:
        learn: 9.5433957
                                  total: 2.41s
                                                   remaining: 2.82s
461:
        learn: 9.5362465
                                  total: 2.41s
                                                   remaining: 2.81s
                                  total: 2.41s
                                                   remaining: 2.8s
462:
        learn: 9.5287874
463:
        learn: 9.5202113
                                  total: 2.42s
                                                   remaining: 2.79s
464:
        learn: 9.5192741
                                  total: 2.42s
                                                   remaining: 2.78s
465:
        learn: 9.5183821
                                  total: 2.42s
                                                   remaining: 2.77s
466:
        learn: 9.5136362
                                  total: 2.42s
                                                   remaining: 2.76s
467:
        learn: 9.5110915
                                  total: 2.42s
                                                   remaining: 2.75s
        learn: 9.5077090
468:
                                  total: 2.42s
                                                   remaining: 2.74s
        learn: 9.5018824
                                  total: 2.42s
469:
                                                   remaining: 2.73s
        learn: 9.4997946
470:
                                  total: 2.42s
                                                   remaining: 2.72s
471:
        learn: 9.4962309
                                  total: 2.42s
                                                   remaining: 2.71s
472:
        learn: 9.4938169
                                  total: 2.42s
                                                   remaining: 2.7s
473:
        learn: 9.4928086
                                  total: 2.5s
                                                   remaining: 2.77s
                                  total: 2.5s
                                                   remaining: 2.76s
474:
        learn: 9.4911905
475:
        learn: 9.4861148
                                  total: 2.5s
                                                   remaining: 2.75s
476:
        learn: 9.4830952
                                  total: 2.5s
                                                   remaining: 2.74s
477:
        learn: 9.4791432
                                  total: 2.5s
                                                   remaining: 2.73s
478:
        learn: 9.4764155
                                  total: 2.5s
                                                   remaining: 2.72s
479:
        learn: 9.4737936
                                                   remaining: 2.71s
                                  total: 2.5s
480:
        learn: 9.4696830
                                  total: 2.51s
                                                   remaining: 2.7s
481:
        learn: 9.4636677
                                  total: 2.51s
                                                   remaining: 2.69s
482:
        learn: 9.4628087
                                  total: 2.51s
                                                   remaining: 2.68s
483:
        learn: 9.4597281
                                  total: 2.51s
                                                   remaining: 2.67s
484:
        learn: 9.4565731
                                  total: 2.51s
                                                   remaining: 2.66s
                                                   remaining: 2.65s
485:
        learn: 9.4497568
                                  total: 2.51s
486:
        learn: 9.4466736
                                  total: 2.51s
                                                   remaining: 2.64s
487:
        learn: 9.4419157
                                  total: 2.51s
                                                   remaining: 2.63s
```

```
488:
        learn: 9.4410022
                                  total: 2.52s
                                                   remaining: 2.63s
489:
        learn: 9.4340663
                                  total: 2.59s
                                                   remaining: 2.7s
        learn: 9.4316056
                                  total: 2.59s
490:
                                                   remaining: 2.69s
491:
        learn: 9.4307420
                                  total: 2.59s
                                                   remaining: 2.68s
492:
        learn: 9.4280569
                                  total: 2.59s
                                                   remaining: 2.67s
        learn: 9.4239763
                                  total: 2.59s
493:
                                                   remaining: 2.66s
494:
        learn: 9.4225381
                                  total: 2.6s
                                                   remaining: 2.65s
495:
        learn: 9.4203667
                                  total: 2.6s
                                                   remaining: 2.64s
496:
        learn: 9.4194232
                                  total: 2.6s
                                                   remaining: 2.63s
497:
        learn: 9.4116907
                                  total: 2.6s
                                                   remaining: 2.62s
498:
        learn: 9.4082443
                                  total: 2.6s
                                                   remaining: 2.61s
499:
        learn: 9.4020028
                                                   remaining: 2.6s
                                  total: 2.6s
500:
        learn: 9.3993087
                                  total: 2.6s
                                                   remaining: 2.59s
        learn: 9.3945395
                                  total: 2.6s
501:
                                                   remaining: 2.58s
502:
        learn: 9.3908667
                                  total: 2.6s
                                                   remaining: 2.57s
503:
        learn: 9.3866779
                                  total: 2.6s
                                                   remaining: 2.56s
504:
        learn: 9.3857471
                                  total: 2.6s
                                                   remaining: 2.55s
505:
        learn: 9.3822660
                                  total: 2.6s
                                                   remaining: 2.54s
506:
        learn: 9.3790165
                                  total: 2.6s
                                                   remaining: 2.53s
507:
        learn: 9.3729427
                                  total: 2.6s
                                                   remaining: 2.52s
        learn: 9.3703017
                                  total: 2.6s
508:
                                                   remaining: 2.51s
509:
        learn: 9.3659930
                                  total: 2.69s
                                                   remaining: 2.58s
510:
        learn: 9.3615001
                                  total: 2.69s
                                                   remaining: 2.57s
511:
        learn: 9.3586064
                                  total: 2.69s
                                                   remaining: 2.56s
                                  total: 2.69s
512:
        learn: 9.3538398
                                                   remaining: 2.55s
513:
        learn: 9.3532493
                                  total: 2.69s
                                                   remaining: 2.54s
514:
        learn: 9.3468936
                                  total: 2.69s
                                                   remaining: 2.53s
515:
        learn: 9.3461558
                                  total: 2.69s
                                                   remaining: 2.52s
516:
        learn: 9.3413123
                                  total: 2.69s
                                                   remaining: 2.51s
517:
        learn: 9.3343736
                                  total: 2.69s
                                                   remaining: 2.5s
518:
        learn: 9.3293820
                                  total: 2.69s
                                                   remaining: 2.5s
        learn: 9.3246305
                                  total: 2.69s
519:
                                                   remaining: 2.49s
520:
        learn: 9.3219981
                                  total: 2.69s
                                                   remaining: 2.48s
521:
        learn: 9.3188920
                                  total: 2.69s
                                                   remaining: 2.47s
522:
        learn: 9.3134070
                                  total: 2.7s
                                                   remaining: 2.46s
523:
                                  total: 2.7s
                                                   remaining: 2.45s
        learn: 9.3113907
524:
        learn: 9.3072720
                                  total: 2.7s
                                                   remaining: 2.44s
525:
        learn: 9.3037872
                                  total: 2.7s
                                                   remaining: 2.43s
526:
        learn: 9.3018966
                                  total: 2.78s
                                                   remaining: 2.49s
527:
        learn: 9.3011751
                                  total: 2.78s
                                                   remaining: 2.48s
                                  total: 2.78s
528:
        learn: 9.2983376
                                                   remaining: 2.48s
529:
        learn: 9.2947644
                                  total: 2.78s
                                                   remaining: 2.47s
530:
        learn: 9.2890916
                                  total: 2.78s
                                                   remaining: 2.46s
        learn: 9.2882015
                                  total: 2.78s
531:
                                                   remaining: 2.45s
532:
        learn: 9.2849589
                                  total: 2.78s
                                                   remaining: 2.44s
533:
        learn: 9.2819904
                                  total: 2.78s
                                                   remaining: 2.43s
534:
        learn: 9.2776126
                                  total: 2.78s
                                                   remaining: 2.42s
                                                   remaining: 2.41s
535:
        learn: 9.2752247
                                  total: 2.79s
536:
        learn: 9.2728455
                                  total: 2.79s
                                                   remaining: 2.4s
537:
        learn: 9.2697653
                                  total: 2.79s
                                                   remaining: 2.39s
538:
        learn: 9.2688406
                                  total: 2.79s
                                                   remaining: 2.38s
539:
        learn: 9.2666242
                                  total: 2.79s
                                                   remaining: 2.37s
540:
        learn: 9.2614416
                                  total: 2.79s
                                                   remaining: 2.37s
541:
        learn: 9.2575328
                                  total: 2.79s
                                                   remaining: 2.36s
542:
        learn: 9.2553587
                                  total: 2.79s
                                                   remaining: 2.35s
543:
        learn: 9.2531759
                                  total: 2.87s
                                                   remaining: 2.41s
544:
        learn: 9.2518856
                                  total: 2.87s
                                                   remaining: 2.4s
545:
        learn: 9.2513328
                                  total: 2.87s
                                                   remaining: 2.39s
546:
        learn: 9.2490493
                                  total: 2.88s
                                                   remaining: 2.38s
547:
        learn: 9.2447127
                                  total: 2.88s
                                                   remaining: 2.37s
548:
        learn: 9.2425292
                                  total: 2.88s
                                                   remaining: 2.36s
```

```
549:
        learn: 9.2400263
                                  total: 2.88s
                                                   remaining: 2.35s
550:
        learn: 9.2393020
                                  total: 2.88s
                                                   remaining: 2.35s
        learn: 9.2356181
                                  total: 2.88s
551:
                                                   remaining: 2.34s
552:
        learn: 9.2329185
                                  total: 2.88s
                                                   remaining: 2.33s
553:
        learn: 9.2278299
                                  total: 2.88s
                                                   remaining: 2.32s
554:
        learn: 9.2235723
                                  total: 2.88s
                                                   remaining: 2.31s
555:
        learn: 9.2189656
                                  total: 2.88s
                                                   remaining: 2.3s
556:
        learn: 9.2153109
                                  total: 2.88s
                                                   remaining: 2.29s
557:
        learn: 9.2136440
                                  total: 2.88s
                                                   remaining: 2.29s
        learn: 9.2127511
                                  total: 2.89s
558:
                                                   remaining: 2.28s
        learn: 9.2119042
559:
                                  total: 2.89s
                                                   remaining: 2.27s
560:
        learn: 9.2078283
                                  total: 2.96s
                                                   remaining: 2.32s
561:
        learn: 9.2063645
                                  total: 2.97s
                                                   remaining: 2.31s
        learn: 9.2047839
                                  total: 2.97s
562:
                                                   remaining: 2.3s
563:
        learn: 9.2039973
                                  total: 2.97s
                                                   remaining: 2.29s
564:
        learn: 9.2018634
                                  total: 2.97s
                                                   remaining: 2.29s
565:
        learn: 9.1964744
                                  total: 2.97s
                                                   remaining: 2.28s
566:
        learn: 9.1935844
                                  total: 2.97s
                                                   remaining: 2.27s
567:
        learn: 9.1888235
                                  total: 2.97s
                                                   remaining: 2.26s
568:
        learn: 9.1855981
                                  total: 2.97s
                                                   remaining: 2.25s
569:
        learn: 9.1829593
                                  total: 2.97s
                                                   remaining: 2.24s
570:
        learn: 9.1822219
                                  total: 2.97s
                                                   remaining: 2.23s
571:
        learn: 9.1787327
                                  total: 2.97s
                                                   remaining: 2.23s
572:
        learn: 9.1780668
                                  total: 2.97s
                                                   remaining: 2.22s
                                  total: 2.98s
573:
        learn: 9.1754532
                                                   remaining: 2.21s
574:
        learn: 9.1747203
                                  total: 2.98s
                                                   remaining: 2.2s
575:
        learn: 9.1740702
                                  total: 2.98s
                                                   remaining: 2.19s
576:
        learn: 9.1703500
                                  total: 2.98s
                                                   remaining: 2.18s
577:
        learn: 9.1643192
                                  total: 2.98s
                                                   remaining: 2.17s
        learn: 9.1621989
578:
                                  total: 3.06s
                                                   remaining: 2.22s
579:
        learn: 9.1582852
                                  total: 3.06s
                                                   remaining: 2.21s
        learn: 9.1575773
                                  total: 3.06s
580:
                                                   remaining: 2.21s
581:
        learn: 9.1555506
                                  total: 3.06s
                                                   remaining: 2.2s
582:
        learn: 9.1537467
                                  total: 3.06s
                                                   remaining: 2.19s
583:
        learn: 9.1500852
                                  total: 3.06s
                                                   remaining: 2.18s
                                  total: 3.06s
                                                   remaining: 2.17s
584:
        learn: 9.1418076
585:
        learn: 9.1392961
                                  total: 3.06s
                                                   remaining: 2.17s
586:
        learn: 9.1369372
                                  total: 3.07s
                                                   remaining: 2.16s
587:
        learn: 9.1319796
                                  total: 3.07s
                                                   remaining: 2.15s
588:
        learn: 9.1265312
                                  total: 3.07s
                                                   remaining: 2.14s
                                  total: 3.07s
589:
        learn: 9.1245872
                                                   remaining: 2.13s
590:
        learn: 9.1197123
                                  total: 3.07s
                                                   remaining: 2.12s
591:
        learn: 9.1152334
                                  total: 3.07s
                                                   remaining: 2.12s
592:
        learn: 9.1106920
                                  total: 3.07s
                                                   remaining: 2.11s
593:
        learn: 9.1087478
                                  total: 3.07s
                                                   remaining: 2.1s
594:
        learn: 9.1029262
                                  total: 3.07s
                                                   remaining: 2.09s
595:
        learn: 9.0999357
                                  total: 3.07s
                                                   remaining: 2.08s
                                                   remaining: 2.13s
596:
        learn: 9.0947748
                                  total: 3.15s
597:
        learn: 9.0925256
                                  total: 3.15s
                                                   remaining: 2.12s
598:
        learn: 9.0877552
                                  total: 3.15s
                                                   remaining: 2.11s
599:
        learn: 9.0856791
                                  total: 3.15s
                                                   remaining: 2.1s
600:
        learn: 9.0844451
                                  total: 3.15s
                                                   remaining: 2.09s
601:
        learn: 9.0784528
                                  total: 3.16s
                                                   remaining: 2.09s
602:
        learn: 9.0778306
                                  total: 3.16s
                                                   remaining: 2.08s
        learn: 9.0726014
603:
                                  total: 3.16s
                                                   remaining: 2.07s
604:
        learn: 9.0699306
                                                   remaining: 2.06s
                                  total: 3.16s
605:
        learn: 9.0671368
                                  total: 3.16s
                                                   remaining: 2.05s
        learn: 9.0664982
                                  total: 3.16s
606:
                                                   remaining: 2.04s
607:
        learn: 9.0620500
                                  total: 3.16s
                                                   remaining: 2.04s
608:
        learn: 9.0600838
                                  total: 3.16s
                                                   remaining: 2.03s
609:
        learn: 9.0562470
                                  total: 3.16s
                                                   remaining: 2.02s
```

```
learn: 9.0556202
610:
                                  total: 3.16s
                                                   remaining: 2.01s
611:
        learn: 9.0482450
                                  total: 3.16s
                                                   remaining: 2s
        learn: 9.0446668
612:
                                  total: 3.16s
                                                   remaining: 2s
613:
        learn: 9.0438117
                                  total: 3.16s
                                                   remaining: 1.99s
614:
        learn: 9.0424550
                                  total: 3.17s
                                                   remaining: 1.98s
        learn: 9.0419704
615:
                                  total: 3.17s
                                                   remaining: 1.97s
616:
        learn: 9.0407320
                                  total: 3.24s
                                                   remaining: 2.01s
617:
        learn: 9.0400536
                                                   remaining: 2s
                                  total: 3.24s
618:
        learn: 9.0393666
                                  total: 3.25s
                                                   remaining: 2s
619:
        learn: 9.0313688
                                  total: 3.25s
                                                   remaining: 1.99s
        learn: 9.0290134
620:
                                  total: 3.25s
                                                   remaining: 1.98s
621:
        learn: 9.0240509
                                                   remaining: 1.97s
                                  total: 3.25s
622:
        learn: 9.0233753
                                  total: 3.25s
                                                   remaining: 1.97s
623:
        learn: 9.0221712
                                  total: 3.25s
                                                   remaining: 1.96s
624:
        learn: 9.0174332
                                  total: 3.25s
                                                   remaining: 1.95s
625:
        learn: 9.0155523
                                  total: 3.25s
                                                   remaining: 1.94s
626:
        learn: 9.0121532
                                  total: 3.25s
                                                   remaining: 1.94s
627:
        learn: 9.0110455
                                  total: 3.25s
                                                   remaining: 1.93s
628:
        learn: 9.0098377
                                  total: 3.25s
                                                   remaining: 1.92s
629:
        learn: 9.0052911
                                                   remaining: 1.91s
                                  total: 3.25s
630:
        learn: 9.0009383
                                  total: 3.25s
                                                   remaining: 1.9s
631:
        learn: 8.9942406
                                  total: 3.26s
                                                   remaining: 1.9s
632:
        learn: 8.9886332
                                  total: 3.26s
                                                   remaining: 1.89s
633:
        learn: 8.9881692
                                  total: 3.34s
                                                   remaining: 1.93s
634:
        learn: 8.9863046
                                  total: 3.34s
                                                   remaining: 1.92s
635:
        learn: 8.9828376
                                  total: 3.34s
                                                   remaining: 1.91s
636:
        learn: 8.9815219
                                  total: 3.34s
                                                   remaining: 1.9s
637:
        learn: 8.9768622
                                  total: 3.34s
                                                   remaining: 1.9s
638:
        learn: 8.9688084
                                  total: 3.34s
                                                   remaining: 1.89s
639:
        learn: 8.9642436
                                  total: 3.34s
                                                   remaining: 1.88s
640:
        learn: 8.9604608
                                  total: 3.34s
                                                   remaining: 1.87s
        learn: 8.9575361
641:
                                  total: 3.34s
                                                   remaining: 1.86s
642:
        learn: 8.9551587
                                  total: 3.34s
                                                   remaining: 1.86s
643:
        learn: 8.9545773
                                  total: 3.34s
                                                   remaining: 1.85s
        learn: 8.9498263
644:
                                  total: 3.34s
                                                   remaining: 1.84s
645:
        learn: 8.9493536
                                  total: 3.35s
                                                   remaining: 1.83s
646:
        learn: 8.9442991
                                  total: 3.35s
                                                   remaining: 1.82s
647:
        learn: 8.9436539
                                  total: 3.35s
                                                   remaining: 1.82s
648:
        learn: 8.9409787
                                  total: 3.35s
                                                   remaining: 1.81s
                                                   remaining: 1.8s
649:
        learn: 8.9364490
                                  total: 3.35s
650:
        learn: 8.9343375
                                                   remaining: 1.79s
                                  total: 3.35s
        learn: 8.9322078
651:
                                  total: 3.43s
                                                   remaining: 1.83s
        learn: 8.9270921
652:
                                  total: 3.43s
                                                   remaining: 1.82s
        learn: 8.9254370
653:
                                  total: 3.43s
                                                   remaining: 1.81s
654:
        learn: 8.9208755
                                                   remaining: 1.81s
                                  total: 3.43s
655:
        learn: 8.9203295
                                  total: 3.43s
                                                   remaining: 1.8s
        learn: 8.9179108
656:
                                  total: 3.43s
                                                   remaining: 1.79s
                                                   remaining: 1.78s
        learn: 8.9146690
                                  total: 3.44s
657:
658:
        learn: 8.9133839
                                  total: 3.44s
                                                   remaining: 1.78s
659:
        learn: 8.9110606
                                  total: 3.44s
                                                   remaining: 1.77s
660:
        learn: 8.9079812
                                  total: 3.44s
                                                   remaining: 1.76s
661:
        learn: 8.9059150
                                  total: 3.44s
                                                   remaining: 1.75s
662:
        learn: 8.9008770
                                  total: 3.44s
                                                   remaining: 1.75s
        learn: 8.8968010
663:
                                  total: 3.44s
                                                   remaining: 1.74s
        learn: 8.8920687
664:
                                  total: 3.44s
                                                   remaining: 1.73s
665:
        learn: 8.8880701
                                                   remaining: 1.73s
                                  total: 3.44s
666:
        learn: 8.8876314
                                  total: 3.44s
                                                   remaining: 1.72s
        learn: 8.8823832
                                  total: 3.44s
667:
                                                   remaining: 1.71s
668:
        learn: 8.8795559
                                  total: 3.44s
                                                   remaining: 1.7s
669:
        learn: 8.8779054
                                  total: 3.52s
                                                   remaining: 1.74s
670:
        learn: 8.8762443
                                  total: 3.52s
                                                   remaining: 1.73s
```

```
learn: 8.8663166
671:
                                  total: 3.52s
                                                   remaining: 1.72s
672:
        learn: 8.8608714
                                  total: 3.53s
                                                   remaining: 1.71s
        learn: 8.8602417
673:
                                  total: 3.53s
                                                   remaining: 1.71s
674:
        learn: 8.8559897
                                  total: 3.53s
                                                   remaining: 1.7s
675:
        learn: 8.8534697
                                  total: 3.53s
                                                   remaining: 1.69s
        learn: 8.8498947
                                  total: 3.53s
676:
                                                   remaining: 1.68s
677:
        learn: 8.8478220
                                  total: 3.53s
                                                   remaining: 1.68s
        learn: 8.8437601
                                                   remaining: 1.67s
678:
                                  total: 3.53s
679:
        learn: 8.8390744
                                  total: 3.53s
                                                   remaining: 1.66s
        learn: 8.8371729
                                  total: 3.53s
680:
                                                   remaining: 1.65s
        learn: 8.8325073
681:
                                  total: 3.53s
                                                   remaining: 1.65s
682:
        learn: 8.8249260
                                                   remaining: 1.64s
                                  total: 3.53s
683:
        learn: 8.8209309
                                  total: 3.53s
                                                   remaining: 1.63s
        learn: 8.8186225
                                  total: 3.53s
684:
                                                   remaining: 1.63s
685:
        learn: 8.8137311
                                  total: 3.54s
                                                   remaining: 1.62s
686:
        learn: 8.8131969
                                  total: 3.54s
                                                   remaining: 1.61s
687:
        learn: 8.8118416
                                  total: 3.62s
                                                   remaining: 1.64s
688:
        learn: 8.8113918
                                  total: 3.62s
                                                   remaining: 1.63s
                                  total: 3.62s
689:
        learn: 8.8067381
                                                   remaining: 1.63s
690:
        learn: 8.8042076
                                                   remaining: 1.62s
                                  total: 3.62s
        learn: 8.8010535
                                  total: 3.62s
691:
                                                   remaining: 1.61s
692:
        learn: 8.7969480
                                  total: 3.62s
                                                   remaining: 1.6s
693:
        learn: 8.7952522
                                  total: 3.62s
                                                   remaining: 1.6s
694:
        learn: 8.7916088
                                  total: 3.62s
                                                   remaining: 1.59s
695:
        learn: 8.7856005
                                  total: 3.62s
                                                   remaining: 1.58s
696:
        learn: 8.7809052
                                  total: 3.62s
                                                   remaining: 1.57s
697:
        learn: 8.7788805
                                  total: 3.62s
                                                   remaining: 1.57s
698:
        learn: 8.7756358
                                  total: 3.62s
                                                   remaining: 1.56s
699:
        learn: 8.7705397
                                  total: 3.63s
                                                   remaining: 1.55s
700:
        learn: 8.7688407
                                  total: 3.63s
                                                   remaining: 1.55s
701:
        learn: 8.7646889
                                  total: 3.63s
                                                   remaining: 1.54s
        learn: 8.7627885
                                  total: 3.63s
702:
                                                   remaining: 1.53s
703:
        learn: 8.7584808
                                  total: 3.63s
                                                   remaining: 1.53s
704:
        learn: 8.7549939
                                  total: 3.71s
                                                   remaining: 1.55s
705:
        learn: 8.7513378
                                  total: 3.71s
                                                   remaining: 1.54s
                                  total: 3.71s
706:
        learn: 8.7506372
                                                   remaining: 1.54s
707:
        learn: 8.7478468
                                  total: 3.71s
                                                   remaining: 1.53s
708:
        learn: 8.7456901
                                  total: 3.71s
                                                   remaining: 1.52s
709:
        learn: 8.7449614
                                  total: 3.71s
                                                   remaining: 1.52s
710:
        learn: 8.7413088
                                  total: 3.71s
                                                   remaining: 1.51s
                                  total: 3.71s
711:
        learn: 8.7375391
                                                   remaining: 1.5s
712:
        learn: 8.7301242
                                  total: 3.71s
                                                   remaining: 1.5s
713:
        learn: 8.7280567
                                  total: 3.72s
                                                   remaining: 1.49s
714:
        learn: 8.7265872
                                  total: 3.72s
                                                   remaining: 1.48s
715:
        learn: 8.7248700
                                  total: 3.72s
                                                   remaining: 1.47s
716:
        learn: 8.7206570
                                  total: 3.72s
                                                   remaining: 1.47s
717:
        learn: 8.7200599
                                  total: 3.72s
                                                   remaining: 1.46s
                                                   remaining: 1.45s
718:
        learn: 8.7156400
                                  total: 3.72s
719:
        learn: 8.7112694
                                  total: 3.72s
                                                   remaining: 1.45s
720:
        learn: 8.7073088
                                  total: 3.72s
                                                   remaining: 1.44s
721:
        learn: 8.7036459
                                  total: 3.8s
                                                   remaining: 1.46s
722:
        learn: 8.7018808
                                  total: 3.8s
                                                   remaining: 1.46s
723:
        learn: 8.7003933
                                  total: 3.81s
                                                   remaining: 1.45s
724:
        learn: 8.6961205
                                  total: 3.81s
                                                   remaining: 1.44s
725:
        learn: 8.6935958
                                  total: 3.81s
                                                   remaining: 1.44s
726:
        learn: 8.6901491
                                                   remaining: 1.43s
                                  total: 3.81s
727:
        learn: 8.6896320
                                  total: 3.81s
                                                   remaining: 1.42s
728:
        learn: 8.6891243
                                  total: 3.81s
                                                   remaining: 1.42s
729:
        learn: 8.6823029
                                  total: 3.81s
                                                   remaining: 1.41s
730:
        learn: 8.6809067
                                  total: 3.81s
                                                   remaining: 1.4s
        learn: 8.6795838
731:
                                  total: 3.81s
                                                   remaining: 1.4s
```

```
732:
        learn: 8.6749719
                                  total: 3.81s
                                                   remaining: 1.39s
733:
        learn: 8.6717709
                                  total: 3.81s
                                                   remaining: 1.38s
734:
        learn: 8.6679259
                                  total: 3.81s
                                                   remaining: 1.37s
735:
        learn: 8.6665038
                                  total: 3.81s
                                                   remaining: 1.37s
736:
        learn: 8.6645094
                                  total: 3.81s
                                                   remaining: 1.36s
        learn: 8.6586547
737:
                                  total: 3.81s
                                                   remaining: 1.35s
738:
        learn: 8.6553150
                                  total: 3.82s
                                                   remaining: 1.35s
739:
        learn: 8.6498228
                                                   remaining: 1.34s
                                  total: 3.82s
740:
        learn: 8.6478497
                                  total: 3.9s
                                                   remaining: 1.36s
741:
        learn: 8.6463489
                                  total: 3.9s
                                                   remaining: 1.35s
742:
        learn: 8.6438201
                                  total: 3.9s
                                                   remaining: 1.35s
743:
        learn: 8.6404007
                                                   remaining: 1.34s
                                  total: 3.9s
744:
        learn: 8.6389564
                                  total: 3.9s
                                                   remaining: 1.33s
745:
        learn: 8.6372155
                                  total: 3.9s
                                                   remaining: 1.33s
746:
        learn: 8.6367229
                                  total: 3.9s
                                                   remaining: 1.32s
747:
        learn: 8.6325203
                                  total: 3.9s
                                                   remaining: 1.31s
748:
        learn: 8.6320372
                                  total: 3.9s
                                                   remaining: 1.31s
749:
        learn: 8.6308625
                                  total: 3.9s
                                                   remaining: 1.3s
                                  total: 3.9s
750:
        learn: 8.6293872
                                                   remaining: 1.29s
751:
        learn: 8.6249845
                                  total: 3.9s
                                                   remaining: 1.29s
752:
        learn: 8.6226224
                                  total: 3.9s
                                                   remaining: 1.28s
753:
        learn: 8.6208608
                                  total: 3.91s
                                                   remaining: 1.27s
754:
        learn: 8.6153599
                                  total: 3.91s
                                                   remaining: 1.27s
755:
        learn: 8.6121880
                                  total: 3.91s
                                                   remaining: 1.26s
756:
        learn: 8.6108646
                                  total: 3.91s
                                                   remaining: 1.25s
757:
        learn: 8.6081614
                                  total: 3.99s
                                                   remaining: 1.27s
758:
        learn: 8.6037413
                                  total: 3.99s
                                                   remaining: 1.27s
759:
        learn: 8.5994847
                                  total: 3.99s
                                                   remaining: 1.26s
760:
        learn: 8.5960698
                                  total: 3.99s
                                                   remaining: 1.25s
761:
        learn: 8.5881312
                                  total: 3.99s
                                                   remaining: 1.25s
762:
        learn: 8.5820566
                                  total: 4s
                                                   remaining: 1.24s
763:
        learn: 8.5803701
                                  total: 4s
                                                   remaining: 1.23s
                                                   remaining: 1.23s
764:
        learn: 8.5782218
                                  total: 4s
765:
        learn: 8.5766440
                                  total: 4s
                                                   remaining: 1.22s
766:
        learn: 8.5762437
                                  total: 4s
                                                   remaining: 1.21s
                                  total: 4s
                                                   remaining: 1.21s
767:
        learn: 8.5711628
768:
        learn: 8.5706940
                                  total: 4s
                                                   remaining: 1.2s
        learn: 8.5690043
769:
                                  total: 4s
                                                   remaining: 1.2s
770:
        learn: 8.5683907
                                  total: 4s
                                                   remaining: 1.19s
771:
        learn: 8.5660928
                                  total: 4s
                                                   remaining: 1.18s
772:
        learn: 8.5607927
                                                   remaining: 1.18s
                                  total: 4s
773:
        learn: 8.5573806
                                  total: 4.01s
                                                   remaining: 1.17s
774:
        learn: 8.5541804
                                  total: 4.01s
                                                   remaining: 1.16s
775:
        learn: 8.5522430
                                  total: 4.08s
                                                   remaining: 1.18s
776:
        learn: 8.5510197
                                  total: 4.08s
                                                   remaining: 1.17s
777:
        learn: 8.5478399
                                  total: 4.08s
                                                   remaining: 1.17s
778:
        learn: 8.5462588
                                  total: 4.08s
                                                   remaining: 1.16s
                                                   remaining: 1.15s
779:
        learn: 8.5450815
                                  total: 4.09s
780:
        learn: 8.5414871
                                  total: 4.09s
                                                   remaining: 1.15s
781:
        learn: 8.5404222
                                  total: 4.09s
                                                   remaining: 1.14s
782:
        learn: 8.5383637
                                  total: 4.09s
                                                   remaining: 1.13s
        learn: 8.5365990
783:
                                  total: 4.09s
                                                   remaining: 1.13s
784:
        learn: 8.5337423
                                  total: 4.09s
                                                   remaining: 1.12s
785:
        learn: 8.5327024
                                  total: 4.09s
                                                   remaining: 1.11s
786:
        learn: 8.5312804
                                  total: 4.09s
                                                   remaining: 1.11s
787:
        learn: 8.5282460
                                  total: 4.09s
                                                   remaining: 1.1s
788:
        learn: 8.5267854
                                  total: 4.09s
                                                   remaining: 1.09s
789:
        learn: 8.5217557
                                  total: 4.09s
                                                   remaining: 1.09s
790:
        learn: 8.5204650
                                  total: 4.09s
                                                   remaining: 1.08s
791:
        learn: 8.5188488
                                  total: 4.09s
                                                   remaining: 1.07s
        learn: 8.5147461
792:
                                  total: 4.18s
                                                   remaining: 1.09s
```

```
793:
        learn: 8.5141689
                                  total: 4.18s
                                                   remaining: 1.08s
794:
        learn: 8.5125670
                                  total: 4.18s
                                                   remaining: 1.08s
795:
        learn: 8.5086360
                                  total: 4.18s
                                                   remaining: 1.07s
796:
        learn: 8.5069165
                                  total: 4.18s
                                                   remaining: 1.06s
797:
        learn: 8.5063953
                                  total: 4.18s
                                                   remaining: 1.06s
798:
        learn: 8.5048731
                                  total: 4.18s
                                                   remaining: 1.05s
799:
        learn: 8.5031852
                                  total: 4.18s
                                                   remaining: 1.04s
800:
        learn: 8.4981374
                                  total: 4.18s
                                                   remaining: 1.04s
        learn: 8.4963356
                                  total: 4.18s
                                                   remaining: 1.03s
801:
802:
        learn: 8.4913091
                                  total: 4.18s
                                                   remaining: 1.03s
803:
        learn: 8.4862184
                                  total: 4.18s
                                                   remaining: 1.02s
804:
        learn: 8.4827972
                                                   remaining: 1.01s
                                  total: 4.18s
805:
        learn: 8.4790271
                                  total: 4.19s
                                                   remaining: 1.01s
806:
        learn: 8.4759276
                                  total: 4.19s
                                                   remaining: 1s
807:
        learn: 8.4746109
                                  total: 4.19s
                                                   remaining: 995ms
808:
        learn: 8.4731959
                                  total: 4.19s
                                                   remaining: 989ms
809:
        learn: 8.4718182
                                  total: 4.19s
                                                   remaining: 983ms
810:
        learn: 8.4684386
                                  total: 4.27s
                                                   remaining: 995ms
811:
        learn: 8.4660222
                                  total: 4.27s
                                                   remaining: 989ms
812:
        learn: 8.4602462
                                  total: 4.27s
                                                   remaining: 982ms
        learn: 8.4552977
813:
                                  total: 4.27s
                                                   remaining: 976ms
                                  total: 4.27s
814:
        learn: 8.4511990
                                                   remaining: 970ms
815:
        learn: 8.4497773
                                  total: 4.27s
                                                   remaining: 964ms
816:
        learn: 8.4454041
                                  total: 4.27s
                                                   remaining: 957ms
817:
        learn: 8.4412348
                                  total: 4.27s
                                                   remaining: 951ms
818:
        learn: 8.4397063
                                  total: 4.28s
                                                   remaining: 945ms
819:
        learn: 8.4354604
                                  total: 4.28s
                                                   remaining: 939ms
820:
        learn: 8.4317124
                                  total: 4.28s
                                                   remaining: 933ms
821:
        learn: 8.4288942
                                  total: 4.28s
                                                   remaining: 927ms
                                  total: 4.28s
822:
        learn: 8.4261522
                                                   remaining: 920ms
823:
        learn: 8.4248854
                                  total: 4.28s
                                                   remaining: 914ms
824:
        learn: 8.4233806
                                  total: 4.28s
                                                   remaining: 908ms
825:
        learn: 8.4189593
                                  total: 4.28s
                                                   remaining: 902ms
826:
                                                   remaining: 896ms
        learn: 8.4151965
                                  total: 4.28s
827:
        learn: 8.4124884
                                  total: 4.28s
                                                   remaining: 890ms
828:
        learn: 8.4101097
                                  total: 4.36s
                                                   remaining: 900ms
829:
        learn: 8.4071907
                                  total: 4.36s
                                                   remaining: 894ms
830:
                                                   remaining: 887ms
        learn: 8.4067285
                                  total: 4.36s
831:
        learn: 8.4061589
                                  total: 4.36s
                                                   remaining: 881ms
832:
        learn: 8.3999407
                                  total: 4.36s
                                                   remaining: 875ms
833:
        learn: 8.3981300
                                  total: 4.37s
                                                   remaining: 869ms
        learn: 8.3942300
834:
                                  total: 4.37s
                                                   remaining: 863ms
835:
        learn: 8.3921281
                                  total: 4.37s
                                                   remaining: 857ms
        learn: 8.3916136
836:
                                  total: 4.37s
                                                   remaining: 851ms
                                                   remaining: 844ms
837:
        learn: 8.3901593
                                  total: 4.37s
838:
        learn: 8.3859778
                                  total: 4.37s
                                                   remaining: 838ms
839:
        learn: 8.3825746
                                  total: 4.37s
                                                   remaining: 832ms
                                                   remaining: 826ms
840:
        learn: 8.3820792
                                  total: 4.37s
841:
        learn: 8.3780265
                                  total: 4.37s
                                                   remaining: 820ms
842:
        learn: 8.3716196
                                  total: 4.37s
                                                   remaining: 814ms
843:
        learn: 8.3688326
                                  total: 4.37s
                                                   remaining: 808ms
844:
        learn: 8.3663163
                                  total: 4.37s
                                                   remaining: 802ms
845:
        learn: 8.3647818
                                  total: 4.37s
                                                   remaining: 796ms
846:
        learn: 8.3564533
                                  total: 4.37s
                                                   remaining: 790ms
        learn: 8.3534613
847:
                                  total: 4.45s
                                                   remaining: 798ms
848:
        learn: 8.3495754
                                                   remaining: 792ms
                                  total: 4.46s
849:
        learn: 8.3472932
                                  total: 4.46s
                                                   remaining: 786ms
850:
        learn: 8.3453721
                                  total: 4.46s
                                                   remaining: 780ms
851:
        learn: 8.3441375
                                  total: 4.46s
                                                   remaining: 774ms
852:
        learn: 8.3435671
                                  total: 4.46s
                                                   remaining: 768ms
853:
        learn: 8.3425171
                                  total: 4.46s
                                                   remaining: 762ms
```

```
854:
        learn: 8.3421368
                                  total: 4.46s
                                                   remaining: 756ms
855:
        learn: 8.3390985
                                  total: 4.46s
                                                   remaining: 750ms
                                                   remaining: 744ms
856:
        learn: 8.3349884
                                  total: 4.46s
857:
        learn: 8.3280884
                                  total: 4.46s
                                                   remaining: 739ms
858:
        learn: 8.3272024
                                  total: 4.46s
                                                   remaining: 733ms
                                  total: 4.46s
                                                   remaining: 727ms
        learn: 8.3221369
859:
860:
        learn: 8.3216512
                                  total: 4.47s
                                                   remaining: 721ms
        learn: 8.3181232
                                  total: 4.47s
                                                   remaining: 715ms
861:
        learn: 8.3125168
                                  total: 4.47s
                                                   remaining: 709ms
862:
863:
        learn: 8.3095212
                                  total: 4.47s
                                                   remaining: 704ms
864:
        learn: 8.3054941
                                  total: 4.55s
                                                   remaining: 710ms
865:
        learn: 8.3050547
                                                   remaining: 704ms
                                  total: 4.55s
866:
        learn: 8.3037670
                                  total: 4.55s
                                                   remaining: 698ms
        learn: 8.2984108
867:
                                  total: 4.55s
                                                   remaining: 692ms
868:
        learn: 8.2980753
                                  total: 4.55s
                                                   remaining: 686ms
869:
        learn: 8.2924062
                                  total: 4.55s
                                                   remaining: 680ms
870:
        learn: 8.2877387
                                  total: 4.55s
                                                   remaining: 674ms
871:
        learn: 8.2849299
                                  total: 4.55s
                                                   remaining: 668ms
872:
        learn: 8.2816092
                                  total: 4.55s
                                                   remaining: 662ms
873:
        learn: 8.2803856
                                  total: 4.55s
                                                   remaining: 656ms
874:
        learn: 8.2777080
                                  total: 4.55s
                                                   remaining: 651ms
                                  total: 4.55s
875:
        learn: 8.2766275
                                                   remaining: 645ms
876:
        learn: 8.2729041
                                  total: 4.55s
                                                   remaining: 639ms
877:
        learn: 8.2697963
                                  total: 4.56s
                                                   remaining: 633ms
878:
        learn: 8.2683440
                                  total: 4.56s
                                                   remaining: 627ms
879:
        learn: 8.2654773
                                  total: 4.56s
                                                   remaining: 622ms
880:
        learn: 8.2636574
                                  total: 4.56s
                                                   remaining: 616ms
881:
        learn: 8.2603816
                                  total: 4.56s
                                                   remaining: 610ms
882:
        learn: 8.2594987
                                  total: 4.56s
                                                   remaining: 604ms
        learn: 8.2562842
883.
                                  total: 4.64s
                                                   remaining: 609ms
884:
        learn: 8.2544321
                                  total: 4.64s
                                                   remaining: 603ms
885:
        learn: 8.2532700
                                  total: 4.64s
                                                   remaining: 597ms
        learn: 8.2523299
                                  total: 4.64s
886:
                                                   remaining: 592ms
887:
        learn: 8.2502838
                                  total: 4.64s
                                                   remaining: 586ms
888:
        learn: 8.2453863
                                  total: 4.64s
                                                   remaining: 580ms
889:
                                                   remaining: 574ms
        learn: 8.2407382
                                  total: 4.65s
890:
        learn: 8.2375410
                                  total: 4.65s
                                                   remaining: 568ms
891:
        learn: 8.2354400
                                  total: 4.65s
                                                   remaining: 563ms
892:
        learn: 8.2336248
                                  total: 4.65s
                                                   remaining: 557ms
893:
        learn: 8.2325224
                                  total: 4.65s
                                                   remaining: 551ms
894:
        learn: 8.2320874
                                  total: 4.65s
                                                   remaining: 546ms
895:
        learn: 8.2293605
                                  total: 4.65s
                                                   remaining: 540ms
        learn: 8.2288771
896:
                                  total: 4.65s
                                                   remaining: 534ms
        learn: 8.2260696
897:
                                  total: 4.65s
                                                   remaining: 528ms
898:
        learn: 8.2234630
                                                   remaining: 523ms
                                  total: 4.65s
899:
        learn: 8.2216675
                                  total: 4.66s
                                                   remaining: 517ms
900:
        learn: 8.2187162
                                  total: 4.66s
                                                   remaining: 512ms
                                                   remaining: 514ms
901:
        learn: 8.2152387
                                  total: 4.73s
902:
        learn: 8.2141142
                                  total: 4.73s
                                                   remaining: 508ms
903:
        learn: 8.2106658
                                  total: 4.73s
                                                   remaining: 503ms
904:
        learn: 8.2098397
                                  total: 4.73s
                                                   remaining: 497ms
905:
        learn: 8.2074867
                                  total: 4.73s
                                                   remaining: 491ms
906:
        learn: 8.2058869
                                  total: 4.74s
                                                   remaining: 486ms
907:
        learn: 8.2045288
                                  total: 4.74s
                                                   remaining: 480ms
908:
        learn: 8.2013367
                                  total: 4.74s
                                                   remaining: 474ms
909:
        learn: 8.1998157
                                  total: 4.74s
                                                   remaining: 469ms
910:
        learn: 8.1950248
                                  total: 4.74s
                                                   remaining: 463ms
911:
        learn: 8.1912928
                                  total: 4.74s
                                                   remaining: 457ms
912:
        learn: 8.1901942
                                  total: 4.74s
                                                   remaining: 452ms
913:
        learn: 8.1897039
                                  total: 4.74s
                                                   remaining: 446ms
        learn: 8.1874242
914:
                                  total: 4.74s
                                                   remaining: 440ms
```

```
915:
        learn: 8.1839459
                                  total: 4.74s
                                                   remaining: 435ms
916:
        learn: 8.1792507
                                  total: 4.74s
                                                   remaining: 429ms
                                  total: 4.74s
917:
        learn: 8.1767538
                                                   remaining: 424ms
918:
        learn: 8.1739056
                                  total: 4.75s
                                                   remaining: 419ms
919:
        learn: 8.1702131
                                  total: 4.75s
                                                   remaining: 413ms
920:
        learn: 8.1664743
                                  total: 4.82s
                                                   remaining: 414ms
921:
        learn: 8.1636413
                                  total: 4.83s
                                                   remaining: 408ms
922:
        learn: 8.1629553
                                  total: 4.83s
                                                   remaining: 403ms
923:
        learn: 8.1593113
                                  total: 4.83s
                                                   remaining: 397ms
924:
        learn: 8.1561265
                                  total: 4.83s
                                                   remaining: 391ms
925:
        learn: 8.1531460
                                  total: 4.83s
                                                   remaining: 386ms
926:
        learn: 8.1462226
                                  total: 4.83s
                                                   remaining: 380ms
927:
        learn: 8.1458970
                                  total: 4.83s
                                                   remaining: 375ms
928:
        learn: 8.1418193
                                                   remaining: 369ms
                                  total: 4.83s
929:
        learn: 8.1385225
                                  total: 4.83s
                                                   remaining: 364ms
930:
        learn: 8.1353773
                                  total: 4.83s
                                                   remaining: 358ms
931:
        learn: 8.1345958
                                  total: 4.84s
                                                   remaining: 353ms
932:
        learn: 8.1295225
                                  total: 4.84s
                                                   remaining: 347ms
933:
        learn: 8.1284304
                                  total: 4.84s
                                                   remaining: 342ms
934:
        learn: 8.1234025
                                  total: 4.84s
                                                   remaining: 336ms
935:
        learn: 8.1213632
                                  total: 4.84s
                                                   remaining: 331ms
936:
        learn: 8.1174223
                                  total: 4.84s
                                                   remaining: 325ms
937:
        learn: 8.1149356
                                  total: 4.92s
                                                   remaining: 326ms
938:
        learn: 8.1111893
                                  total: 4.92s
                                                   remaining: 320ms
                                                   remaining: 314ms
939:
        learn: 8.1084757
                                  total: 4.93s
940:
        learn: 8.1072933
                                  total: 4.93s
                                                   remaining: 309ms
941:
        learn: 8.1060531
                                  total: 4.93s
                                                   remaining: 303ms
942:
        learn: 8.1010293
                                  total: 4.93s
                                                   remaining: 298ms
943:
        learn: 8.0968300
                                  total: 4.93s
                                                   remaining: 292ms
                                  total: 4.93s
944:
        learn: 8.0940717
                                                   remaining: 287ms
945:
        learn: 8.0888906
                                  total: 4.93s
                                                   remaining: 281ms
        learn: 8.0842570
946:
                                  total: 4.93s
                                                   remaining: 276ms
947:
        learn: 8.0803055
                                  total: 4.93s
                                                   remaining: 271ms
948:
        learn: 8.0788488
                                  total: 4.93s
                                                   remaining: 265ms
949:
        learn: 8.0765193
                                  total: 4.93s
                                                   remaining: 260ms
950:
        learn: 8.0721399
                                  total: 4.93s
                                                   remaining: 254ms
951:
        learn: 8.0689240
                                  total: 4.93s
                                                   remaining: 249ms
952:
        learn: 8.0653479
                                  total: 4.94s
                                                   remaining: 243ms
953:
        learn: 8.0627915
                                  total: 4.94s
                                                   remaining: 238ms
954:
        learn: 8.0610138
                                  total: 4.94s
                                                   remaining: 233ms
955:
        learn: 8.0598135
                                  total: 4.94s
                                                   remaining: 227ms
956:
        learn: 8.0560225
                                                   remaining: 225ms
                                  total: 5.01s
957:
        learn: 8.0555069
                                  total: 5.01s
                                                   remaining: 220ms
        learn: 8.0509507
958:
                                  total: 5.01s
                                                   remaining: 214ms
959:
        learn: 8.0483994
                                                   remaining: 209ms
                                  total: 5.01s
960:
        learn: 8.0470255
                                  total: 5.02s
                                                   remaining: 204ms
961:
        learn: 8.0445092
                                  total: 5.02s
                                                   remaining: 198ms
962:
        learn: 8.0402418
                                  total: 5.02s
                                                   remaining: 193ms
963:
        learn: 8.0371116
                                  total: 5.02s
                                                   remaining: 188ms
964:
        learn: 8.0331740
                                  total: 5.02s
                                                   remaining: 182ms
965:
        learn: 8.0313992
                                  total: 5.02s
                                                   remaining: 177ms
966:
        learn: 8.0291120
                                  total: 5.02s
                                                   remaining: 171ms
967:
        learn: 8.0243883
                                  total: 5.02s
                                                   remaining: 166ms
968:
        learn: 8.0238376
                                  total: 5.03s
                                                   remaining: 161ms
        learn: 8.0205627
969:
                                  total: 5.03s
                                                   remaining: 155ms
970:
        learn: 8.0193810
                                                   remaining: 150ms
                                  total: 5.03s
971:
        learn: 8.0188391
                                  total: 5.03s
                                                   remaining: 145ms
972:
        learn: 8.0163575
                                  total: 5.03s
                                                   remaining: 140ms
973:
        learn: 8.0158921
                                  total: 5.11s
                                                   remaining: 136ms
974:
        learn: 8.0122667
                                  total: 5.11s
                                                   remaining: 131ms
        learn: 8.0087751
975:
                                  total: 5.11s
                                                   remaining: 126ms
```

```
976:
        learn: 8.0084273
                                  total: 5.11s
                                                   remaining: 120ms
977:
        learn: 8.0060106
                                  total: 5.11s
                                                   remaining: 115ms
978:
        learn: 8.0043745
                                  total: 5.11s
                                                   remaining: 110ms
979:
        learn: 8.0019003
                                  total: 5.11s
                                                   remaining: 104ms
980:
        learn: 7.9976468
                                  total: 5.11s
                                                   remaining: 99ms
        learn: 7.9947384
                                  total: 5.11s
981:
                                                   remaining: 93.7ms
982:
        learn: 7.9941711
                                  total: 5.11s
                                                   remaining: 88.4ms
983:
        learn: 7.9905055
                                                   remaining: 83.2ms
                                  total: 5.11s
        learn: 7.9886565
                                  total: 5.12s
                                                   remaining: 77.9ms
984:
985:
        learn: 7.9842592
                                  total: 5.12s
                                                   remaining: 72.6ms
986:
        learn: 7.9832036
                                  total: 5.12s
                                                   remaining: 67.4ms
987:
        learn: 7.9815972
                                                   remaining: 62.2ms
                                  total: 5.12s
988:
        learn: 7.9796265
                                  total: 5.12s
                                                   remaining: 56.9ms
989:
        learn: 7.9762790
                                  total: 5.12s
                                                   remaining: 51.7ms
990:
        learn: 7.9751416
                                  total: 5.2s
                                                   remaining: 47.2ms
991:
        learn: 7.9746226
                                  total: 5.2s
                                                   remaining: 41.9ms
992:
        learn: 7.9729104
                                  total: 5.2s
                                                   remaining: 36.7ms
993:
        learn: 7.9705505
                                  total: 5.2s
                                                   remaining: 31.4ms
994:
        learn: 7.9679151
                                  total: 5.2s
                                                   remaining: 26.1ms
995:
        learn: 7.9643816
                                  total: 5.2s
                                                   remaining: 20.9ms
        learn: 7.9635007
                                  total: 5.2s
                                                   remaining: 15.7ms
996:
997:
        learn: 7.9611781
                                  total: 5.21s
                                                   remaining: 10.4ms
998:
        learn: 7.9607561
                                  total: 5.21s
                                                   remaining: 5.21ms
999:
        learn: 7.9527815
                                  total: 5.21s
                                                   remaining: Ous
0:
        learn: 20.3973469
                                  total: 852us
                                                   remaining: 852ms
1:
        learn: 20.3318124
                                  total: 1.76ms
                                                   remaining: 881ms
2:
        learn: 20.2684669
                                  total: 2.54ms
                                                   remaining: 845ms
3:
        learn: 20.2184674
                                  total: 3.79ms
                                                   remaining: 945ms
4:
        learn: 20.1565107
                                  total: 4.52ms
                                                   remaining: 899ms
        learn: 20.0944163
5:
                                  total: 5.22ms
                                                   remaining: 866ms
6:
        learn: 20.0322356
                                  total: 5.92ms
                                                   remaining: 840ms
        learn: 19.9712287
7:
                                  total: 6.66ms
                                                   remaining: 826ms
        learn: 19.9082082
                                  total: 7.78ms
                                                   remaining: 857ms
8:
9:
                                                   remaining: 838ms
        learn: 19.8477275
                                  total: 8.47ms
10:
        learn: 19.7896735
                                  total: 9.74ms
                                                   remaining: 875ms
                                  total: 11.1ms
        learn: 19.7323399
                                                   remaining: 916ms
11:
12:
        learn: 19.6757155
                                  total: 11.8ms
                                                   remaining: 895ms
                                                   remaining: 898ms
13:
        learn: 19.6197762
                                  total: 12.8ms
14:
        learn: 19.5639554
                                  total: 18.7ms
                                                   remaining: 1.23s
15:
        learn: 19.5095790
                                  total: 19.4ms
                                                   remaining: 1.19s
        learn: 19.4547521
                                  total: 67.7ms
                                                   remaining: 3.91s
16:
17:
        learn: 19.4005091
                                  total: 68.8ms
                                                   remaining: 3.75s
        learn: 19.3471511
                                  total: 69.7ms
18:
                                                   remaining: 3.6s
19:
        learn: 19.2956034
                                  total: 70.7ms
                                                   remaining: 3.46s
20:
        learn: 19.2379751
                                                   remaining: 3.33s
                                  total: 71.5ms
21:
        learn: 19.1852714
                                  total: 72.2ms
                                                   remaining: 3.21s
22:
        learn: 19.1262249
                                  total: 72.9ms
                                                   remaining: 3.1s
23:
        learn: 19.0767585
                                  total: 73.7ms
                                                   remaining: 3s
24:
        learn: 19.0265453
                                  total: 74.4ms
                                                   remaining: 2.9s
                                  total: 75.1ms
25:
        learn: 18.9787154
                                                   remaining: 2.81s
26:
        learn: 18.9314912
                                  total: 75.8ms
                                                   remaining: 2.73s
27:
        learn: 18.8825487
                                  total: 76.5ms
                                                   remaining: 2.65s
28:
        learn: 18.8348097
                                  total: 77.2ms
                                                   remaining: 2.58s
                                  total: 77.9ms
29:
        learn: 18.7885501
                                                   remaining: 2.52s
        learn: 18.7421297
                                  total: 78.6ms
30:
                                                   remaining: 2.46s
31:
        learn: 18.6968978
                                  total: 79.4ms
                                                   remaining: 2.4s
32:
        learn: 18.6529625
                                  total: 80.1ms
                                                   remaining: 2.35s
33:
        learn: 18.6094273
                                  total: 80.8ms
                                                   remaining: 2.3s
34:
        learn: 18.5657738
                                  total: 161ms
                                                   remaining: 4.44s
35:
        learn: 18.5319916
                                  total: 162ms
                                                   remaining: 4.34s
        learn: 18.4897992
36:
                                  total: 163ms
                                                   remaining: 4.24s
```

```
37:
        learn: 18.4486164
                                  total: 164ms
                                                   remaining: 4.16s
38:
        learn: 18.4079291
                                  total: 165ms
                                                   remaining: 4.07s
        learn: 18.3646405
                                  total: 166ms
                                                   remaining: 3.98s
39:
40:
        learn: 18.3237592
                                  total: 166ms
                                                   remaining: 3.89s
41:
        learn: 18.2842948
                                  total: 167ms
                                                   remaining: 3.81s
42:
        learn: 18.2446107
                                  total: 168ms
                                                   remaining: 3.74s
43:
        learn: 18.1111993
                                  total: 169ms
                                                   remaining: 3.67s
44:
        learn: 18.0729254
                                  total: 169ms
                                                   remaining: 3.6s
45:
        learn: 18.0311858
                                  total: 170ms
                                                   remaining: 3.54s
46:
        learn: 17.9935316
                                  total: 171ms
                                                   remaining: 3.47s
47:
        learn: 17.8607557
                                  total: 172ms
                                                   remaining: 3.42s
48:
        learn: 17.8226826
                                                   remaining: 3.36s
                                  total: 173ms
49:
        learn: 17.7864050
                                  total: 174ms
                                                   remaining: 3.3s
        learn: 17.7512201
                                  total: 180ms
50:
                                                   remaining: 3.36s
51:
        learn: 17.7161255
                                  total: 181ms
                                                   remaining: 3.3s
52:
        learn: 17.6723029
                                  total: 256ms
                                                   remaining: 4.57s
53:
        learn: 17.6383435
                                  total: 258ms
                                                   remaining: 4.52s
                                  total: 259ms
54:
        learn: 17.6038149
                                                   remaining: 4.45s
55:
        learn: 17.5706805
                                  total: 260ms
                                                   remaining: 4.38s
56:
        learn: 17.4481180
                                  total: 261ms
                                                   remaining: 4.31s
57:
        learn: 17.4145784
                                  total: 262ms
                                                   remaining: 4.25s
58:
        learn: 17.3823884
                                  total: 263ms
                                                   remaining: 4.19s
59:
        learn: 17.3486688
                                  total: 264ms
                                                   remaining: 4.13s
        learn: 17.3173964
60:
                                  total: 265ms
                                                   remaining: 4.07s
                                  total: 265ms
                                                   remaining: 4.01s
        learn: 17.2852930
61:
62:
        learn: 17.2548614
                                  total: 266ms
                                                   remaining: 3.96s
63:
        learn: 17.1581454
                                  total: 267ms
                                                   remaining: 3.9s
64:
        learn: 17.1230299
                                  total: 268ms
                                                   remaining: 3.85s
                                  total: 268ms
65:
        learn: 17.0928591
                                                   remaining: 3.8s
        learn: 16.9845266
66:
                                  total: 270ms
                                                   remaining: 3.76s
67:
        learn: 16.9554068
                                  total: 276ms
                                                   remaining: 3.79s
        learn: 16.8697359
68:
                                  total: 348ms
                                                   remaining: 4.7s
69:
        learn: 16.8413366
                                  total: 349ms
                                                   remaining: 4.64s
70:
                                                   remaining: 4.58s
        learn: 16.8082411
                                  total: 350ms
71:
        learn: 16.7253102
                                  total: 351ms
                                                   remaining: 4.52s
72:
        learn: 16.6970734
                                  total: 352ms
                                                   remaining: 4.46s
73:
        learn: 16.6668899
                                  total: 352ms
                                                   remaining: 4.41s
        learn: 16.6334002
74:
                                  total: 353ms
                                                   remaining: 4.36s
        learn: 16.6055016
75:
                                  total: 354ms
                                                   remaining: 4.3s
76:
        learn: 16.5785023
                                  total: 355ms
                                                   remaining: 4.26s
77:
        learn: 16.5010677
                                  total: 356ms
                                                   remaining: 4.21s
78:
        learn: 16.4740525
                                  total: 357ms
                                                   remaining: 4.16s
79:
        learn: 16.4476451
                                  total: 358ms
                                                   remaining: 4.11s
80:
        learn: 16.3745361
                                  total: 358ms
                                                   remaining: 4.06s
81:
        learn: 16.2949969
                                                   remaining: 4.02s
                                  total: 359ms
82:
        learn: 16.2709122
                                  total: 360ms
                                                   remaining: 3.98s
83:
        learn: 16.2321942
                                  total: 361ms
                                                   remaining: 3.93s
84:
        learn: 16.2051492
                                  total: 361ms
                                                   remaining: 3.89s
85:
        learn: 16.1088172
                                  total: 362ms
                                                   remaining: 3.85s
86:
        learn: 16.0742501
                                  total: 442ms
                                                   remaining: 4.64s
87:
        learn: 15.9771685
                                  total: 443ms
                                                   remaining: 4.59s
88:
        learn: 15.9541126
                                  total: 445ms
                                                   remaining: 4.55s
89:
        learn: 15.9316128
                                  total: 446ms
                                                   remaining: 4.51s
90:
        learn: 15.8654893
                                  total: 447ms
                                                   remaining: 4.46s
91:
        learn: 15.8416826
                                  total: 447ms
                                                   remaining: 4.41s
92:
        learn: 15.7709729
                                  total: 448ms
                                                   remaining: 4.37s
93:
        learn: 15.7493303
                                  total: 449ms
                                                   remaining: 4.33s
94:
        learn: 15.6820880
                                  total: 450ms
                                                   remaining: 4.29s
95:
        learn: 15.6605509
                                  total: 451ms
                                                   remaining: 4.24s
96:
        learn: 15.5884544
                                  total: 451ms
                                                   remaining: 4.2s
        learn: 15.5633023
97:
                                  total: 452ms
                                                   remaining: 4.16s
```

```
98:
        learn: 15.5426119
                                  total: 454ms
                                                   remaining: 4.13s
99:
        learn: 15.4745904
                                  total: 455ms
                                                   remaining: 4.1s
                                  total: 457ms
100:
        learn: 15.3987626
                                                   remaining: 4.06s
101:
        learn: 15.3782687
                                  total: 458ms
                                                   remaining: 4.03s
102:
        learn: 15.3113496
                                  total: 459ms
                                                   remaining: 4s
        learn: 15.2795950
                                  total: 536ms
103:
                                                   remaining: 4.62s
104:
        learn: 15.2235325
                                  total: 537ms
                                                   remaining: 4.57s
105:
        learn: 15.2020220
                                                   remaining: 4.53s
                                  total: 537ms
        learn: 15.1829479
                                  total: 538ms
                                                   remaining: 4.49s
106:
107:
        learn: 15.1270904
                                  total: 539ms
                                                   remaining: 4.45s
108:
        learn: 15.0710960
                                  total: 540ms
                                                   remaining: 4.41s
                                                   remaining: 4.37s
109:
        learn: 15.0526982
                                  total: 541ms
110:
        learn: 15.0006669
                                  total: 542ms
                                                   remaining: 4.34s
        learn: 14.9804737
                                  total: 542ms
111:
                                                   remaining: 4.3s
112:
        learn: 14.9628061
                                  total: 543ms
                                                   remaining: 4.26s
113:
        learn: 14.9088235
                                  total: 544ms
                                                   remaining: 4.23s
114:
                                  total: 545ms
        learn: 14.8527939
                                                   remaining: 4.19s
115:
        learn: 14.8352923
                                  total: 546ms
                                                   remaining: 4.16s
116:
        learn: 14.8157279
                                  total: 547ms
                                                   remaining: 4.13s
117:
        learn: 14.7532912
                                  total: 547ms
                                                   remaining: 4.09s
        learn: 14.7015852
                                  total: 548ms
118:
                                                   remaining: 4.06s
119:
        learn: 14.6393855
                                  total: 549ms
                                                   remaining: 4.03s
120:
        learn: 14.6230023
                                  total: 629ms
                                                   remaining: 4.57s
121:
        learn: 14.6052716
                                  total: 630ms
                                                   remaining: 4.54s
122:
        learn: 14.5886619
                                  total: 631ms
                                                   remaining: 4.5s
123:
        learn: 14.5727803
                                  total: 632ms
                                                   remaining: 4.46s
124:
        learn: 14.5568475
                                  total: 635ms
                                                   remaining: 4.45s
125:
        learn: 14.5393880
                                  total: 636ms
                                                   remaining: 4.41s
126:
        learn: 14.4751235
                                  total: 637ms
                                                   remaining: 4.38s
127:
        learn: 14.4599235
                                  total: 638ms
                                                   remaining: 4.35s
128:
        learn: 14.4113058
                                  total: 639ms
                                                   remaining: 4.31s
129:
        learn: 14.3625118
                                  total: 639ms
                                                   remaining: 4.28s
        learn: 14.3475392
                                  total: 640ms
                                                   remaining: 4.25s
130:
131:
        learn: 14.3303263
                                  total: 641ms
                                                   remaining: 4.21s
        learn: 14.2828896
132:
                                  total: 641ms
                                                   remaining: 4.18s
        learn: 14.2487278
133:
                                  total: 642ms
                                                   remaining: 4.15s
134:
        learn: 14.2313278
                                  total: 643ms
                                                   remaining: 4.12s
135:
        learn: 14.2027439
                                  total: 649ms
                                                   remaining: 4.12s
136:
        learn: 14.1611451
                                  total: 649ms
                                                   remaining: 4.09s
137:
        learn: 14.1465763
                                  total: 723ms
                                                   remaining: 4.52s
        learn: 14.1325514
                                                   remaining: 4.49s
138:
                                  total: 724ms
139:
        learn: 14.0982645
                                  total: 725ms
                                                   remaining: 4.45s
        learn: 14.0847660
                                  total: 726ms
140:
                                                   remaining: 4.42s
        learn: 14.0339374
141:
                                  total: 731ms
                                                   remaining: 4.41s
                                                   remaining: 4.38s
142:
        learn: 14.0206231
                                  total: 731ms
143:
        learn: 14.0069905
                                  total: 732ms
                                                   remaining: 4.35s
        learn: 13.9939988
                                  total: 733ms
144:
                                                   remaining: 4.32s
145:
        learn: 13.9776088
                                  total: 734ms
                                                   remaining: 4.29s
146:
        learn: 13.9294525
                                  total: 735ms
                                                   remaining: 4.26s
147:
        learn: 13.8953102
                                  total: 735ms
                                                   remaining: 4.23s
148:
        learn: 13.8819100
                                  total: 736ms
                                                   remaining: 4.2s
149:
        learn: 13.8662657
                                  total: 737ms
                                                   remaining: 4.17s
150:
        learn: 13.8083020
                                  total: 737ms
                                                   remaining: 4.15s
151:
        learn: 13.7643437
                                  total: 738ms
                                                   remaining: 4.12s
        learn: 13.7496870
152:
                                  total: 741ms
                                                   remaining: 4.1s
153:
        learn: 13.7366519
                                                   remaining: 4.07s
                                  total: 742ms
154:
        learn: 13.7090122
                                  total: 813ms
                                                   remaining: 4.43s
155:
        learn: 13.6975759
                                  total: 814ms
                                                   remaining: 4.4s
156:
        learn: 13.6848039
                                  total: 815ms
                                                   remaining: 4.38s
157:
        learn: 13.6689514
                                  total: 816ms
                                                   remaining: 4.35s
        learn: 13.6251100
158:
                                  total: 818ms
                                                   remaining: 4.33s
```

```
159:
        learn: 13.6086999
                                  total: 819ms
                                                   remaining: 4.3s
160:
        learn: 13.5679114
                                  total: 821ms
                                                   remaining: 4.28s
                                  total: 822ms
161:
        learn: 13.5575764
                                                   remaining: 4.25s
162:
        learn: 13.5297442
                                  total: 824ms
                                                   remaining: 4.23s
163:
        learn: 13.5008000
                                  total: 825ms
                                                   remaining: 4.21s
        learn: 13.4722965
                                  total: 826ms
164:
                                                   remaining: 4.18s
165:
        learn: 13.4556182
                                  total: 828ms
                                                   remaining: 4.16s
        learn: 13.4452158
                                                   remaining: 4.13s
166:
                                  total: 828ms
        learn: 13.4217822
                                  total: 829ms
                                                   remaining: 4.11s
167:
        learn: 13.4122622
                                  total: 830ms
168:
                                                   remaining: 4.08s
169:
        learn: 13.4021940
                                  total: 831ms
                                                   remaining: 4.06s
        learn: 13.3652990
                                                   remaining: 4.03s
170:
                                  total: 832ms
171:
        learn: 13.3277537
                                  total: 907ms
                                                   remaining: 4.36s
        learn: 13.3141846
                                  total: 908ms
172:
                                                   remaining: 4.34s
173:
        learn: 13.3045616
                                  total: 909ms
                                                   remaining: 4.32s
174:
        learn: 13.2779682
                                  total: 910ms
                                                   remaining: 4.29s
175:
        learn: 13.2633889
                                  total: 911ms
                                                   remaining: 4.27s
176:
        learn: 13.2281749
                                  total: 912ms
                                                   remaining: 4.24s
177:
        learn: 13.2189311
                                  total: 914ms
                                                   remaining: 4.22s
178:
        learn: 13.2051958
                                  total: 915ms
                                                   remaining: 4.2s
        learn: 13.1957957
179:
                                  total: 916ms
                                                   remaining: 4.17s
180:
        learn: 13.1874984
                                  total: 917ms
                                                   remaining: 4.15s
181:
        learn: 13.1617595
                                                   remaining: 4.12s
                                  total: 918ms
182:
        learn: 13.1538791
                                  total: 918ms
                                                   remaining: 4.1s
183:
        learn: 13.1458491
                                  total: 920ms
                                                   remaining: 4.08s
184:
        learn: 13.1379556
                                  total: 921ms
                                                   remaining: 4.06s
185:
        learn: 13.1301450
                                  total: 922ms
                                                   remaining: 4.03s
186:
        learn: 13.1224716
                                  total: 922ms
                                                   remaining: 4.01s
187:
        learn: 13.1148845
                                  total: 923ms
                                                   remaining: 3.99s
                                  total: 924ms
188:
        learn: 13.0821436
                                                   remaining: 3.96s
189:
        learn: 13.0439728
                                  total: 1s
                                                   remaining: 4.26s
        learn: 13.0360359
190:
                                  total: 1s
                                                   remaining: 4.24s
        learn: 13.0067526
                                                   remaining: 4.22s
191:
                                  total: 1s
192:
        learn: 12.9795700
                                  total: 1s
                                                   remaining: 4.19s
        learn: 12.9516199
193:
                                  total: 1s
                                                   remaining: 4.17s
194:
        learn: 12.9438516
                                  total: 1s
                                                   remaining: 4.15s
195:
        learn: 12.9156255
                                  total: 1.01s
                                                   remaining: 4.13s
196:
        learn: 12.8776842
                                  total: 1.01s
                                                   remaining: 4.1s
197:
        learn: 12.8711532
                                  total: 1.01s
                                                   remaining: 4.08s
198:
        learn: 12.8427301
                                  total: 1.01s
                                                   remaining: 4.06s
199:
        learn: 12.8152772
                                                   remaining: 4.04s
                                  total: 1.01s
200:
        learn: 12.7931093
                                  total: 1.01s
                                                   remaining: 4.01s
        learn: 12.7841526
                                                   remaining: 3.99s
201:
                                  total: 1.01s
        learn: 12.7590307
202:
                                  total: 1.01s
                                                   remaining: 3.97s
203:
        learn: 12.7325386
                                                   remaining: 3.95s
                                  total: 1.01s
204:
        learn: 12.7116989
                                  total: 1.01s
                                                   remaining: 3.93s
205:
        learn: 12.6901367
                                  total: 1.01s
                                                   remaining: 3.91s
206:
        learn: 12.6834126
                                  total: 1.09s
                                                   remaining: 4.19s
207:
        learn: 12.6747327
                                  total: 1.09s
                                                   remaining: 4.17s
208:
        learn: 12.6686507
                                  total: 1.09s
                                                   remaining: 4.15s
209:
        learn: 12.6558609
                                  total: 1.1s
                                                   remaining: 4.13s
210:
        learn: 12.6416393
                                                   remaining: 4.1s
                                  total: 1.1s
211:
        learn: 12.6279358
                                                   remaining: 4.08s
                                  total: 1.1s
212:
        learn: 12.6074440
                                  total: 1.1s
                                                   remaining: 4.06s
213:
        learn: 12.5984487
                                  total: 1.1s
                                                   remaining: 4.04s
214:
        learn: 12.5891325
                                                   remaining: 4.02s
                                  total: 1.1s
215:
        learn: 12.5831087
                                  total: 1.1s
                                                   remaining: 3.99s
216:
        learn: 12.5662417
                                                   remaining: 3.97s
                                  total: 1.1s
217:
        learn: 12.5504657
                                  total: 1.1s
                                                   remaining: 3.95s
218:
        learn: 12.5445100
                                  total: 1.1s
                                                   remaining: 3.93s
        learn: 12.5363301
219:
                                  total: 1.1s
                                                   remaining: 3.91s
```

```
220:
        learn: 12.5173222
                                 total: 1.1s
                                                   remaining: 3.89s
221:
        learn: 12.5009138
                                 total: 1.1s
                                                   remaining: 3.87s
222:
        learn: 12.4938865
                                 total: 1.1s
                                                   remaining: 3.85s
223:
        learn: 12.4833201
                                 total: 1.1s
                                                   remaining: 3.83s
224:
        learn: 12.4725020
                                 total: 1.19s
                                                   remaining: 4.09s
225:
        learn: 12.4657381
                                 total: 1.19s
                                                   remaining: 4.07s
226:
        learn: 12.4557148
                                 total: 1.19s
                                                   remaining: 4.05s
227:
        learn: 12.4489920
                                                   remaining: 4.03s
                                 total: 1.19s
228:
        learn: 12.4370383
                                                   remaining: 4.01s
                                 total: 1.19s
229:
        learn: 12.4175131
                                 total: 1.19s
                                                   remaining: 3.99s
        learn: 12.4117242
230:
                                 total: 1.19s
                                                   remaining: 3.97s
231:
        learn: 12.3922656
                                                   remaining: 3.95s
                                 total: 1.19s
232:
        learn: 12.3858765
                                 total: 1.2s
                                                   remaining: 3.94s
        learn: 12.3663111
233:
                                 total: 1.2s
                                                   remaining: 3.92s
234:
        learn: 12.3489967
                                 total: 1.2s
                                                   remaining: 3.9s
235:
        learn: 12.3441120
                                 total: 1.2s
                                                   remaining: 3.88s
236:
        learn: 12.3346664
                                 total: 1.2s
                                                   remaining: 3.87s
237:
        learn: 12.3300037
                                 total: 1.2s
                                                   remaining: 3.85s
238:
        learn: 12.3240890
                                 total: 1.2s
                                                   remaining: 3.83s
239:
        learn: 12.3186312
                                 total: 1.2s
                                                   remaining: 3.81s
240:
        learn: 12.3126072
                                 total: 1.2s
                                                   remaining: 3.79s
241:
        learn: 12.3080211
                                 total: 1.28s
                                                   remaining: 4.01s
242:
        learn: 12.3012253
                                 total: 1.28s
                                                   remaining: 3.99s
243:
        learn: 12.2947395
                                 total: 1.28s
                                                   remaining: 3.98s
                                                   remaining: 3.96s
244:
        learn: 12.2903332
                                 total: 1.28s
245:
        learn: 12.2820648
                                 total: 1.28s
                                                   remaining: 3.94s
246:
        learn: 12.2776451
                                 total: 1.28s
                                                   remaining: 3.92s
247:
        learn: 12.2607311
                                 total: 1.28s
                                                   remaining: 3.9s
248:
        learn: 12.2559213
                                 total: 1.29s
                                                   remaining: 3.88s
        learn: 12.2356017
249:
                                 total: 1.29s
                                                   remaining: 3.86s
250:
        learn: 12.2138998
                                 total: 1.29s
                                                   remaining: 3.84s
                                 total: 1.29s
251:
        learn: 12.2094925
                                                   remaining: 3.83s
252:
        learn: 12.2011765
                                 total: 1.29s
                                                   remaining: 3.81s
253:
        learn: 12.1861892
                                 total: 1.29s
                                                   remaining: 3.79s
        learn: 12.1822539
254:
                                 total: 1.29s
                                                   remaining: 3.78s
                                                   remaining: 3.76s
255:
        learn: 12.1736092
                                 total: 1.29s
256:
        learn: 12.1670126
                                 total: 1.29s
                                                   remaining: 3.74s
257:
        learn: 12.1556846
                                 total: 1.29s
                                                   remaining: 3.73s
258:
        learn: 12.1446981
                                 total: 1.3s
                                                   remaining: 3.71s
259:
        learn: 12.1345520
                                 total: 1.3s
                                                   remaining: 3.69s
260:
        learn: 12.1289179
                                                   remaining: 3.9s
                                 total: 1.38s
261:
        learn: 12.1076684
                                 total: 1.38s
                                                   remaining: 3.89s
262:
        learn: 12.1033410
                                 total: 1.38s
                                                   remaining: 3.87s
        learn: 12.0838593
263:
                                 total: 1.38s
                                                   remaining: 3.86s
264:
        learn: 12.0591791
                                 total: 1.39s
                                                   remaining: 3.84s
265:
        learn: 12.0468375
                                 total: 1.39s
                                                   remaining: 3.83s
        learn: 12.0435989
                                 total: 1.39s
266:
                                                   remaining: 3.81s
                                                   remaining: 3.8s
267:
        learn: 12.0294875
                                 total: 1.39s
268:
        learn: 12.0245859
                                 total: 1.39s
                                                   remaining: 3.78s
269:
        learn: 12.0101130
                                 total: 1.39s
                                                   remaining: 3.77s
270:
        learn: 11.9901429
                                 total: 1.39s
                                                   remaining: 3.75s
271:
        learn: 11.9865030
                                                   remaining: 3.73s
                                 total: 1.4s
272:
        learn: 11.9772035
                                                   remaining: 3.72s
                                 total: 1.4s
273:
        learn: 11.9674993
                                 total: 1.47s
                                                   remaining: 3.89s
        learn: 11.9585927
274:
                                 total: 1.47s
                                                   remaining: 3.88s
275:
        learn: 11.9555303
                                                   remaining: 3.86s
                                 total: 1.47s
276:
        learn: 11.9443146
                                 total: 1.47s
                                                   remaining: 3.85s
277:
        learn: 11.9208844
                                 total: 1.48s
                                                   remaining: 3.83s
278:
        learn: 11.9175838
                                 total: 1.48s
                                                   remaining: 3.82s
279:
        learn: 11.9133509
                                 total: 1.48s
                                                   remaining: 3.8s
        learn: 11.9074817
280:
                                 total: 1.48s
                                                   remaining: 3.78s
```

```
281:
        learn: 11.8844524
                                  total: 1.48s
                                                   remaining: 3.77s
282:
        learn: 11.8815408
                                  total: 1.48s
                                                   remaining: 3.75s
283:
        learn: 11.8685648
                                  total: 1.48s
                                                   remaining: 3.73s
284:
        learn: 11.8453312
                                  total: 1.48s
                                                   remaining: 3.72s
285:
        learn: 11.8359850
                                  total: 1.48s
                                                   remaining: 3.7s
        learn: 11.8303775
                                  total: 1.48s
286:
                                                   remaining: 3.68s
287:
        learn: 11.8265197
                                  total: 1.49s
                                                   remaining: 3.68s
288:
        learn: 11.8212875
                                                   remaining: 3.67s
                                  total: 1.49s
289:
        learn: 11.8155755
                                  total: 1.49s
                                                   remaining: 3.65s
        learn: 11.7982246
                                  total: 1.56s
290:
                                                   remaining: 3.81s
291:
        learn: 11.7903292
                                  total: 1.56s
                                                   remaining: 3.79s
292:
        learn: 11.7847776
                                                   remaining: 3.78s
                                  total: 1.56s
293:
        learn: 11.7793342
                                  total: 1.56s
                                                   remaining: 3.76s
        learn: 11.7718570
294:
                                  total: 1.57s
                                                   remaining: 3.74s
295:
        learn: 11.7673761
                                  total: 1.57s
                                                   remaining: 3.73s
296:
        learn: 11.7611871
                                  total: 1.57s
                                                   remaining: 3.71s
297:
        learn: 11.7573702
                                  total: 1.57s
                                                   remaining: 3.69s
298:
        learn: 11.7402930
                                  total: 1.57s
                                                   remaining: 3.68s
                                  total: 1.57s
299:
        learn: 11.7356786
                                                   remaining: 3.67s
300:
        learn: 11.7282952
                                                   remaining: 3.65s
                                  total: 1.57s
301:
        learn: 11.7211063
                                  total: 1.57s
                                                   remaining: 3.64s
302:
        learn: 11.6988865
                                  total: 1.57s
                                                   remaining: 3.62s
303:
        learn: 11.6831336
                                  total: 1.58s
                                                   remaining: 3.61s
304:
        learn: 11.6781974
                                  total: 1.58s
                                                   remaining: 3.6s
305:
        learn: 11.6616695
                                  total: 1.58s
                                                   remaining: 3.58s
                                                   remaining: 3.57s
306:
        learn: 11.6516175
                                  total: 1.58s
307:
        learn: 11.6275235
                                  total: 1.66s
                                                   remaining: 3.72s
308:
        learn: 11.6063176
                                  total: 1.66s
                                                   remaining: 3.71s
309:
        learn: 11.6038656
                                  total: 1.66s
                                                   remaining: 3.69s
        learn: 11.5931267
310:
                                  total: 1.66s
                                                   remaining: 3.68s
311:
        learn: 11.5770514
                                  total: 1.66s
                                                   remaining: 3.66s
        learn: 11.5604778
312:
                                  total: 1.66s
                                                   remaining: 3.65s
313:
        learn: 11.5580575
                                  total: 1.66s
                                                   remaining: 3.63s
314:
        learn: 11.5527450
                                  total: 1.66s
                                                   remaining: 3.61s
315:
        learn: 11.5401159
                                  total: 1.66s
                                                   remaining: 3.6s
                                                   remaining: 3.58s
316:
        learn: 11.5356890
                                  total: 1.66s
317:
        learn: 11.5265183
                                  total: 1.66s
                                                   remaining: 3.57s
318:
        learn: 11.5222386
                                  total: 1.66s
                                                   remaining: 3.55s
319:
        learn: 11.5023335
                                  total: 1.67s
                                                   remaining: 3.54s
320:
        learn: 11.4988961
                                  total: 1.67s
                                                   remaining: 3.52s
321:
        learn: 11.4794472
                                                   remaining: 3.51s
                                  total: 1.67s
322:
        learn: 11.4727854
                                  total: 1.67s
                                                   remaining: 3.5s
323:
        learn: 11.4702294
                                  total: 1.67s
                                                   remaining: 3.48s
        learn: 11.4636687
324:
                                  total: 1.67s
                                                   remaining: 3.47s
325:
        learn: 11.4614707
                                                   remaining: 3.62s
                                  total: 1.75s
326:
        learn: 11.4593058
                                  total: 1.75s
                                                   remaining: 3.6s
327:
        learn: 11.4568852
                                  total: 1.75s
                                                   remaining: 3.59s
                                                   remaining: 3.57s
328:
        learn: 11.4382180
                                  total: 1.75s
329:
        learn: 11.4360903
                                  total: 1.75s
                                                   remaining: 3.56s
330:
        learn: 11.4337200
                                  total: 1.75s
                                                   remaining: 3.54s
331:
        learn: 11.4229177
                                  total: 1.75s
                                                   remaining: 3.53s
332:
        learn: 11.4206715
                                  total: 1.75s
                                                   remaining: 3.52s
333:
        learn: 11.4141606
                                  total: 1.76s
                                                   remaining: 3.5s
334:
        learn: 11.3994286
                                  total: 1.76s
                                                   remaining: 3.49s
        learn: 11.3969721
335:
                                  total: 1.76s
                                                   remaining: 3.47s
        learn: 11.3794676
                                                   remaining: 3.46s
336:
                                  total: 1.76s
337:
        learn: 11.3688472
                                  total: 1.76s
                                                   remaining: 3.45s
338:
        learn: 11.3585557
                                  total: 1.76s
                                                   remaining: 3.43s
339:
        learn: 11.3535073
                                  total: 1.76s
                                                   remaining: 3.42s
340:
        learn: 11.3400606
                                  total: 1.76s
                                                   remaining: 3.4s
        learn: 11.3294636
341:
                                  total: 1.76s
                                                   remaining: 3.39s
```

```
342:
        learn: 11.3191089
                                  total: 1.77s
                                                   remaining: 3.39s
343:
        learn: 11.3101482
                                  total: 1.84s
                                                   remaining: 3.51s
        learn: 11.3067872
                                  total: 1.84s
344:
                                                   remaining: 3.5s
345:
        learn: 11.3049723
                                  total: 1.84s
                                                   remaining: 3.49s
346:
        learn: 11.3030541
                                  total: 1.84s
                                                   remaining: 3.47s
347:
        learn: 11.2857988
                                  total: 1.85s
                                                   remaining: 3.46s
348:
        learn: 11.2739301
                                  total: 1.85s
                                                   remaining: 3.44s
349:
        learn: 11.2583530
                                                   remaining: 3.43s
                                  total: 1.85s
350:
        learn: 11.2564955
                                  total: 1.85s
                                                   remaining: 3.42s
        learn: 11.2528335
                                  total: 1.85s
351:
                                                   remaining: 3.4s
352:
        learn: 11.2510576
                                  total: 1.85s
                                                   remaining: 3.39s
353:
        learn: 11.2387012
                                                   remaining: 3.38s
                                  total: 1.85s
354:
        learn: 11.2224772
                                  total: 1.85s
                                                   remaining: 3.36s
        learn: 11.2190983
                                  total: 1.85s
355:
                                                   remaining: 3.35s
356:
        learn: 11.2049575
                                  total: 1.85s
                                                   remaining: 3.34s
357:
        learn: 11.2016897
                                  total: 1.85s
                                                   remaining: 3.32s
358:
        learn: 11.1921755
                                  total: 1.85s
                                                   remaining: 3.31s
359:
        learn: 11.1828432
                                  total: 1.85s
                                                   remaining: 3.3s
360:
        learn: 11.1811062
                                  total: 1.85s
                                                   remaining: 3.28s
361:
        learn: 11.1710012
                                  total: 1.94s
                                                   remaining: 3.41s
        learn: 11.1609936
362:
                                  total: 1.94s
                                                   remaining: 3.4s
363:
        learn: 11.1548606
                                  total: 1.94s
                                                   remaining: 3.39s
364:
        learn: 11.1420377
                                  total: 1.94s
                                                   remaining: 3.37s
365:
        learn: 11.1378769
                                  total: 1.94s
                                                   remaining: 3.36s
                                                   remaining: 3.35s
366:
        learn: 11.1265885
                                  total: 1.94s
367:
        learn: 11.1245535
                                  total: 1.94s
                                                   remaining: 3.33s
368:
        learn: 11.1230638
                                  total: 1.94s
                                                   remaining: 3.32s
369:
        learn: 11.1031116
                                  total: 1.94s
                                                   remaining: 3.31s
370:
        learn: 11.1011388
                                  total: 1.94s
                                                   remaining: 3.29s
        learn: 11.0918531
371:
                                  total: 1.94s
                                                   remaining: 3.28s
372:
        learn: 11.0809323
                                  total: 1.95s
                                                   remaining: 3.27s
        learn: 11.0703611
373:
                                  total: 1.95s
                                                   remaining: 3.26s
374:
        learn: 11.0687350
                                  total: 1.95s
                                                   remaining: 3.24s
375:
        learn: 11.0579519
                                  total: 1.95s
                                                   remaining: 3.23s
        learn: 11.0457984
376:
                                  total: 1.95s
                                                   remaining: 3.22s
                                                   remaining: 3.21s
377:
        learn: 11.0332366
                                  total: 1.95s
378:
        learn: 11.0244829
                                  total: 2.03s
                                                   remaining: 3.33s
379:
        learn: 11.0229255
                                  total: 2.03s
                                                   remaining: 3.31s
380:
        learn: 11.0126179
                                  total: 2.03s
                                                   remaining: 3.3s
381:
        learn: 11.0053516
                                  total: 2.03s
                                                   remaining: 3.29s
382:
        learn: 10.9919348
                                                   remaining: 3.28s
                                  total: 2.03s
383:
        learn: 10.9809002
                                  total: 2.04s
                                                   remaining: 3.26s
        learn: 10.9728584
                                  total: 2.04s
384:
                                                   remaining: 3.25s
        learn: 10.9639876
385:
                                  total: 2.04s
                                                   remaining: 3.24s
        learn: 10.9535302
                                  total: 2.04s
                                                   remaining: 3.23s
386:
387:
        learn: 10.9417811
                                  total: 2.04s
                                                   remaining: 3.22s
388:
        learn: 10.9258749
                                  total: 2.04s
                                                   remaining: 3.2s
                                  total: 2.04s
                                                   remaining: 3.19s
389:
        learn: 10.9240040
390:
        learn: 10.9175078
                                  total: 2.04s
                                                   remaining: 3.18s
391:
        learn: 10.9062237
                                  total: 2.04s
                                                   remaining: 3.17s
392:
        learn: 10.8965062
                                  total: 2.04s
                                                   remaining: 3.15s
393:
        learn: 10.8886947
                                  total: 2.04s
                                                   remaining: 3.14s
394:
        learn: 10.8782784
                                  total: 2.04s
                                                   remaining: 3.13s
395:
        learn: 10.8700374
                                  total: 2.04s
                                                   remaining: 3.12s
        learn: 10.8685286
396:
                                  total: 2.12s
                                                   remaining: 3.23s
397:
        learn: 10.8582025
                                                   remaining: 3.21s
                                  total: 2.12s
398:
        learn: 10.8502725
                                  total: 2.13s
                                                   remaining: 3.2s
399:
        learn: 10.8345675
                                  total: 2.13s
                                                   remaining: 3.19s
400:
        learn: 10.8246409
                                  total: 2.13s
                                                   remaining: 3.18s
401:
        learn: 10.8185161
                                  total: 2.13s
                                                   remaining: 3.17s
        learn: 10.8103879
402:
                                  total: 2.13s
                                                   remaining: 3.15s
```

```
403:
        learn: 10.8004623
                                  total: 2.13s
                                                   remaining: 3.14s
404:
        learn: 10.7925785
                                  total: 2.13s
                                                   remaining: 3.13s
405:
        learn: 10.7835759
                                  total: 2.13s
                                                   remaining: 3.12s
406:
        learn: 10.7820747
                                  total: 2.13s
                                                   remaining: 3.11s
407:
        learn: 10.7738172
                                  total: 2.13s
                                                   remaining: 3.1s
        learn: 10.7720207
408:
                                  total: 2.13s
                                                   remaining: 3.08s
409:
        learn: 10.7648082
                                  total: 2.13s
                                                   remaining: 3.07s
410:
        learn: 10.7566235
                                                   remaining: 3.06s
                                  total: 2.13s
411:
        learn: 10.7446760
                                  total: 2.14s
                                                   remaining: 3.05s
412:
        learn: 10.7359202
                                  total: 2.14s
                                                   remaining: 3.04s
413:
        learn: 10.7293368
                                  total: 2.14s
                                                   remaining: 3.03s
414:
        learn: 10.7278847
                                                   remaining: 3.02s
                                  total: 2.14s
415:
        learn: 10.7164730
                                  total: 2.14s
                                                   remaining: 3s
        learn: 10.7076163
                                  total: 2.14s
416:
                                                   remaining: 2.99s
417:
        learn: 10.7035024
                                  total: 2.14s
                                                   remaining: 2.98s
418:
        learn: 10.6957633
                                  total: 2.14s
                                                   remaining: 2.97s
419:
        learn: 10.6881366
                                  total: 2.22s
                                                   remaining: 3.06s
420:
        learn: 10.6807592
                                  total: 2.22s
                                                   remaining: 3.05s
421:
        learn: 10.6742868
                                  total: 2.22s
                                                   remaining: 3.04s
422:
        learn: 10.6670461
                                                   remaining: 3.03s
                                  total: 2.22s
423:
        learn: 10.6594894
                                  total: 2.22s
                                                   remaining: 3.02s
        learn: 10.6540709
424:
                                  total: 2.22s
                                                   remaining: 3s
425:
        learn: 10.6465577
                                  total: 2.22s
                                                   remaining: 2.99s
426:
        learn: 10.6420144
                                  total: 2.22s
                                                   remaining: 2.98s
427:
        learn: 10.6349746
                                  total: 2.22s
                                                   remaining: 2.97s
428:
        learn: 10.6314276
                                  total: 2.22s
                                                   remaining: 2.96s
429:
        learn: 10.6236253
                                  total: 2.22s
                                                   remaining: 2.95s
430:
        learn: 10.6167423
                                  total: 2.22s
                                                   remaining: 2.94s
431:
        learn: 10.6135873
                                  total: 2.23s
                                                   remaining: 2.93s
432:
        learn: 10.6121644
                                  total: 2.23s
                                                   remaining: 2.92s
433:
        learn: 10.6080499
                                  total: 2.23s
                                                   remaining: 2.9s
                                  total: 2.23s
        learn: 10.6021857
434:
                                                   remaining: 2.89s
435:
        learn: 10.6007882
                                  total: 2.23s
                                                   remaining: 2.88s
436:
        learn: 10.5956170
                                  total: 2.23s
                                                   remaining: 2.88s
437:
        learn: 10.5881075
                                  total: 2.23s
                                                   remaining: 2.87s
                                                   remaining: 2.95s
438:
        learn: 10.5831942
                                  total: 2.31s
439:
        learn: 10.5743854
                                  total: 2.31s
                                                   remaining: 2.94s
440:
        learn: 10.5688652
                                  total: 2.31s
                                                   remaining: 2.93s
441:
        learn: 10.5621513
                                  total: 2.31s
                                                   remaining: 2.92s
442:
        learn: 10.5538218
                                  total: 2.31s
                                                   remaining: 2.91s
443:
        learn: 10.5463715
                                                   remaining: 2.9s
                                  total: 2.31s
444:
        learn: 10.5448304
                                  total: 2.31s
                                                   remaining: 2.88s
445:
        learn: 10.5434793
                                  total: 2.31s
                                                   remaining: 2.88s
        learn: 10.5421483
446:
                                  total: 2.31s
                                                   remaining: 2.86s
447:
        learn: 10.5380307
                                  total: 2.31s
                                                   remaining: 2.85s
448:
        learn: 10.5339364
                                  total: 2.32s
                                                   remaining: 2.84s
449:
        learn: 10.5258894
                                  total: 2.32s
                                                   remaining: 2.83s
                                  total: 2.32s
                                                   remaining: 2.82s
450:
        learn: 10.5157210
451:
        learn: 10.5093992
                                  total: 2.32s
                                                   remaining: 2.81s
452:
        learn: 10.5025526
                                  total: 2.32s
                                                   remaining: 2.8s
453:
        learn: 10.4940384
                                  total: 2.32s
                                                   remaining: 2.79s
454:
        learn: 10.4880003
                                  total: 2.32s
                                                   remaining: 2.78s
455:
        learn: 10.4865929
                                                   remaining: 2.87s
                                  total: 2.4s
456:
        learn: 10.4758308
                                  total: 2.4s
                                                   remaining: 2.86s
        learn: 10.4697802
457:
                                  total: 2.4s
                                                   remaining: 2.85s
458:
        learn: 10.4591301
                                                   remaining: 2.84s
                                  total: 2.41s
459:
        learn: 10.4526738
                                  total: 2.41s
                                                   remaining: 2.83s
        learn: 10.4459860
                                  total: 2.41s
460:
                                                   remaining: 2.82s
461:
        learn: 10.4446827
                                  total: 2.41s
                                                   remaining: 2.81s
462:
        learn: 10.4387727
                                  total: 2.41s
                                                   remaining: 2.79s
        learn: 10.4353517
463:
                                  total: 2.41s
                                                   remaining: 2.79s
```

```
464:
        learn: 10.4258975
                                  total: 2.41s
                                                   remaining: 2.77s
465:
        learn: 10.4186182
                                  total: 2.41s
                                                   remaining: 2.77s
                                  total: 2.41s
466:
        learn: 10.4173378
                                                   remaining: 2.75s
467:
        learn: 10.4095198
                                  total: 2.42s
                                                   remaining: 2.75s
468:
        learn: 10.4071221
                                  total: 2.42s
                                                   remaining: 2.73s
        learn: 10.4056094
                                  total: 2.42s
469:
                                                   remaining: 2.73s
470:
        learn: 10.3997799
                                  total: 2.42s
                                                   remaining: 2.72s
471:
        learn: 10.3950716
                                                   remaining: 2.71s
                                  total: 2.42s
472:
        learn: 10.3848157
                                  total: 2.5s
                                                   remaining: 2.78s
473:
        learn: 10.3821045
                                  total: 2.5s
                                                   remaining: 2.77s
474:
        learn: 10.3782602
                                  total: 2.5s
                                                   remaining: 2.76s
475:
        learn: 10.3698869
                                                   remaining: 2.75s
                                  total: 2.5s
476:
        learn: 10.3620386
                                  total: 2.5s
                                                   remaining: 2.74s
477:
        learn: 10.3580537
                                  total: 2.5s
                                                   remaining: 2.73s
478:
        learn: 10.3504504
                                  total: 2.5s
                                                   remaining: 2.72s
479:
        learn: 10.3405003
                                  total: 2.5s
                                                   remaining: 2.71s
480:
        learn: 10.3359624
                                  total: 2.5s
                                                   remaining: 2.7s
481:
        learn: 10.3270187
                                  total: 2.5s
                                                   remaining: 2.69s
482:
        learn: 10.3183561
                                  total: 2.5s
                                                   remaining: 2.68s
483:
        learn: 10.3129232
                                  total: 2.5s
                                                   remaining: 2.67s
484:
        learn: 10.3056725
                                  total: 2.5s
                                                   remaining: 2.66s
        learn: 10.3026228
485:
                                  total: 2.51s
                                                   remaining: 2.65s
486:
        learn: 10.2948815
                                  total: 2.51s
                                                   remaining: 2.64s
487:
        learn: 10.2918723
                                  total: 2.51s
                                                   remaining: 2.63s
488:
        learn: 10.2872324
                                  total: 2.51s
                                                   remaining: 2.62s
489:
        learn: 10.2793424
                                  total: 2.51s
                                                   remaining: 2.62s
490:
        learn: 10.2756524
                                  total: 2.52s
                                                   remaining: 2.61s
491:
        learn: 10.2660718
                                  total: 2.59s
                                                   remaining: 2.67s
492:
        learn: 10.2607915
                                  total: 2.59s
                                                   remaining: 2.66s
493:
        learn: 10.2571123
                                  total: 2.59s
                                                   remaining: 2.65s
494:
        learn: 10.2557515
                                  total: 2.59s
                                                   remaining: 2.64s
        learn: 10.2471336
495:
                                  total: 2.59s
                                                   remaining: 2.63s
496:
        learn: 10.2420365
                                  total: 2.59s
                                                   remaining: 2.63s
497:
        learn: 10.2368611
                                  total: 2.6s
                                                   remaining: 2.62s
        learn: 10.2292719
498:
                                  total: 2.6s
                                                   remaining: 2.61s
                                                   remaining: 2.6s
499:
        learn: 10.2251242
                                  total: 2.6s
500:
        learn: 10.2196978
                                  total: 2.6s
                                                   remaining: 2.59s
501:
        learn: 10.2099825
                                  total: 2.6s
                                                   remaining: 2.58s
502:
        learn: 10.2087580
                                  total: 2.6s
                                                   remaining: 2.57s
503:
        learn: 10.2018780
                                  total: 2.6s
                                                   remaining: 2.56s
504:
        learn: 10.2006698
                                                   remaining: 2.55s
                                  total: 2.6s
505:
        learn: 10.1970802
                                  total: 2.68s
                                                   remaining: 2.62s
        learn: 10.1939845
                                  total: 2.68s
506:
                                                   remaining: 2.61s
        learn: 10.1888181
507:
                                  total: 2.69s
                                                   remaining: 2.6s
508:
        learn: 10.1837793
                                                   remaining: 2.59s
                                  total: 2.69s
509:
        learn: 10.1772394
                                  total: 2.69s
                                                   remaining: 2.58s
510:
        learn: 10.1737958
                                  total: 2.69s
                                                   remaining: 2.57s
                                  total: 2.69s
511:
        learn: 10.1683461
                                                   remaining: 2.56s
512:
        learn: 10.1629772
                                  total: 2.69s
                                                   remaining: 2.56s
513:
        learn: 10.1596878
                                  total: 2.69s
                                                   remaining: 2.55s
514:
        learn: 10.1518664
                                  total: 2.69s
                                                   remaining: 2.54s
515:
        learn: 10.1485108
                                  total: 2.69s
                                                   remaining: 2.53s
516:
        learn: 10.1467182
                                  total: 2.69s
                                                   remaining: 2.52s
517:
        learn: 10.1405575
                                  total: 2.7s
                                                   remaining: 2.51s
        learn: 10.1357992
518:
                                  total: 2.7s
                                                   remaining: 2.5s
519:
        learn: 10.1317655
                                                   remaining: 2.56s
                                  total: 2.78s
520:
        learn: 10.1281180
                                  total: 2.78s
                                                   remaining: 2.56s
521:
        learn: 10.1192183
                                  total: 2.78s
                                                   remaining: 2.55s
522:
        learn: 10.1143234
                                  total: 2.78s
                                                   remaining: 2.54s
523:
        learn: 10.1131245
                                  total: 2.78s
                                                   remaining: 2.53s
        learn: 10.1119437
524:
                                  total: 2.78s
                                                   remaining: 2.52s
```

```
learn: 10.1012662
525:
                                  total: 2.78s
                                                   remaining: 2.51s
526:
        learn: 10.0957568
                                  total: 2.78s
                                                   remaining: 2.5s
527:
                                  total: 2.79s
        learn: 10.0910685
                                                   remaining: 2.49s
528:
        learn: 10.0870405
                                  total: 2.79s
                                                   remaining: 2.48s
529:
        learn: 10.0823241
                                  total: 2.79s
                                                   remaining: 2.47s
530:
        learn: 10.0786162
                                  total: 2.79s
                                                   remaining: 2.46s
531:
        learn: 10.0744684
                                  total: 2.79s
                                                   remaining: 2.45s
532:
        learn: 10.0705338
                                  total: 2.79s
                                                   remaining: 2.44s
533:
        learn: 10.0658186
                                  total: 2.79s
                                                   remaining: 2.44s
534:
        learn: 10.0624218
                                  total: 2.79s
                                                   remaining: 2.43s
535:
        learn: 10.0612458
                                  total: 2.79s
                                                   remaining: 2.42s
536:
        learn: 10.0567470
                                                   remaining: 2.41s
                                  total: 2.79s
537:
        learn: 10.0509195
                                  total: 2.87s
                                                   remaining: 2.47s
538:
        learn: 10.0482891
                                  total: 2.87s
                                                   remaining: 2.46s
539:
        learn: 10.0471280
                                  total: 2.87s
                                                   remaining: 2.45s
540:
        learn: 10.0416585
                                  total: 2.87s
                                                   remaining: 2.44s
541:
        learn: 10.0383756
                                  total: 2.88s
                                                   remaining: 2.43s
542:
        learn: 10.0351520
                                  total: 2.88s
                                                   remaining: 2.42s
                                  total: 2.88s
543:
        learn: 10.0306113
                                                   remaining: 2.41s
544:
        learn: 10.0294706
                                  total: 2.88s
                                                   remaining: 2.4s
545:
        learn: 10.0283470
                                  total: 2.88s
                                                   remaining: 2.39s
546:
        learn: 10.0234654
                                  total: 2.88s
                                                   remaining: 2.38s
547:
        learn: 10.0169721
                                  total: 2.88s
                                                   remaining: 2.37s
548:
        learn: 10.0134403
                                  total: 2.88s
                                                   remaining: 2.37s
                                  total: 2.88s
549:
        learn: 10.0062247
                                                   remaining: 2.36s
550:
        learn: 10.0042578
                                  total: 2.88s
                                                   remaining: 2.35s
551:
        learn: 10.0009225
                                  total: 2.88s
                                                   remaining: 2.34s
552:
        learn: 9.9993460
                                  total: 2.88s
                                                   remaining: 2.33s
553:
        learn: 9.9956358
                                  total: 2.88s
                                                   remaining: 2.32s
554:
        learn: 9.9922743
                                  total: 2.88s
                                                   remaining: 2.31s
555:
        learn: 9.9883788
                                  total: 2.96s
                                                   remaining: 2.37s
                                  total: 2.97s
556:
        learn: 9.9861540
                                                   remaining: 2.36s
557:
        learn: 9.9829351
                                  total: 2.97s
                                                   remaining: 2.35s
558:
        learn: 9.9800019
                                  total: 2.97s
                                                   remaining: 2.34s
        learn: 9.9756873
559:
                                  total: 2.97s
                                                   remaining: 2.33s
                                  total: 2.97s
                                                   remaining: 2.32s
560:
        learn: 9.9686287
561:
        learn: 9.9656067
                                  total: 2.97s
                                                   remaining: 2.32s
562:
        learn: 9.9618733
                                  total: 2.97s
                                                   remaining: 2.31s
563:
        learn: 9.9573146
                                  total: 2.98s
                                                   remaining: 2.3s
564:
        learn: 9.9532112
                                  total: 2.98s
                                                   remaining: 2.29s
                                  total: 2.98s
565:
        learn: 9.9477752
                                                   remaining: 2.28s
        learn: 9.9434225
566:
                                  total: 2.98s
                                                   remaining: 2.27s
567:
        learn: 9.9408833
                                  total: 2.98s
                                                   remaining: 2.27s
        learn: 9.9379483
568:
                                  total: 2.98s
                                                   remaining: 2.26s
569:
        learn: 9.9313238
                                  total: 2.98s
                                                   remaining: 2.25s
570:
        learn: 9.9251804
                                  total: 2.98s
                                                   remaining: 2.24s
571:
        learn: 9.9195840
                                  total: 2.98s
                                                   remaining: 2.23s
                                                   remaining: 2.28s
572:
        learn: 9.9126909
                                  total: 3.06s
573:
        learn: 9.9114760
                                  total: 3.06s
                                                   remaining: 2.27s
574:
        learn: 9.9073425
                                  total: 3.06s
                                                   remaining: 2.26s
575:
        learn: 9.9040924
                                  total: 3.06s
                                                   remaining: 2.25s
576:
        learn: 9.9002252
                                  total: 3.06s
                                                   remaining: 2.24s
577:
        learn: 9.8927505
                                  total: 3.06s
                                                   remaining: 2.23s
578:
        learn: 9.8904322
                                  total: 3.06s
                                                   remaining: 2.23s
579:
        learn: 9.8881485
                                  total: 3.06s
                                                   remaining: 2.22s
580:
        learn: 9.8835290
                                                   remaining: 2.21s
                                  total: 3.06s
581:
        learn: 9.8803671
                                  total: 3.06s
                                                   remaining: 2.2s
582:
        learn: 9.8747708
                                  total: 3.07s
                                                   remaining: 2.19s
583:
        learn: 9.8726488
                                  total: 3.07s
                                                   remaining: 2.19s
584:
        learn: 9.8661742
                                  total: 3.07s
                                                   remaining: 2.18s
585:
        learn: 9.8621558
                                  total: 3.07s
                                                   remaining: 2.17s
```

```
586:
        learn: 9.8578575
                                  total: 3.07s
                                                   remaining: 2.16s
587:
        learn: 9.8545192
                                  total: 3.07s
                                                   remaining: 2.15s
588:
        learn: 9.8508335
                                  total: 3.07s
                                                   remaining: 2.14s
589:
        learn: 9.8486479
                                  total: 3.07s
                                                   remaining: 2.14s
590:
        learn: 9.8466095
                                  total: 3.07s
                                                   remaining: 2.13s
        learn: 9.8434105
591:
                                  total: 3.15s
                                                   remaining: 2.17s
592:
        learn: 9.8388076
                                  total: 3.15s
                                                   remaining: 2.16s
593:
        learn: 9.8336327
                                                   remaining: 2.15s
                                  total: 3.15s
594:
        learn: 9.8287299
                                  total: 3.15s
                                                   remaining: 2.14s
595:
        learn: 9.8265127
                                  total: 3.15s
                                                   remaining: 2.13s
        learn: 9.8226352
596:
                                  total: 3.15s
                                                   remaining: 2.13s
597:
        learn: 9.8179798
                                                   remaining: 2.12s
                                  total: 3.15s
598:
        learn: 9.8150663
                                  total: 3.15s
                                                   remaining: 2.11s
599:
        learn: 9.8120261
                                  total: 3.15s
                                                   remaining: 2.1s
600:
        learn: 9.8096447
                                  total: 3.15s
                                                   remaining: 2.09s
601:
        learn: 9.8086063
                                  total: 3.15s
                                                   remaining: 2.09s
602:
        learn: 9.8048771
                                  total: 3.16s
                                                   remaining: 2.08s
603:
        learn: 9.8019395
                                  total: 3.16s
                                                   remaining: 2.07s
                                  total: 3.16s
604:
        learn: 9.7980821
                                                   remaining: 2.06s
605:
        learn: 9.7943583
                                                   remaining: 2.06s
                                  total: 3.17s
        learn: 9.7915835
                                  total: 3.17s
606:
                                                   remaining: 2.05s
607:
        learn: 9.7900073
                                  total: 3.24s
                                                   remaining: 2.09s
608:
        learn: 9.7884985
                                  total: 3.24s
                                                   remaining: 2.08s
609:
        learn: 9.7853960
                                  total: 3.24s
                                                   remaining: 2.07s
610:
        learn: 9.7826890
                                  total: 3.24s
                                                   remaining: 2.06s
611:
        learn: 9.7789930
                                  total: 3.24s
                                                   remaining: 2.06s
612:
        learn: 9.7753556
                                  total: 3.24s
                                                   remaining: 2.05s
613:
        learn: 9.7743277
                                  total: 3.25s
                                                   remaining: 2.04s
614:
        learn: 9.7680953
                                  total: 3.25s
                                                   remaining: 2.03s
615:
        learn: 9.7651817
                                  total: 3.25s
                                                   remaining: 2.02s
616:
        learn: 9.7634745
                                  total: 3.25s
                                                   remaining: 2.02s
617:
        learn: 9.7591256
                                  total: 3.25s
                                                   remaining: 2.01s
618:
        learn: 9.7578128
                                  total: 3.25s
                                                   remaining: 2s
619:
        learn: 9.7567972
                                  total: 3.25s
                                                   remaining: 1.99s
620:
        learn: 9.7545550
                                  total: 3.25s
                                                   remaining: 1.98s
                                                   remaining: 1.98s
621:
        learn: 9.7513966
                                  total: 3.25s
622:
        learn: 9.7492897
                                  total: 3.25s
                                                   remaining: 1.97s
623:
        learn: 9.7430061
                                  total: 3.25s
                                                   remaining: 1.96s
624:
        learn: 9.7389011
                                  total: 3.25s
                                                   remaining: 1.95s
625:
        learn: 9.7371939
                                  total: 3.33s
                                                   remaining: 1.99s
626:
        learn: 9.7362022
                                  total: 3.33s
                                                   remaining: 1.98s
627:
        learn: 9.7314678
                                  total: 3.33s
                                                   remaining: 1.98s
        learn: 9.7288538
628:
                                  total: 3.33s
                                                   remaining: 1.97s
        learn: 9.7246995
629:
                                  total: 3.34s
                                                   remaining: 1.96s
630:
        learn: 9.7213372
                                  total: 3.34s
                                                   remaining: 1.95s
631:
        learn: 9.7161185
                                  total: 3.34s
                                                   remaining: 1.94s
        learn: 9.7129159
                                  total: 3.34s
632:
                                                   remaining: 1.94s
                                                   remaining: 1.93s
633:
        learn: 9.7087097
                                  total: 3.34s
634:
        learn: 9.7059309
                                  total: 3.34s
                                                   remaining: 1.92s
635:
        learn: 9.6988864
                                  total: 3.34s
                                                   remaining: 1.91s
636:
        learn: 9.6960340
                                  total: 3.34s
                                                   remaining: 1.9s
637:
        learn: 9.6945556
                                  total: 3.34s
                                                   remaining: 1.9s
638:
        learn: 9.6908590
                                  total: 3.34s
                                                   remaining: 1.89s
639:
        learn: 9.6880085
                                  total: 3.35s
                                                   remaining: 1.88s
        learn: 9.6798179
640:
                                  total: 3.35s
                                                   remaining: 1.87s
641:
        learn: 9.6701064
                                                   remaining: 1.87s
                                  total: 3.35s
642:
        learn: 9.6683573
                                  total: 3.35s
                                                   remaining: 1.86s
643:
        learn: 9.6655583
                                  total: 3.42s
                                                   remaining: 1.89s
644:
        learn: 9.6605902
                                  total: 3.42s
                                                   remaining: 1.88s
645:
        learn: 9.6586765
                                  total: 3.42s
                                                   remaining: 1.88s
646:
        learn: 9.6557854
                                  total: 3.43s
                                                   remaining: 1.87s
```

```
647:
        learn: 9.6523646
                                  total: 3.43s
                                                   remaining: 1.86s
648:
        learn: 9.6482214
                                  total: 3.43s
                                                   remaining: 1.85s
        learn: 9.6446427
649:
                                  total: 3.43s
                                                   remaining: 1.85s
650:
        learn: 9.6388852
                                  total: 3.43s
                                                   remaining: 1.84s
651:
        learn: 9.6353102
                                  total: 3.43s
                                                   remaining: 1.83s
        learn: 9.6343412
                                  total: 3.43s
652:
                                                   remaining: 1.82s
653:
        learn: 9.6270119
                                  total: 3.43s
                                                   remaining: 1.82s
654:
        learn: 9.6200567
                                  total: 3.43s
                                                   remaining: 1.81s
655:
        learn: 9.6168352
                                  total: 3.44s
                                                   remaining: 1.8s
        learn: 9.6142102
                                  total: 3.44s
656:
                                                   remaining: 1.79s
        learn: 9.6119010
657:
                                  total: 3.44s
                                                   remaining: 1.79s
        learn: 9.6093699
                                  total: 3.44s
                                                   remaining: 1.78s
658:
659:
        learn: 9.6073645
                                  total: 3.44s
                                                   remaining: 1.77s
        learn: 9.6037450
                                  total: 3.44s
660:
                                                   remaining: 1.76s
661:
        learn: 9.5992195
                                  total: 3.44s
                                                   remaining: 1.76s
662:
        learn: 9.5975211
                                  total: 3.52s
                                                   remaining: 1.79s
663:
        learn: 9.5965768
                                  total: 3.52s
                                                   remaining: 1.78s
664:
        learn: 9.5902637
                                  total: 3.52s
                                                   remaining: 1.77s
                                  total: 3.52s
665:
        learn: 9.5870826
                                                   remaining: 1.76s
666:
        learn: 9.5843913
                                  total: 3.52s
                                                   remaining: 1.76s
        learn: 9.5801376
                                  total: 3.52s
667:
                                                   remaining: 1.75s
668:
        learn: 9.5766782
                                  total: 3.52s
                                                   remaining: 1.74s
669:
        learn: 9.5751043
                                  total: 3.52s
                                                   remaining: 1.73s
670:
        learn: 9.5734939
                                  total: 3.52s
                                                   remaining: 1.73s
671:
        learn: 9.5725616
                                  total: 3.52s
                                                   remaining: 1.72s
672:
        learn: 9.5701426
                                  total: 3.52s
                                                   remaining: 1.71s
673:
        learn: 9.5672394
                                  total: 3.52s
                                                   remaining: 1.71s
674:
        learn: 9.5642310
                                  total: 3.52s
                                                   remaining: 1.7s
675:
        learn: 9.5616784
                                  total: 3.53s
                                                   remaining: 1.69s
        learn: 9.5591417
676:
                                  total: 3.53s
                                                   remaining: 1.68s
677:
        learn: 9.5565261
                                  total: 3.53s
                                                   remaining: 1.68s
                                  total: 3.53s
678:
        learn: 9.5524541
                                                   remaining: 1.67s
679:
        learn: 9.5479032
                                  total: 3.58s
                                                   remaining: 1.69s
680:
        learn: 9.5462951
                                  total: 3.59s
                                                   remaining: 1.68s
        learn: 9.5435884
681:
                                  total: 3.59s
                                                   remaining: 1.67s
                                  total: 3.59s
682:
        learn: 9.5393988
                                                   remaining: 1.67s
683:
        learn: 9.5364253
                                  total: 3.59s
                                                   remaining: 1.66s
684:
        learn: 9.5336210
                                  total: 3.59s
                                                   remaining: 1.65s
685:
        learn: 9.5308120
                                  total: 3.59s
                                                   remaining: 1.64s
686:
        learn: 9.5278647
                                  total: 3.59s
                                                   remaining: 1.64s
                                  total: 3.59s
687:
        learn: 9.5255250
                                                   remaining: 1.63s
        learn: 9.5223481
688:
                                  total: 3.59s
                                                   remaining: 1.62s
                                  total: 3.59s
        learn: 9.5208378
689:
                                                   remaining: 1.61s
        learn: 9.5170057
690:
                                  total: 3.59s
                                                   remaining: 1.61s
691:
        learn: 9.5118741
                                  total: 3.59s
                                                   remaining: 1.6s
692:
        learn: 9.5065120
                                  total: 3.59s
                                                   remaining: 1.59s
693:
        learn: 9.5028852
                                  total: 3.59s
                                                   remaining: 1.58s
                                  total: 3.6s
                                                   remaining: 1.58s
694:
        learn: 9.4988754
695:
        learn: 9.4962558
                                  total: 3.6s
                                                   remaining: 1.57s
696:
        learn: 9.4926967
                                  total: 3.68s
                                                   remaining: 1.6s
697:
        learn: 9.4913341
                                  total: 3.68s
                                                   remaining: 1.59s
698:
        learn: 9.4883301
                                  total: 3.68s
                                                   remaining: 1.58s
699:
        learn: 9.4837568
                                  total: 3.68s
                                                   remaining: 1.58s
700:
        learn: 9.4813200
                                  total: 3.68s
                                                   remaining: 1.57s
701:
        learn: 9.4790401
                                  total: 3.68s
                                                   remaining: 1.56s
702:
        learn: 9.4764429
                                                   remaining: 1.56s
                                  total: 3.68s
703:
        learn: 9.4677940
                                  total: 3.68s
                                                   remaining: 1.55s
704:
        learn: 9.4636192
                                  total: 3.68s
                                                   remaining: 1.54s
705:
        learn: 9.4606143
                                  total: 3.69s
                                                   remaining: 1.53s
706:
        learn: 9.4577036
                                  total: 3.69s
                                                   remaining: 1.53s
707:
        learn: 9.4547078
                                  total: 3.69s
                                                   remaining: 1.52s
```

```
708:
        learn: 9.4519271
                                  total: 3.69s
                                                   remaining: 1.51s
709:
        learn: 9.4470472
                                  total: 3.69s
                                                   remaining: 1.51s
710:
        learn: 9.4441286
                                  total: 3.69s
                                                   remaining: 1.5s
711:
        learn: 9.4417014
                                  total: 3.69s
                                                   remaining: 1.49s
712:
        learn: 9.4399707
                                  total: 3.69s
                                                   remaining: 1.49s
713:
        learn: 9.4377198
                                  total: 3.77s
                                                   remaining: 1.51s
714:
        learn: 9.4346416
                                  total: 3.77s
                                                   remaining: 1.5s
715:
        learn: 9.4314471
                                  total: 3.78s
                                                   remaining: 1.5s
716:
        learn: 9.4305510
                                  total: 3.78s
                                                   remaining: 1.49s
717:
        learn: 9.4207623
                                  total: 3.78s
                                                   remaining: 1.48s
718:
        learn: 9.4181364
                                  total: 3.78s
                                                   remaining: 1.48s
719:
        learn: 9.4166204
                                  total: 3.78s
                                                   remaining: 1.47s
720:
        learn: 9.4136289
                                  total: 3.78s
                                                   remaining: 1.46s
721:
        learn: 9.4127466
                                  total: 3.78s
                                                   remaining: 1.46s
722:
        learn: 9.4100379
                                  total: 3.78s
                                                   remaining: 1.45s
723:
        learn: 9.4045514
                                  total: 3.78s
                                                   remaining: 1.44s
724:
        learn: 9.4032765
                                  total: 3.78s
                                                   remaining: 1.43s
725:
        learn: 9.4004048
                                  total: 3.78s
                                                   remaining: 1.43s
        learn: 9.3975122
726:
                                  total: 3.78s
                                                   remaining: 1.42s
727:
        learn: 9.3933365
                                  total: 3.78s
                                                   remaining: 1.41s
728:
        learn: 9.3924229
                                  total: 3.79s
                                                   remaining: 1.41s
729:
        learn: 9.3904242
                                  total: 3.79s
                                                   remaining: 1.4s
730:
        learn: 9.3883376
                                  total: 3.79s
                                                   remaining: 1.39s
        learn: 9.3828067
731:
                                  total: 3.79s
                                                   remaining: 1.39s
                                  total: 3.87s
732:
        learn: 9.3763320
                                                   remaining: 1.41s
733:
        learn: 9.3750912
                                  total: 3.87s
                                                   remaining: 1.4s
734:
        learn: 9.3694962
                                  total: 3.87s
                                                   remaining: 1.39s
735:
        learn: 9.3659104
                                  total: 3.87s
                                                   remaining: 1.39s
736:
        learn: 9.3650355
                                  total: 3.87s
                                                   remaining: 1.38s
737:
        learn: 9.3630165
                                  total: 3.87s
                                                   remaining: 1.37s
738:
        learn: 9.3614589
                                  total: 3.87s
                                                   remaining: 1.37s
        learn: 9.3544669
                                  total: 3.87s
739:
                                                   remaining: 1.36s
                                                   remaining: 1.35s
740:
        learn: 9.3511761
                                  total: 3.87s
741:
        learn: 9.3479596
                                  total: 3.87s
                                                   remaining: 1.35s
742:
        learn: 9.3458748
                                  total: 3.87s
                                                   remaining: 1.34s
743:
                                  total: 3.87s
                                                   remaining: 1.33s
        learn: 9.3444518
744:
        learn: 9.3435926
                                  total: 3.87s
                                                   remaining: 1.33s
745:
        learn: 9.3400125
                                  total: 3.88s
                                                   remaining: 1.32s
746:
        learn: 9.3386835
                                  total: 3.88s
                                                   remaining: 1.31s
747:
        learn: 9.3367706
                                  total: 3.88s
                                                   remaining: 1.31s
748:
                                  total: 3.96s
        learn: 9.3338219
                                                   remaining: 1.33s
749:
        learn: 9.3310940
                                  total: 3.96s
                                                   remaining: 1.32s
750:
        learn: 9.3289543
                                  total: 3.96s
                                                   remaining: 1.31s
751:
        learn: 9.3252645
                                  total: 3.96s
                                                   remaining: 1.31s
752:
                                                   remaining: 1.3s
        learn: 9.3230352
                                  total: 3.96s
753:
        learn: 9.3193646
                                  total: 3.96s
                                                   remaining: 1.29s
754:
        learn: 9.3185261
                                  total: 3.96s
                                                   remaining: 1.29s
755:
        learn: 9.3151920
                                  total: 3.97s
                                                   remaining: 1.28s
756:
        learn: 9.3121726
                                  total: 3.97s
                                                   remaining: 1.27s
757:
        learn: 9.3100731
                                  total: 3.97s
                                                   remaining: 1.27s
758:
        learn: 9.3067640
                                  total: 3.97s
                                                   remaining: 1.26s
759:
        learn: 9.3041162
                                  total: 3.97s
                                                   remaining: 1.25s
760:
        learn: 9.3023530
                                  total: 3.97s
                                                   remaining: 1.25s
761:
        learn: 9.2975624
                                  total: 3.97s
                                                   remaining: 1.24s
762:
        learn: 9.2952812
                                  total: 3.97s
                                                   remaining: 1.23s
763:
        learn: 9.2903157
                                                   remaining: 1.23s
                                  total: 3.97s
764:
        learn: 9.2877238
                                  total: 3.97s
                                                   remaining: 1.22s
765:
        learn: 9.2868092
                                  total: 3.97s
                                                   remaining: 1.21s
766:
        learn: 9.2836360
                                  total: 4.05s
                                                   remaining: 1.23s
767:
        learn: 9.2819737
                                  total: 4.05s
                                                   remaining: 1.23s
        learn: 9.2798493
768:
                                  total: 4.06s
                                                   remaining: 1.22s
```

```
769:
        learn: 9.2752174
                                  total: 4.06s
                                                   remaining: 1.21s
770:
        learn: 9.2699297
                                  total: 4.06s
                                                   remaining: 1.21s
771:
        learn: 9.2674285
                                  total: 4.06s
                                                   remaining: 1.2s
772:
        learn: 9.2644869
                                  total: 4.06s
                                                   remaining: 1.19s
773:
        learn: 9.2625473
                                  total: 4.06s
                                                   remaining: 1.19s
774:
        learn: 9.2597283
                                  total: 4.06s
                                                   remaining: 1.18s
775:
        learn: 9.2560329
                                  total: 4.06s
                                                   remaining: 1.17s
776:
        learn: 9.2552182
                                  total: 4.06s
                                                   remaining: 1.17s
777:
        learn: 9.2512766
                                  total: 4.06s
                                                   remaining: 1.16s
778:
        learn: 9.2431963
                                  total: 4.06s
                                                   remaining: 1.15s
        learn: 9.2413811
                                  total: 4.06s
779:
                                                   remaining: 1.15s
780:
        learn: 9.2384814
                                  total: 4.06s
                                                   remaining: 1.14s
781:
        learn: 9.2352092
                                  total: 4.06s
                                                   remaining: 1.13s
782:
        learn: 9.2272839
                                  total: 4.07s
                                                   remaining: 1.13s
783:
        learn: 9.2240073
                                  total: 4.07s
                                                   remaining: 1.12s
784:
        learn: 9.2184106
                                  total: 4.15s
                                                   remaining: 1.14s
785:
        learn: 9.2166142
                                  total: 4.15s
                                                   remaining: 1.13s
786:
        learn: 9.2134265
                                  total: 4.15s
                                                   remaining: 1.12s
787:
        learn: 9.2106326
                                  total: 4.15s
                                                   remaining: 1.12s
788:
        learn: 9.2080320
                                  total: 4.15s
                                                   remaining: 1.11s
789:
        learn: 9.2053045
                                  total: 4.15s
                                                   remaining: 1.1s
790:
        learn: 9.2044951
                                  total: 4.15s
                                                   remaining: 1.1s
791:
        learn: 9.2022361
                                  total: 4.15s
                                                   remaining: 1.09s
792:
        learn: 9.2002769
                                  total: 4.16s
                                                   remaining: 1.08s
793:
        learn: 9.1981538
                                  total: 4.16s
                                                   remaining: 1.08s
794:
        learn: 9.1974430
                                  total: 4.16s
                                                   remaining: 1.07s
795:
        learn: 9.1955757
                                  total: 4.16s
                                                   remaining: 1.06s
                                                   remaining: 1.06s
796:
        learn: 9.1926326
                                  total: 4.16s
797:
        learn: 9.1907378
                                  total: 4.16s
                                                   remaining: 1.05s
                                  total: 4.16s
798:
        learn: 9.1888013
                                                   remaining: 1.05s
799:
        learn: 9.1812725
                                  total: 4.17s
                                                   remaining: 1.04s
        learn: 9.1797355
                                  total: 4.17s
800:
                                                   remaining: 1.03s
801:
        learn: 9.1767652
                                  total: 4.24s
                                                   remaining: 1.05s
802:
        learn: 9.1741459
                                  total: 4.24s
                                                   remaining: 1.04s
        learn: 9.1733513
803:
                                  total: 4.24s
                                                   remaining: 1.03s
804:
        learn: 9.1711308
                                  total: 4.25s
                                                   remaining: 1.03s
805:
        learn: 9.1683378
                                  total: 4.25s
                                                   remaining: 1.02s
806:
        learn: 9.1671721
                                  total: 4.25s
                                                   remaining: 1.01s
807:
        learn: 9.1621901
                                  total: 4.25s
                                                   remaining: 1.01s
808:
        learn: 9.1592245
                                  total: 4.25s
                                                   remaining: 1s
809:
        learn: 9.1554551
                                  total: 4.25s
                                                   remaining: 997ms
810:
        learn: 9.1526961
                                  total: 4.25s
                                                   remaining: 990ms
                                  total: 4.25s
        learn: 9.1519127
811:
                                                   remaining: 984ms
        learn: 9.1485557
812:
                                  total: 4.25s
                                                   remaining: 978ms
813:
        learn: 9.1461219
                                  total: 4.25s
                                                   remaining: 972ms
814:
        learn: 9.1452800
                                  total: 4.25s
                                                   remaining: 965ms
815:
        learn: 9.1386688
                                  total: 4.25s
                                                   remaining: 959ms
816:
        learn: 9.1366418
                                  total: 4.34s
                                                   remaining: 972ms
817:
        learn: 9.1319788
                                  total: 4.34s
                                                   remaining: 965ms
818:
        learn: 9.1267993
                                  total: 4.34s
                                                   remaining: 959ms
819:
        learn: 9.1232817
                                  total: 4.34s
                                                   remaining: 953ms
820:
        learn: 9.1214652
                                  total: 4.34s
                                                   remaining: 946ms
821:
        learn: 9.1196634
                                  total: 4.34s
                                                   remaining: 940ms
822:
        learn: 9.1189711
                                  total: 4.34s
                                                   remaining: 934ms
823:
        learn: 9.1168976
                                  total: 4.34s
                                                   remaining: 928ms
824:
        learn: 9.1141082
                                  total: 4.34s
                                                   remaining: 921ms
825:
        learn: 9.1096429
                                  total: 4.34s
                                                   remaining: 915ms
826:
        learn: 9.1055835
                                  total: 4.34s
                                                   remaining: 909ms
827:
        learn: 9.1038238
                                  total: 4.35s
                                                   remaining: 903ms
828:
        learn: 9.1030522
                                  total: 4.35s
                                                   remaining: 897ms
        learn: 9.1007516
829:
                                  total: 4.35s
                                                   remaining: 890ms
```

```
learn: 9.0980990
830:
                                  total: 4.35s
                                                   remaining: 884ms
831:
        learn: 9.0931825
                                  total: 4.35s
                                                   remaining: 878ms
832:
        learn: 9.0901720
                                  total: 4.35s
                                                   remaining: 872ms
833:
        learn: 9.0875755
                                  total: 4.43s
                                                   remaining: 882ms
834:
        learn: 9.0859013
                                  total: 4.43s
                                                   remaining: 876ms
        learn: 9.0847070
835:
                                  total: 4.43s
                                                   remaining: 870ms
836:
        learn: 9.0811934
                                  total: 4.43s
                                                   remaining: 863ms
837:
        learn: 9.0785255
                                  total: 4.43s
                                                   remaining: 857ms
838:
        learn: 9.0747181
                                  total: 4.43s
                                                   remaining: 851ms
839:
        learn: 9.0676801
                                  total: 4.43s
                                                   remaining: 845ms
        learn: 9.0636572
840:
                                  total: 4.44s
                                                   remaining: 839ms
841:
        learn: 9.0618544
                                                   remaining: 833ms
                                  total: 4.44s
842:
        learn: 9.0595111
                                  total: 4.44s
                                                   remaining: 826ms
                                  total: 4.44s
843:
        learn: 9.0575217
                                                   remaining: 820ms
844:
        learn: 9.0567076
                                  total: 4.44s
                                                   remaining: 814ms
845:
        learn: 9.0538052
                                  total: 4.44s
                                                   remaining: 808ms
846:
        learn: 9.0528640
                                  total: 4.44s
                                                   remaining: 802ms
847:
        learn: 9.0488959
                                  total: 4.44s
                                                   remaining: 796ms
848:
        learn: 9.0470826
                                  total: 4.44s
                                                   remaining: 790ms
849:
        learn: 9.0440833
                                  total: 4.44s
                                                   remaining: 784ms
        learn: 9.0412666
                                  total: 4.44s
850:
                                                   remaining: 778ms
                                  total: 4.53s
851:
        learn: 9.0370449
                                                   remaining: 786ms
852:
        learn: 9.0333492
                                  total: 4.53s
                                                   remaining: 780ms
853:
        learn: 9.0325296
                                  total: 4.53s
                                                   remaining: 774ms
854:
        learn: 9.0265895
                                  total: 4.53s
                                                   remaining: 768ms
855:
        learn: 9.0205574
                                  total: 4.53s
                                                   remaining: 762ms
856:
        learn: 9.0191520
                                  total: 4.53s
                                                   remaining: 756ms
                                                   remaining: 750ms
857:
        learn: 9.0130158
                                  total: 4.53s
858:
        learn: 9.0101074
                                  total: 4.53s
                                                   remaining: 744ms
859:
        learn: 9.0078465
                                  total: 4.53s
                                                   remaining: 738ms
860:
        learn: 9.0052496
                                  total: 4.53s
                                                   remaining: 732ms
861:
        learn: 9.0023891
                                  total: 4.54s
                                                   remaining: 726ms
                                                   remaining: 720ms
        learn: 8.9967251
                                  total: 4.54s
862:
                                                   remaining: 714ms
863:
        learn: 8.9945028
                                  total: 4.54s
        learn: 8.9880681
864:
                                  total: 4.54s
                                                   remaining: 708ms
865:
        learn: 8.9850954
                                  total: 4.54s
                                                   remaining: 702ms
866:
        learn: 8.9835211
                                  total: 4.54s
                                                   remaining: 696ms
867:
        learn: 8.9796994
                                  total: 4.62s
                                                   remaining: 703ms
868:
        learn: 8.9755105
                                  total: 4.62s
                                                   remaining: 697ms
869:
        learn: 8.9731471
                                  total: 4.62s
                                                   remaining: 691ms
870:
        learn: 8.9688822
                                  total: 4.62s
                                                   remaining: 685ms
        learn: 8.9655512
                                                   remaining: 679ms
871:
                                  total: 4.62s
872:
        learn: 8.9600090
                                  total: 4.62s
                                                   remaining: 673ms
        learn: 8.9579618
873:
                                  total: 4.63s
                                                   remaining: 667ms
874:
        learn: 8.9540205
                                                   remaining: 661ms
                                  total: 4.63s
875:
        learn: 8.9507632
                                  total: 4.63s
                                                   remaining: 655ms
        learn: 8.9483791
876:
                                  total: 4.63s
                                                   remaining: 649ms
                                                   remaining: 643ms
877:
        learn: 8.9457631
                                  total: 4.63s
878:
        learn: 8.9431903
                                  total: 4.63s
                                                   remaining: 637ms
879:
        learn: 8.9406892
                                  total: 4.63s
                                                   remaining: 631ms
880:
        learn: 8.9398906
                                  total: 4.63s
                                                   remaining: 625ms
881:
        learn: 8.9370065
                                  total: 4.63s
                                                   remaining: 619ms
882:
        learn: 8.9328976
                                  total: 4.64s
                                                   remaining: 614ms
        learn: 8.9321142
883:
                                  total: 4.64s
                                                   remaining: 608ms
        learn: 8.9313587
884:
                                  total: 4.71s
                                                   remaining: 612ms
885:
        learn: 8.9252819
                                  total: 4.71s
                                                   remaining: 607ms
886:
        learn: 8.9245066
                                  total: 4.71s
                                                   remaining: 601ms
887:
        learn: 8.9221224
                                  total: 4.71s
                                                   remaining: 595ms
888:
        learn: 8.9189720
                                  total: 4.71s
                                                   remaining: 589ms
889:
        learn: 8.9137650
                                  total: 4.72s
                                                   remaining: 583ms
890:
        learn: 8.9114816
                                  total: 4.72s
                                                   remaining: 577ms
```

```
891:
        learn: 8.9095809
                                  total: 4.72s
                                                   remaining: 571ms
892:
        learn: 8.9090203
                                  total: 4.72s
                                                   remaining: 565ms
        learn: 8.9074017
893:
                                  total: 4.72s
                                                   remaining: 560ms
894:
        learn: 8.9014029
                                  total: 4.72s
                                                   remaining: 554ms
895:
        learn: 8.8986819
                                  total: 4.72s
                                                   remaining: 548ms
                                  total: 4.72s
        learn: 8.8978056
896:
                                                   remaining: 542ms
897:
        learn: 8.8920310
                                  total: 4.72s
                                                   remaining: 536ms
898:
        learn: 8.8903190
                                  total: 4.72s
                                                   remaining: 531ms
899:
        learn: 8.8844022
                                  total: 4.72s
                                                   remaining: 525ms
        learn: 8.8817975
                                  total: 4.81s
900:
                                                   remaining: 528ms
901:
        learn: 8.8799262
                                  total: 4.81s
                                                   remaining: 522ms
902:
        learn: 8.8770409
                                  total: 4.81s
                                                   remaining: 517ms
903:
        learn: 8.8745575
                                  total: 4.81s
                                                   remaining: 511ms
904:
        learn: 8.8714889
                                  total: 4.81s
                                                   remaining: 505ms
905:
        learn: 8.8707813
                                  total: 4.81s
                                                   remaining: 499ms
906:
        learn: 8.8683076
                                  total: 4.81s
                                                   remaining: 494ms
907:
        learn: 8.8657709
                                  total: 4.81s
                                                   remaining: 488ms
908:
        learn: 8.8646443
                                  total: 4.81s
                                                   remaining: 482ms
909:
        learn: 8.8627277
                                  total: 4.82s
                                                   remaining: 476ms
910:
        learn: 8.8597315
                                  total: 4.82s
                                                   remaining: 470ms
        learn: 8.8586975
911:
                                  total: 4.82s
                                                   remaining: 465ms
                                  total: 4.82s
912:
        learn: 8.8555118
                                                   remaining: 459ms
913:
        learn: 8.8549823
                                  total: 4.82s
                                                   remaining: 453ms
914:
        learn: 8.8509126
                                  total: 4.82s
                                                   remaining: 448ms
915:
        learn: 8.8466670
                                  total: 4.82s
                                                   remaining: 442ms
916:
        learn: 8.8425726
                                  total: 4.82s
                                                   remaining: 436ms
917:
        learn: 8.8404759
                                  total: 4.82s
                                                   remaining: 431ms
918:
        learn: 8.8385007
                                  total: 4.82s
                                                   remaining: 425ms
919:
        learn: 8.8360733
                                  total: 4.9s
                                                   remaining: 426ms
920:
        learn: 8.8332378
                                  total: 4.9s
                                                   remaining: 420ms
921:
        learn: 8.8311584
                                  total: 4.9s
                                                   remaining: 415ms
922:
        learn: 8.8304410
                                  total: 4.9s
                                                   remaining: 409ms
923:
        learn: 8.8288183
                                  total: 4.9s
                                                   remaining: 403ms
924:
        learn: 8.8265430
                                  total: 4.9s
                                                   remaining: 398ms
925:
        learn: 8.8237693
                                  total: 4.91s
                                                   remaining: 392ms
926:
                                                   remaining: 386ms
        learn: 8.8207285
                                  total: 4.91s
927:
        learn: 8.8190202
                                  total: 4.91s
                                                   remaining: 381ms
928:
        learn: 8.8182777
                                  total: 4.91s
                                                   remaining: 375ms
929:
        learn: 8.8175985
                                  total: 4.91s
                                                   remaining: 369ms
930:
        learn: 8.8169294
                                  total: 4.91s
                                                   remaining: 364ms
931:
        learn: 8.8138157
                                  total: 4.91s
                                                   remaining: 358ms
932:
        learn: 8.8115961
                                  total: 4.91s
                                                   remaining: 353ms
933:
        learn: 8.8100308
                                  total: 4.91s
                                                   remaining: 347ms
        learn: 8.8073325
934:
                                  total: 4.91s
                                                   remaining: 341ms
935:
        learn: 8.8015918
                                  total: 4.91s
                                                   remaining: 336ms
936:
        learn: 8.7978878
                                  total: 4.91s
                                                   remaining: 330ms
937:
        learn: 8.7952937
                                  total: 4.99s
                                                   remaining: 330ms
                                                   remaining: 324ms
938:
        learn: 8.7937334
                                  total: 4.99s
939:
        learn: 8.7892002
                                  total: 5s
                                                   remaining: 319ms
940:
        learn: 8.7872199
                                  total: 5s
                                                   remaining: 313ms
941:
        learn: 8.7821453
                                  total: 5s
                                                   remaining: 308ms
942:
        learn: 8.7780480
                                  total: 5s
                                                   remaining: 302ms
943:
        learn: 8.7754580
                                                   remaining: 297ms
                                  total: 5s
944:
        learn: 8.7735199
                                  total: 5s
                                                   remaining: 291ms
945:
        learn: 8.7687739
                                  total: 5s
                                                   remaining: 285ms
946:
        learn: 8.7659000
                                                   remaining: 280ms
                                  total: 5s
947:
        learn: 8.7646783
                                  total: 5s
                                                   remaining: 274ms
948:
        learn: 8.7629813
                                  total: 5s
                                                   remaining: 269ms
949:
        learn: 8.7608817
                                  total: 5s
                                                   remaining: 263ms
950:
        learn: 8.7604073
                                  total: 5.01s
                                                   remaining: 258ms
951:
        learn: 8.7535785
                                  total: 5.01s
                                                   remaining: 253ms
```

```
952:
        learn: 8.7511576
                                  total: 5.09s
                                                   remaining: 251ms
953:
        learn: 8.7481088
                                  total: 5.09s
                                                   remaining: 245ms
        learn: 8.7468612
954:
                                  total: 5.09s
                                                   remaining: 240ms
955:
        learn: 8.7434669
                                  total: 5.09s
                                                   remaining: 234ms
956:
        learn: 8.7427177
                                  total: 5.09s
                                                   remaining: 229ms
                                                   remaining: 223ms
957:
        learn: 8.7411074
                                  total: 5.09s
958:
        learn: 8.7373998
                                  total: 5.09s
                                                   remaining: 218ms
959:
        learn: 8.7331855
                                                   remaining: 212ms
                                  total: 5.09s
        learn: 8.7318501
                                  total: 5.09s
                                                   remaining: 207ms
960:
961:
        learn: 8.7304501
                                  total: 5.09s
                                                   remaining: 201ms
        learn: 8.7282512
962:
                                  total: 5.09s
                                                   remaining: 196ms
963:
        learn: 8.7266885
                                                   remaining: 190ms
                                  total: 5.1s
964:
        learn: 8.7248361
                                  total: 5.1s
                                                   remaining: 185ms
        learn: 8.7211653
                                  total: 5.1s
965:
                                                   remaining: 179ms
966:
        learn: 8.7205185
                                  total: 5.1s
                                                   remaining: 174ms
967:
        learn: 8.7187300
                                  total: 5.1s
                                                   remaining: 169ms
968:
        learn: 8.7177674
                                  total: 5.1s
                                                   remaining: 163ms
969:
        learn: 8.7152859
                                  total: 5.1s
                                                   remaining: 158ms
970:
        learn: 8.7096925
                                  total: 5.18s
                                                   remaining: 155ms
971:
        learn: 8.7074744
                                                   remaining: 149ms
                                  total: 5.18s
972:
        learn: 8.7033994
                                  total: 5.18s
                                                   remaining: 144ms
973:
        learn: 8.6996907
                                  total: 5.18s
                                                   remaining: 138ms
974:
        learn: 8.6972407
                                  total: 5.18s
                                                   remaining: 133ms
975:
        learn: 8.6935992
                                  total: 5.18s
                                                   remaining: 128ms
976:
        learn: 8.6894819
                                  total: 5.19s
                                                   remaining: 122ms
977:
        learn: 8.6872021
                                  total: 5.19s
                                                   remaining: 117ms
978:
        learn: 8.6850119
                                  total: 5.19s
                                                   remaining: 111ms
                                                   remaining: 106ms
979:
        learn: 8.6834058
                                  total: 5.19s
980:
        learn: 8.6805927
                                  total: 5.19s
                                                   remaining: 101ms
981:
        learn: 8.6790781
                                  total: 5.19s
                                                   remaining: 95.1ms
982:
        learn: 8.6751717
                                  total: 5.19s
                                                   remaining: 89.8ms
983:
        learn: 8.6734126
                                  total: 5.19s
                                                   remaining: 84.4ms
984:
        learn: 8.6722898
                                  total: 5.19s
                                                   remaining: 79.1ms
985:
        learn: 8.6679020
                                  total: 5.19s
                                                   remaining: 73.7ms
986:
        learn: 8.6669556
                                  total: 5.19s
                                                   remaining: 68.4ms
                                                   remaining: 63.1ms
987:
        learn: 8.6612420
                                  total: 5.19s
988:
        learn: 8.6589479
                                  total: 5.19s
                                                   remaining: 57.8ms
989:
        learn: 8.6564576
                                  total: 5.27s
                                                   remaining: 53.3ms
990:
        learn: 8.6548947
                                  total: 5.28s
                                                   remaining: 47.9ms
991:
        learn: 8.6509377
                                  total: 5.28s
                                                   remaining: 42.5ms
992:
        learn: 8.6485959
                                                   remaining: 37.2ms
                                  total: 5.28s
993:
        learn: 8.6467289
                                                   remaining: 31.9ms
                                  total: 5.28s
        learn: 8.6403242
994:
                                  total: 5.28s
                                                   remaining: 26.5ms
995:
        learn: 8.6342399
                                  total: 5.28s
                                                   remaining: 21.2ms
996:
        learn: 8.6320584
                                  total: 5.28s
                                                   remaining: 15.9ms
997:
        learn: 8.6274244
                                  total: 5.28s
                                                   remaining: 10.6ms
998:
        learn: 8.6257572
                                  total: 5.28s
                                                   remaining: 5.29ms
999:
        learn: 8.6241330
                                  total: 5.28s
                                                   remaining: Ous
0:
        learn: 14.4697274
                                  total: 810us
                                                   remaining: 809ms
1:
        learn: 14.2064472
                                  total: 1.99ms
                                                   remaining: 991ms
2:
        learn: 13.8855748
                                  total: 2.66ms
                                                   remaining: 885ms
3:
        learn: 13.6528746
                                  total: 3.31ms
                                                   remaining: 824ms
4:
        learn: 13.4684039
                                  total: 3.94ms
                                                   remaining: 784ms
5:
        learn: 13.3124621
                                  total: 4.68ms
                                                   remaining: 776ms
6:
        learn: 13.1711228
                                  total: 5.34ms
                                                   remaining: 758ms
7:
        learn: 12.9900521
                                                   remaining: 741ms
                                  total: 5.98ms
8:
        learn: 12.8358028
                                  total: 6.58ms
                                                   remaining: 725ms
9:
        learn: 12.7119154
                                  total: 7.17ms
                                                   remaining: 710ms
10:
        learn: 12.6086806
                                  total: 8.04ms
                                                   remaining: 723ms
11:
        learn: 12.5177188
                                  total: 8.68ms
                                                   remaining: 715ms
        learn: 12.4078995
12:
                                  total: 9.3ms
                                                   remaining: 706ms
```

```
13:
        learn: 12.3033868
                                  total: 15.3ms
                                                   remaining: 1.08s
14:
        learn: 12.2269780
                                  total: 15.9ms
                                                   remaining: 1.04s
        learn: 12.1398621
                                  total: 16.6ms
15:
                                                   remaining: 1.02s
16:
        learn: 12.0810745
                                  total: 17.2ms
                                                   remaining: 994ms
17:
        learn: 12.0206598
                                  total: 17.8ms
                                                   remaining: 973ms
                                  total: 18.5ms
        learn: 11.9927533
                                                   remaining: 953ms
18:
19:
        learn: 11.9587691
                                  total: 19.1ms
                                                   remaining: 935ms
        learn: 11.9194131
                                  total: 19.7ms
                                                   remaining: 919ms
20:
        learn: 11.8565979
                                  total: 20.4ms
                                                   remaining: 905ms
21:
22:
        learn: 11.8009622
                                  total: 20.9ms
                                                   remaining: 890ms
                                  total: 21.7ms
23:
        learn: 11.7773702
                                                   remaining: 881ms
24:
        learn: 11.7369362
                                  total: 22.3ms
                                                   remaining: 869ms
25:
        learn: 11.7032869
                                  total: 22.9ms
                                                   remaining: 859ms
        learn: 11.6597721
                                  total: 23.6ms
26:
                                                   remaining: 849ms
27:
        learn: 11.6238591
                                  total: 24.2ms
                                                   remaining: 839ms
28:
        learn: 11.5937293
                                  total: 24.8ms
                                                   remaining: 830ms
29:
        learn: 11.5629093
                                  total: 30.6ms
                                                   remaining: 988ms
30:
        learn: 11.5461595
                                  total: 32.5ms
                                                   remaining: 1.01s
31:
        learn: 11.5110045
                                  total: 110ms
                                                   remaining: 3.32s
32:
        learn: 11.4647649
                                  total: 111ms
                                                   remaining: 3.24s
33:
        learn: 11.4035954
                                  total: 111ms
                                                   remaining: 3.17s
34:
        learn: 11.3575471
                                  total: 112ms
                                                   remaining: 3.09s
35:
        learn: 11.3214849
                                  total: 113ms
                                                   remaining: 3.03s
        learn: 11.3036071
36:
                                  total: 114ms
                                                   remaining: 2.96s
                                  total: 114ms
37:
        learn: 11.2886382
                                                   remaining: 2.9s
38:
        learn: 11.2517699
                                  total: 115ms
                                                   remaining: 2.83s
39:
        learn: 11.2328499
                                  total: 116ms
                                                   remaining: 2.78s
40:
        learn: 11.2261187
                                  total: 116ms
                                                   remaining: 2.72s
        learn: 11.1802876
                                  total: 117ms
41:
                                                   remaining: 2.66s
        learn: 11.1598294
42:
                                  total: 117ms
                                                   remaining: 2.61s
43:
        learn: 11.1363502
                                  total: 118ms
                                                   remaining: 2.56s
        learn: 11.1150604
                                  total: 119ms
44:
                                                   remaining: 2.52s
                                                   remaining: 2.47s
45:
        learn: 11.0969266
                                  total: 119ms
46:
        learn: 11.0607510
                                  total: 120ms
                                                   remaining: 2.43s
47:
        learn: 11.0371751
                                  total: 120ms
                                                   remaining: 2.38s
                                  total: 121ms
48:
        learn: 11.0231243
                                                   remaining: 2.35s
49:
        learn: 11.0041927
                                  total: 121ms
                                                   remaining: 2.31s
        learn: 10.9748174
50:
                                  total: 203ms
                                                   remaining: 3.78s
51:
        learn: 10.9543661
                                  total: 204ms
                                                   remaining: 3.72s
                                  total: 205ms
52:
        learn: 10.9457628
                                                   remaining: 3.66s
53:
        learn: 10.9348646
                                  total: 205ms
                                                   remaining: 3.6s
54:
        learn: 10.9134111
                                  total: 206ms
                                                   remaining: 3.54s
55:
        learn: 10.8957990
                                  total: 207ms
                                                   remaining: 3.48s
        learn: 10.8715695
56:
                                  total: 207ms
                                                   remaining: 3.43s
57:
        learn: 10.8361584
                                                   remaining: 3.38s
                                  total: 208ms
58:
        learn: 10.8111306
                                  total: 209ms
                                                   remaining: 3.33s
59:
        learn: 10.8017830
                                  total: 209ms
                                                   remaining: 3.28s
                                                   remaining: 3.23s
60:
        learn: 10.7928746
                                  total: 210ms
61:
        learn: 10.7823180
                                  total: 210ms
                                                   remaining: 3.18s
62:
        learn: 10.7673692
                                  total: 211ms
                                                   remaining: 3.14s
63:
        learn: 10.7389998
                                  total: 212ms
                                                   remaining: 3.1s
64:
        learn: 10.7257387
                                  total: 212ms
                                                   remaining: 3.06s
65:
        learn: 10.7167505
                                  total: 213ms
                                                   remaining: 3.01s
66:
        learn: 10.7040618
                                  total: 297ms
                                                   remaining: 4.14s
        learn: 10.6795603
                                  total: 298ms
67:
                                                   remaining: 4.08s
68:
        learn: 10.6585669
                                  total: 299ms
                                                   remaining: 4.03s
69:
        learn: 10.6424810
                                  total: 299ms
                                                   remaining: 3.98s
70:
        learn: 10.6300923
                                  total: 300ms
                                                   remaining: 3.92s
71:
        learn: 10.6110591
                                  total: 301ms
                                                   remaining: 3.87s
72:
        learn: 10.5898079
                                  total: 301ms
                                                   remaining: 3.83s
        learn: 10.5725852
73:
                                  total: 302ms
                                                   remaining: 3.78s
```

```
74:
        learn: 10.5529767
                                  total: 303ms
                                                   remaining: 3.73s
75:
        learn: 10.5368949
                                  total: 303ms
                                                   remaining: 3.69s
        learn: 10.5142616
                                  total: 304ms
76:
                                                   remaining: 3.65s
77:
        learn: 10.4961951
                                  total: 305ms
                                                   remaining: 3.6s
78:
        learn: 10.4780257
                                  total: 306ms
                                                   remaining: 3.56s
79:
        learn: 10.4673653
                                  total: 307ms
                                                   remaining: 3.52s
80:
        learn: 10.4461144
                                  total: 307ms
                                                   remaining: 3.48s
81:
        learn: 10.4315267
                                                   remaining: 3.45s
                                  total: 308ms
82:
        learn: 10.4123584
                                  total: 309ms
                                                   remaining: 3.41s
83:
        learn: 10.4042388
                                  total: 309ms
                                                   remaining: 3.37s
                                  total: 390ms
84:
        learn: 10.3674910
                                                   remaining: 4.2s
85:
        learn: 10.3486197
                                  total: 392ms
                                                   remaining: 4.17s
86:
        learn: 10.3144707
                                  total: 393ms
                                                   remaining: 4.12s
87:
        learn: 10.3054383
                                  total: 393ms
                                                   remaining: 4.08s
88:
        learn: 10.2817855
                                  total: 394ms
                                                   remaining: 4.03s
89:
        learn: 10.2656878
                                  total: 395ms
                                                   remaining: 3.99s
90:
        learn: 10.2312748
                                  total: 395ms
                                                   remaining: 3.95s
91:
        learn: 10.2038568
                                  total: 396ms
                                                   remaining: 3.91s
92:
        learn: 10.1797223
                                  total: 397ms
                                                   remaining: 3.87s
93:
        learn: 10.1645839
                                  total: 397ms
                                                   remaining: 3.83s
        learn: 10.1590978
94:
                                  total: 398ms
                                                   remaining: 3.79s
95:
        learn: 10.1367206
                                  total: 399ms
                                                   remaining: 3.75s
96:
        learn: 10.0902854
                                  total: 399ms
                                                   remaining: 3.72s
97:
        learn: 10.0755671
                                  total: 400ms
                                                   remaining: 3.68s
98:
        learn: 10.0576007
                                  total: 401ms
                                                   remaining: 3.65s
                                                   remaining: 3.61s
99:
        learn: 10.0446883
                                  total: 401ms
100:
        learn: 10.0295289
                                  total: 402ms
                                                   remaining: 3.58s
101:
        learn: 10.0134338
                                  total: 483ms
                                                   remaining: 4.26s
102:
        learn: 9.9967018
                                  total: 484ms
                                                   remaining: 4.22s
103:
        learn: 9.9815036
                                  total: 487ms
                                                   remaining: 4.2s
104:
        learn: 9.9675789
                                  total: 488ms
                                                   remaining: 4.16s
        learn: 9.9615285
                                  total: 488ms
105:
                                                   remaining: 4.12s
        learn: 9.9579539
                                  total: 489ms
                                                   remaining: 4.08s
106:
                                  total: 490ms
                                                   remaining: 4.04s
107:
        learn: 9.9534743
        learn: 9.9462924
                                  total: 490ms
108:
                                                   remaining: 4.01s
                                                   remaining: 3.97s
                                  total: 491ms
109:
        learn: 9.9308639
110:
        learn: 9.9047572
                                  total: 492ms
                                                   remaining: 3.94s
111:
        learn: 9.8808125
                                  total: 492ms
                                                   remaining: 3.9s
112:
        learn: 9.8679812
                                  total: 493ms
                                                   remaining: 3.87s
113:
        learn: 9.8518191
                                  total: 494ms
                                                   remaining: 3.83s
                                  total: 494ms
114:
        learn: 9.8306588
                                                   remaining: 3.8s
115:
        learn: 9.8251633
                                  total: 495ms
                                                   remaining: 3.77s
        learn: 9.8050345
                                  total: 496ms
116:
                                                   remaining: 3.74s
        learn: 9.7908344
                                  total: 496ms
117:
                                                   remaining: 3.71s
118:
        learn: 9.7755004
                                  total: 502ms
                                                   remaining: 3.72s
119:
        learn: 9.7633636
                                  total: 577ms
                                                   remaining: 4.23s
120:
        learn: 9.7257498
                                  total: 578ms
                                                   remaining: 4.2s
121:
        learn: 9.7073728
                                  total: 578ms
                                                   remaining: 4.16s
122:
        learn: 9.7035121
                                  total: 579ms
                                                   remaining: 4.13s
123:
        learn: 9.6954970
                                  total: 580ms
                                                   remaining: 4.1s
124:
        learn: 9.6895298
                                  total: 581ms
                                                   remaining: 4.07s
125:
        learn: 9.6688602
                                  total: 582ms
                                                   remaining: 4.04s
126:
        learn: 9.6470257
                                  total: 583ms
                                                   remaining: 4s
127:
        learn: 9.6234146
                                  total: 583ms
                                                   remaining: 3.97s
        learn: 9.6055705
                                  total: 584ms
128:
                                                   remaining: 3.94s
129:
        learn: 9.6015813
                                                   remaining: 3.91s
                                  total: 585ms
130:
        learn: 9.5915602
                                  total: 585ms
                                                   remaining: 3.88s
131:
        learn: 9.5833973
                                  total: 586ms
                                                   remaining: 3.85s
132:
        learn: 9.5681305
                                  total: 587ms
                                                   remaining: 3.82s
133:
        learn: 9.5650960
                                  total: 587ms
                                                   remaining: 3.79s
        learn: 9.5465585
134:
                                  total: 593ms
                                                   remaining: 3.8s
```

```
135:
        learn: 9.5204499
                                  total: 671ms
                                                   remaining: 4.26s
136:
        learn: 9.5119166
                                  total: 671ms
                                                   remaining: 4.23s
        learn: 9.5047985
                                  total: 672ms
137:
                                                   remaining: 4.2s
138:
        learn: 9.4876946
                                  total: 673ms
                                                   remaining: 4.17s
139:
        learn: 9.4764387
                                  total: 673ms
                                                   remaining: 4.14s
        learn: 9.4684353
                                  total: 674ms
140:
                                                   remaining: 4.11s
141:
        learn: 9.4658101
                                  total: 675ms
                                                   remaining: 4.08s
142:
        learn: 9.4625266
                                                   remaining: 4.05s
                                  total: 675ms
143:
        learn: 9.4578512
                                  total: 676ms
                                                   remaining: 4.02s
144:
        learn: 9.4456325
                                  total: 677ms
                                                   remaining: 3.99s
        learn: 9.4258998
145:
                                  total: 677ms
                                                   remaining: 3.96s
146:
        learn: 9.4097470
                                                   remaining: 3.93s
                                  total: 678ms
147:
        learn: 9.4004969
                                  total: 679ms
                                                   remaining: 3.91s
        learn: 9.3932841
                                  total: 680ms
148:
                                                   remaining: 3.88s
149:
        learn: 9.3758673
                                  total: 680ms
                                                   remaining: 3.85s
150:
        learn: 9.3590501
                                  total: 681ms
                                                   remaining: 3.83s
151:
        learn: 9.3440261
                                  total: 681ms
                                                   remaining: 3.8s
152:
        learn: 9.3336163
                                  total: 765ms
                                                   remaining: 4.23s
153:
        learn: 9.3150417
                                  total: 765ms
                                                   remaining: 4.2s
154:
        learn: 9.3043240
                                  total: 766ms
                                                   remaining: 4.18s
                                  total: 767ms
        learn: 9.2970410
155:
                                                   remaining: 4.15s
156:
        learn: 9.2944054
                                  total: 768ms
                                                   remaining: 4.12s
157:
        learn: 9.2828799
                                  total: 769ms
                                                   remaining: 4.1s
158:
        learn: 9.2736118
                                  total: 770ms
                                                   remaining: 4.07s
                                  total: 771ms
159:
        learn: 9.2672339
                                                   remaining: 4.04s
160:
        learn: 9.2505160
                                  total: 771ms
                                                   remaining: 4.02s
161:
        learn: 9.2390541
                                  total: 772ms
                                                   remaining: 3.99s
                                  total: 773ms
162:
        learn: 9.2286356
                                                   remaining: 3.97s
                                  total: 773ms
163:
        learn: 9.2052547
                                                   remaining: 3.94s
164:
        learn: 9.2032437
                                  total: 779ms
                                                   remaining: 3.94s
165:
        learn: 9.1847198
                                  total: 780ms
                                                   remaining: 3.92s
        learn: 9.1694908
166:
                                  total: 786ms
                                                   remaining: 3.92s
167:
        learn: 9.1549577
                                  total: 787ms
                                                   remaining: 3.9s
168:
        learn: 9.1480290
                                  total: 788ms
                                                   remaining: 3.87s
        learn: 9.1398792
                                  total: 788ms
169:
                                                   remaining: 3.85s
                                  total: 789ms
                                                   remaining: 3.82s
170:
        learn: 9.1301153
171:
        learn: 9.1276524
                                  total: 790ms
                                                   remaining: 3.8s
172:
        learn: 9.1120460
                                  total: 790ms
                                                   remaining: 3.78s
173:
        learn: 9.1096794
                                  total: 791ms
                                                   remaining: 3.75s
                                  total: 792ms
174:
        learn: 9.0895700
                                                   remaining: 3.73s
175:
        learn: 9.0677347
                                  total: 793ms
                                                   remaining: 3.71s
        learn: 9.0561071
                                  total: 793ms
176:
                                                   remaining: 3.69s
        learn: 9.0536954
                                  total: 794ms
177:
                                                   remaining: 3.67s
        learn: 9.0454360
                                  total: 794ms
178:
                                                   remaining: 3.64s
179:
        learn: 9.0281956
                                  total: 795ms
                                                   remaining: 3.62s
180:
        learn: 9.0259818
                                  total: 796ms
                                                   remaining: 3.6s
        learn: 9.0196718
                                  total: 796ms
181:
                                                   remaining: 3.58s
                                                   remaining: 3.58s
182:
        learn: 9.0065070
                                  total: 802ms
183:
        learn: 9.0034218
                                  total: 803ms
                                                   remaining: 3.56s
184:
        learn: 8.9737850
                                  total: 874ms
                                                   remaining: 3.85s
185:
        learn: 8.9607223
                                  total: 874ms
                                                   remaining: 3.83s
186:
        learn: 8.9375431
                                  total: 875ms
                                                   remaining: 3.8s
187:
        learn: 8.9289777
                                  total: 876ms
                                                   remaining: 3.78s
188:
        learn: 8.9170271
                                  total: 876ms
                                                   remaining: 3.76s
        learn: 8.9047943
189:
                                  total: 878ms
                                                   remaining: 3.74s
190:
        learn: 8.9008842
                                                   remaining: 3.72s
                                  total: 879ms
191:
        learn: 8.8900833
                                  total: 880ms
                                                   remaining: 3.7s
192:
        learn: 8.8831384
                                  total: 881ms
                                                   remaining: 3.68s
193:
        learn: 8.8814962
                                  total: 881ms
                                                   remaining: 3.66s
194:
        learn: 8.8768109
                                  total: 882ms
                                                   remaining: 3.64s
        learn: 8.8700682
195:
                                  total: 883ms
                                                   remaining: 3.62s
```

```
learn: 8.8558278
196:
                                  total: 883ms
                                                   remaining: 3.6s
197:
        learn: 8.8451959
                                  total: 884ms
                                                   remaining: 3.58s
        learn: 8.8428961
                                  total: 885ms
198:
                                                   remaining: 3.56s
199:
        learn: 8.8407572
                                  total: 886ms
                                                   remaining: 3.54s
200:
        learn: 8.8313864
                                  total: 961ms
                                                   remaining: 3.82s
        learn: 8.8087156
                                  total: 962ms
201:
                                                   remaining: 3.8s
202:
        learn: 8.8032539
                                  total: 963ms
                                                   remaining: 3.78s
203:
        learn: 8.7961220
                                                   remaining: 3.76s
                                  total: 963ms
        learn: 8.7918156
                                  total: 964ms
                                                   remaining: 3.74s
204:
205:
        learn: 8.7753394
                                  total: 965ms
                                                   remaining: 3.72s
        learn: 8.7609360
                                  total: 965ms
206:
                                                   remaining: 3.7s
207:
        learn: 8.7564926
                                                   remaining: 3.68s
                                  total: 966ms
208:
        learn: 8.7447737
                                  total: 967ms
                                                   remaining: 3.66s
        learn: 8.7333520
                                  total: 967ms
209:
                                                   remaining: 3.64s
210:
        learn: 8.7255795
                                  total: 968ms
                                                   remaining: 3.62s
211:
        learn: 8.7192334
                                  total: 969ms
                                                   remaining: 3.6s
212:
        learn: 8.7071910
                                  total: 969ms
                                                   remaining: 3.58s
213:
        learn: 8.7021185
                                  total: 970ms
                                                   remaining: 3.56s
214:
        learn: 8.6922883
                                  total: 973ms
                                                   remaining: 3.55s
215:
        learn: 8.6802126
                                  total: 973ms
                                                   remaining: 3.53s
216:
        learn: 8.6637578
                                  total: 979ms
                                                   remaining: 3.53s
217:
        learn: 8.6566140
                                  total: 980ms
                                                   remaining: 3.51s
218:
        learn: 8.6468065
                                  total: 1.05s
                                                   remaining: 3.76s
219:
        learn: 8.6414506
                                  total: 1.06s
                                                   remaining: 3.74s
220:
                                                   remaining: 3.73s
        learn: 8.6356379
                                  total: 1.06s
221:
        learn: 8.6338613
                                  total: 1.06s
                                                   remaining: 3.71s
222:
        learn: 8.6199770
                                  total: 1.06s
                                                   remaining: 3.69s
223:
        learn: 8.5992430
                                  total: 1.06s
                                                   remaining: 3.67s
224:
        learn: 8.5750212
                                  total: 1.06s
                                                   remaining: 3.65s
225:
        learn: 8.5728974
                                  total: 1.06s
                                                   remaining: 3.63s
226:
        learn: 8.5603390
                                  total: 1.06s
                                                   remaining: 3.61s
        learn: 8.5538633
                                  total: 1.06s
227:
                                                   remaining: 3.6s
228:
        learn: 8.5482551
                                  total: 1.06s
                                                   remaining: 3.58s
229:
        learn: 8.5355037
                                  total: 1.06s
                                                   remaining: 3.56s
230:
        learn: 8.5333577
                                  total: 1.06s
                                                   remaining: 3.54s
                                  total: 1.06s
                                                   remaining: 3.53s
231:
        learn: 8.5316964
232:
        learn: 8.5276379
                                  total: 1.07s
                                                   remaining: 3.51s
233:
        learn: 8.5140900
                                  total: 1.07s
                                                   remaining: 3.49s
234:
        learn: 8.5118043
                                  total: 1.15s
                                                   remaining: 3.74s
235:
        learn: 8.5102946
                                  total: 1.15s
                                                   remaining: 3.72s
236:
        learn: 8.4962219
                                                   remaining: 3.7s
                                  total: 1.15s
237:
        learn: 8.4948584
                                  total: 1.15s
                                                   remaining: 3.68s
238:
        learn: 8.4903699
                                  total: 1.15s
                                                   remaining: 3.67s
        learn: 8.4838171
239:
                                  total: 1.15s
                                                   remaining: 3.65s
240:
        learn: 8.4706265
                                                   remaining: 3.63s
                                  total: 1.15s
241:
        learn: 8.4575134
                                  total: 1.15s
                                                   remaining: 3.61s
242:
        learn: 8.4472644
                                  total: 1.15s
                                                   remaining: 3.59s
                                                   remaining: 3.58s
243:
        learn: 8.4449964
                                  total: 1.15s
244:
        learn: 8.4315003
                                  total: 1.16s
                                                   remaining: 3.56s
245:
        learn: 8.4205995
                                  total: 1.16s
                                                   remaining: 3.54s
246:
        learn: 8.4072498
                                  total: 1.16s
                                                   remaining: 3.52s
247:
        learn: 8.3962768
                                  total: 1.16s
                                                   remaining: 3.51s
248:
        learn: 8.3787096
                                                   remaining: 3.49s
                                  total: 1.16s
249:
        learn: 8.3720830
                                  total: 1.16s
                                                   remaining: 3.48s
        learn: 8.3615709
250:
                                  total: 1.16s
                                                   remaining: 3.46s
251:
        learn: 8.3602244
                                                   remaining: 3.44s
                                  total: 1.16s
252:
        learn: 8.3556761
                                  total: 1.24s
                                                   remaining: 3.67s
253:
        learn: 8.3498043
                                  total: 1.24s
                                                   remaining: 3.65s
254:
        learn: 8.3385688
                                  total: 1.24s
                                                   remaining: 3.63s
255:
        learn: 8.3273048
                                  total: 1.24s
                                                   remaining: 3.62s
        learn: 8.3193349
256:
                                  total: 1.24s
                                                   remaining: 3.6s
```

```
257:
        learn: 8.3037256
                                  total: 1.25s
                                                   remaining: 3.58s
258:
        learn: 8.2847683
                                  total: 1.25s
                                                   remaining: 3.56s
259:
        learn: 8.2744354
                                  total: 1.25s
                                                   remaining: 3.55s
260:
        learn: 8.2708736
                                  total: 1.25s
                                                   remaining: 3.53s
261:
        learn: 8.2628067
                                  total: 1.25s
                                                   remaining: 3.52s
        learn: 8.2456529
262:
                                  total: 1.25s
                                                   remaining: 3.5s
263:
        learn: 8.2422156
                                  total: 1.25s
                                                   remaining: 3.49s
264:
        learn: 8.2307568
                                                   remaining: 3.47s
                                  total: 1.25s
265:
        learn: 8.2159020
                                  total: 1.25s
                                                   remaining: 3.46s
        learn: 8.1982687
                                  total: 1.25s
266:
                                                   remaining: 3.45s
267:
        learn: 8.1912468
                                  total: 1.26s
                                                   remaining: 3.43s
268:
        learn: 8.1870577
                                                   remaining: 3.63s
                                  total: 1.33s
269:
        learn: 8.1689977
                                  total: 1.33s
                                                   remaining: 3.61s
        learn: 8.1675656
                                  total: 1.34s
270:
                                                   remaining: 3.59s
271:
        learn: 8.1564410
                                  total: 1.34s
                                                   remaining: 3.58s
272:
        learn: 8.1306142
                                  total: 1.34s
                                                   remaining: 3.56s
273:
        learn: 8.1185756
                                  total: 1.34s
                                                   remaining: 3.54s
274:
        learn: 8.1135565
                                  total: 1.34s
                                                   remaining: 3.53s
275:
        learn: 8.1000675
                                  total: 1.34s
                                                   remaining: 3.51s
276:
        learn: 8.0987115
                                  total: 1.34s
                                                   remaining: 3.5s
277:
        learn: 8.0889967
                                  total: 1.34s
                                                   remaining: 3.48s
278:
        learn: 8.0727168
                                  total: 1.34s
                                                   remaining: 3.47s
279:
        learn: 8.0698069
                                  total: 1.34s
                                                   remaining: 3.45s
280:
        learn: 8.0685551
                                  total: 1.34s
                                                   remaining: 3.44s
                                                   remaining: 3.42s
281:
        learn: 8.0670442
                                  total: 1.34s
282:
        learn: 8.0577951
                                  total: 1.34s
                                                   remaining: 3.4s
283:
        learn: 8.0436783
                                  total: 1.34s
                                                   remaining: 3.39s
284:
        learn: 8.0394830
                                  total: 1.34s
                                                   remaining: 3.37s
285:
        learn: 8.0352794
                                  total: 1.43s
                                                   remaining: 3.57s
        learn: 8.0324430
286:
                                  total: 1.43s
                                                   remaining: 3.55s
287:
        learn: 8.0209910
                                  total: 1.43s
                                                   remaining: 3.54s
                                  total: 1.43s
288:
        learn: 8.0081466
                                                   remaining: 3.52s
289:
        learn: 8.0069796
                                  total: 1.43s
                                                   remaining: 3.5s
290:
        learn: 7.9993782
                                  total: 1.43s
                                                   remaining: 3.49s
        learn: 7.9905523
291:
                                  total: 1.43s
                                                   remaining: 3.47s
                                                   remaining: 3.46s
292:
        learn: 7.9889537
                                  total: 1.43s
293:
        learn: 7.9859263
                                  total: 1.43s
                                                   remaining: 3.44s
294:
        learn: 7.9811760
                                  total: 1.43s
                                                   remaining: 3.43s
295:
        learn: 7.9791826
                                  total: 1.44s
                                                   remaining: 3.41s
                                                   remaining: 3.4s
296:
        learn: 7.9650823
                                  total: 1.44s
297:
        learn: 7.9620573
                                  total: 1.44s
                                                   remaining: 3.38s
298:
        learn: 7.9466508
                                  total: 1.44s
                                                   remaining: 3.37s
299:
        learn: 7.9365620
                                  total: 1.44s
                                                   remaining: 3.35s
        learn: 7.9112523
300:
                                  total: 1.44s
                                                   remaining: 3.34s
301:
        learn: 7.8990724
                                                   remaining: 3.33s
                                  total: 1.44s
302:
        learn: 7.8935626
                                  total: 1.52s
                                                   remaining: 3.5s
        learn: 7.8856098
                                  total: 1.52s
303:
                                                   remaining: 3.49s
                                                   remaining: 3.47s
304:
        learn: 7.8834552
                                  total: 1.52s
305:
        learn: 7.8710410
                                  total: 1.52s
                                                   remaining: 3.46s
306:
        learn: 7.8629959
                                  total: 1.52s
                                                   remaining: 3.44s
307:
        learn: 7.8561628
                                  total: 1.52s
                                                   remaining: 3.43s
308:
        learn: 7.8490782
                                  total: 1.53s
                                                   remaining: 3.41s
309:
        learn: 7.8303212
                                  total: 1.53s
                                                   remaining: 3.4s
310:
        learn: 7.8237495
                                  total: 1.53s
                                                   remaining: 3.38s
        learn: 7.8100278
311:
                                  total: 1.53s
                                                   remaining: 3.37s
312:
        learn: 7.8046134
                                                   remaining: 3.36s
                                  total: 1.53s
313:
        learn: 7.7945805
                                  total: 1.53s
                                                   remaining: 3.34s
314:
        learn: 7.7827826
                                  total: 1.53s
                                                   remaining: 3.33s
315:
        learn: 7.7795889
                                  total: 1.53s
                                                   remaining: 3.31s
316:
        learn: 7.7699571
                                  total: 1.53s
                                                   remaining: 3.3s
        learn: 7.7690009
317:
                                  total: 1.53s
                                                   remaining: 3.29s
```

```
learn: 7.7630129
318:
                                  total: 1.53s
                                                   remaining: 3.27s
319:
        learn: 7.7569521
                                  total: 1.54s
                                                   remaining: 3.27s
        learn: 7.7491873
                                  total: 1.62s
320:
                                                   remaining: 3.42s
321:
        learn: 7.7396424
                                  total: 1.62s
                                                   remaining: 3.4s
322:
        learn: 7.7360077
                                  total: 1.62s
                                                   remaining: 3.39s
323:
        learn: 7.7276193
                                  total: 1.62s
                                                   remaining: 3.38s
324:
        learn: 7.7188171
                                  total: 1.62s
                                                   remaining: 3.36s
325:
        learn: 7.7066533
                                                   remaining: 3.35s
                                  total: 1.62s
326:
        learn: 7.7050977
                                  total: 1.62s
                                                   remaining: 3.33s
327:
        learn: 7.7041429
                                  total: 1.62s
                                                   remaining: 3.32s
        learn: 7.7011561
328:
                                  total: 1.62s
                                                   remaining: 3.31s
329:
        learn: 7.6936706
                                                   remaining: 3.29s
                                  total: 1.62s
330:
        learn: 7.6890244
                                  total: 1.62s
                                                   remaining: 3.28s
331:
        learn: 7.6728465
                                  total: 1.62s
                                                   remaining: 3.27s
332:
        learn: 7.6634115
                                  total: 1.62s
                                                   remaining: 3.25s
333:
        learn: 7.6486168
                                  total: 1.62s
                                                   remaining: 3.24s
334:
        learn: 7.6367559
                                  total: 1.63s
                                                   remaining: 3.23s
335:
        learn: 7.6257647
                                  total: 1.63s
                                                   remaining: 3.21s
336:
        learn: 7.6172158
                                  total: 1.63s
                                                   remaining: 3.2s
337:
        learn: 7.6147317
                                  total: 1.71s
                                                   remaining: 3.35s
338:
        learn: 7.6034895
                                  total: 1.71s
                                                   remaining: 3.34s
339:
        learn: 7.5978866
                                  total: 1.71s
                                                   remaining: 3.33s
340:
        learn: 7.5961586
                                  total: 1.72s
                                                   remaining: 3.31s
341:
        learn: 7.5890154
                                  total: 1.72s
                                                   remaining: 3.3s
        learn: 7.5763383
                                                   remaining: 3.29s
342:
                                  total: 1.72s
343:
        learn: 7.5652546
                                  total: 1.72s
                                                   remaining: 3.27s
344:
        learn: 7.5642396
                                  total: 1.72s
                                                   remaining: 3.26s
                                                   remaining: 3.25s
345:
        learn: 7.5564576
                                  total: 1.72s
346:
        learn: 7.5468281
                                  total: 1.72s
                                                   remaining: 3.23s
347:
        learn: 7.5378694
                                  total: 1.72s
                                                   remaining: 3.22s
348:
        learn: 7.5301500
                                  total: 1.72s
                                                   remaining: 3.21s
        learn: 7.5262476
                                  total: 1.72s
349:
                                                   remaining: 3.2s
350:
        learn: 7.5162070
                                  total: 1.72s
                                                   remaining: 3.18s
351:
        learn: 7.5059014
                                  total: 1.73s
                                                   remaining: 3.18s
        learn: 7.4970078
352:
                                  total: 1.73s
                                                   remaining: 3.17s
                                                   remaining: 3.29s
353:
        learn: 7.4895973
                                  total: 1.8s
354:
        learn: 7.4789726
                                  total: 1.8s
                                                   remaining: 3.28s
355:
        learn: 7.4695867
                                  total: 1.8s
                                                   remaining: 3.27s
356:
        learn: 7.4631005
                                  total: 1.8s
                                                   remaining: 3.25s
357:
        learn: 7.4571981
                                  total: 1.81s
                                                   remaining: 3.24s
358:
        learn: 7.4448881
                                                   remaining: 3.23s
                                  total: 1.81s
359:
        learn: 7.4405767
                                  total: 1.81s
                                                   remaining: 3.21s
        learn: 7.4273758
                                  total: 1.81s
360:
                                                   remaining: 3.2s
        learn: 7.4166821
361:
                                  total: 1.81s
                                                   remaining: 3.19s
        learn: 7.4105677
                                                   remaining: 3.17s
362:
                                  total: 1.81s
363:
        learn: 7.4014983
                                  total: 1.81s
                                                   remaining: 3.16s
364:
        learn: 7.3939301
                                  total: 1.81s
                                                   remaining: 3.15s
                                                   remaining: 3.14s
365:
        learn: 7.3842881
                                  total: 1.81s
366:
        learn: 7.3777656
                                  total: 1.81s
                                                   remaining: 3.13s
367:
        learn: 7.3740909
                                  total: 1.82s
                                                   remaining: 3.12s
368:
        learn: 7.3683468
                                  total: 1.82s
                                                   remaining: 3.11s
369:
        learn: 7.3645416
                                  total: 1.9s
                                                   remaining: 3.23s
370:
        learn: 7.3601477
                                  total: 1.9s
                                                   remaining: 3.22s
371:
        learn: 7.3560551
                                  total: 1.9s
                                                   remaining: 3.21s
        learn: 7.3549001
372:
                                  total: 1.9s
                                                   remaining: 3.19s
373:
        learn: 7.3506426
                                                   remaining: 3.19s
                                  total: 1.9s
374:
        learn: 7.3445233
                                  total: 1.9s
                                                   remaining: 3.17s
375:
        learn: 7.3321452
                                  total: 1.9s
                                                   remaining: 3.16s
376:
        learn: 7.3287398
                                  total: 1.9s
                                                   remaining: 3.15s
377:
        learn: 7.3203264
                                  total: 1.91s
                                                   remaining: 3.13s
        learn: 7.3194053
378:
                                  total: 1.91s
                                                   remaining: 3.12s
```

```
379:
        learn: 7.3039366
                                  total: 1.91s
                                                   remaining: 3.11s
380:
        learn: 7.2994103
                                  total: 1.91s
                                                   remaining: 3.1s
        learn: 7.2896212
381:
                                  total: 1.91s
                                                   remaining: 3.09s
382:
        learn: 7.2813629
                                  total: 1.91s
                                                   remaining: 3.08s
383:
        learn: 7.2723611
                                  total: 1.91s
                                                   remaining: 3.07s
        learn: 7.2608881
384:
                                  total: 1.99s
                                                   remaining: 3.18s
385:
        learn: 7.2522449
                                  total: 1.99s
                                                   remaining: 3.17s
        learn: 7.2465312
                                                   remaining: 3.16s
386:
                                  total: 1.99s
387:
        learn: 7.2332553
                                  total: 1.99s
                                                   remaining: 3.14s
        learn: 7.2251120
                                  total: 1.99s
388:
                                                   remaining: 3.13s
389:
        learn: 7.2218678
                                  total: 1.99s
                                                   remaining: 3.12s
390:
        learn: 7.2140148
                                                   remaining: 3.11s
                                  total: 2s
391:
        learn: 7.2078678
                                  total: 2s
                                                   remaining: 3.1s
392:
        learn: 7.1965626
                                  total: 2s
                                                   remaining: 3.08s
393:
        learn: 7.1878041
                                  total: 2s
                                                   remaining: 3.07s
394:
        learn: 7.1811989
                                  total: 2s
                                                   remaining: 3.06s
395:
        learn: 7.1802813
                                  total: 2s
                                                   remaining: 3.05s
396:
        learn: 7.1794162
                                  total: 2s
                                                   remaining: 3.04s
397:
        learn: 7.1675863
                                  total: 2s
                                                   remaining: 3.02s
398:
        learn: 7.1615059
                                  total: 2s
                                                   remaining: 3.01s
399:
        learn: 7.1530534
                                  total: 2s
                                                   remaining: 3s
400:
        learn: 7.1445516
                                  total: 2s
                                                   remaining: 2.99s
401:
        learn: 7.1385822
                                                   remaining: 2.98s
                                  total: 2s
402:
        learn: 7.1377798
                                  total: 2.08s
                                                   remaining: 3.09s
        learn: 7.1278390
                                                   remaining: 3.08s
403:
                                  total: 2.08s
404:
        learn: 7.1238620
                                  total: 2.09s
                                                   remaining: 3.06s
405:
        learn: 7.1216493
                                  total: 2.09s
                                                   remaining: 3.05s
406:
        learn: 7.1189776
                                  total: 2.09s
                                                   remaining: 3.04s
407:
        learn: 7.0998825
                                  total: 2.09s
                                                   remaining: 3.03s
408:
        learn: 7.0945736
                                  total: 2.09s
                                                   remaining: 3.02s
409:
        learn: 7.0884199
                                  total: 2.09s
                                                   remaining: 3.01s
        learn: 7.0817205
410:
                                  total: 2.09s
                                                   remaining: 3s
411:
        learn: 7.0722916
                                  total: 2.09s
                                                   remaining: 2.98s
412:
        learn: 7.0706734
                                  total: 2.09s
                                                   remaining: 2.97s
413:
        learn: 7.0662641
                                  total: 2.09s
                                                   remaining: 2.96s
                                                   remaining: 2.95s
414:
        learn: 7.0646921
                                  total: 2.09s
415:
        learn: 7.0594760
                                  total: 2.09s
                                                   remaining: 2.94s
416:
        learn: 7.0559122
                                  total: 2.1s
                                                   remaining: 2.93s
417:
        learn: 7.0519955
                                  total: 2.1s
                                                   remaining: 2.92s
418:
        learn: 7.0444064
                                  total: 2.1s
                                                   remaining: 2.91s
419:
        learn: 7.0349464
                                                   remaining: 2.9s
                                  total: 2.1s
420:
        learn: 7.0202327
                                  total: 2.1s
                                                   remaining: 2.89s
421:
        learn: 7.0113736
                                  total: 2.1s
                                                   remaining: 2.88s
        learn: 7.0099380
422:
                                  total: 2.18s
                                                   remaining: 2.97s
423:
        learn: 6.9986815
                                  total: 2.18s
                                                   remaining: 2.96s
424:
        learn: 6.9885421
                                  total: 2.18s
                                                   remaining: 2.95s
425:
        learn: 6.9868183
                                  total: 2.18s
                                                   remaining: 2.94s
                                  total: 2.18s
                                                   remaining: 2.93s
426:
        learn: 6.9803401
427:
        learn: 6.9732598
                                  total: 2.18s
                                                   remaining: 2.92s
428:
        learn: 6.9690223
                                  total: 2.18s
                                                   remaining: 2.9s
429:
        learn: 6.9674548
                                  total: 2.18s
                                                   remaining: 2.89s
430:
        learn: 6.9664297
                                  total: 2.18s
                                                   remaining: 2.88s
431:
        learn: 6.9592317
                                                   remaining: 2.87s
                                  total: 2.18s
432:
        learn: 6.9539500
                                  total: 2.19s
                                                   remaining: 2.86s
        learn: 6.9410289
433:
                                  total: 2.19s
                                                   remaining: 2.85s
434:
        learn: 6.9357345
                                                   remaining: 2.84s
                                  total: 2.19s
435:
        learn: 6.9334873
                                  total: 2.19s
                                                   remaining: 2.83s
436:
        learn: 6.9243454
                                  total: 2.19s
                                                   remaining: 2.82s
437:
        learn: 6.9154490
                                  total: 2.19s
                                                   remaining: 2.81s
438:
        learn: 6.9125762
                                  total: 2.19s
                                                   remaining: 2.8s
        learn: 6.9037323
439:
                                  total: 2.19s
                                                   remaining: 2.79s
```

```
440:
        learn: 6.8973400
                                  total: 2.27s
                                                   remaining: 2.88s
441:
        learn: 6.8932384
                                  total: 2.27s
                                                   remaining: 2.87s
442:
                                  total: 2.27s
        learn: 6.8858655
                                                   remaining: 2.86s
443:
        learn: 6.8719939
                                  total: 2.27s
                                                   remaining: 2.85s
444:
        learn: 6.8700815
                                  total: 2.27s
                                                   remaining: 2.84s
        learn: 6.8632060
445:
                                  total: 2.27s
                                                   remaining: 2.83s
446:
        learn: 6.8605551
                                  total: 2.27s
                                                   remaining: 2.81s
447:
        learn: 6.8549117
                                                   remaining: 2.8s
                                  total: 2.28s
448:
        learn: 6.8481258
                                  total: 2.28s
                                                   remaining: 2.79s
449:
        learn: 6.8392943
                                  total: 2.28s
                                                   remaining: 2.78s
450:
        learn: 6.8351374
                                  total: 2.28s
                                                   remaining: 2.77s
451:
        learn: 6.8262877
                                                   remaining: 2.76s
                                  total: 2.28s
452:
        learn: 6.8161372
                                  total: 2.28s
                                                   remaining: 2.75s
        learn: 6.8100327
                                  total: 2.28s
453:
                                                   remaining: 2.74s
454:
        learn: 6.8027724
                                  total: 2.28s
                                                   remaining: 2.73s
455:
        learn: 6.7979988
                                  total: 2.28s
                                                   remaining: 2.72s
456:
        learn: 6.7890171
                                  total: 2.28s
                                                   remaining: 2.71s
457:
        learn: 6.7852829
                                  total: 2.28s
                                                   remaining: 2.7s
                                  total: 2.28s
458:
        learn: 6.7709022
                                                   remaining: 2.69s
459:
        learn: 6.7693267
                                  total: 2.36s
                                                   remaining: 2.78s
        learn: 6.7645517
                                  total: 2.37s
460:
                                                   remaining: 2.77s
461:
        learn: 6.7568975
                                  total: 2.37s
                                                   remaining: 2.75s
462:
        learn: 6.7474073
                                  total: 2.37s
                                                   remaining: 2.75s
463:
        learn: 6.7434616
                                  total: 2.37s
                                                   remaining: 2.73s
                                  total: 2.37s
464:
        learn: 6.7375181
                                                   remaining: 2.72s
465:
        learn: 6.7252101
                                  total: 2.37s
                                                   remaining: 2.71s
466:
        learn: 6.7187017
                                  total: 2.37s
                                                   remaining: 2.7s
467:
        learn: 6.7141010
                                  total: 2.37s
                                                   remaining: 2.69s
468:
        learn: 6.7128786
                                  total: 2.37s
                                                   remaining: 2.68s
        learn: 6.7031307
469:
                                  total: 2.37s
                                                   remaining: 2.67s
470:
        learn: 6.6982279
                                  total: 2.37s
                                                   remaining: 2.66s
                                  total: 2.37s
471:
        learn: 6.6935800
                                                   remaining: 2.65s
472:
        learn: 6.6915336
                                  total: 2.37s
                                                   remaining: 2.64s
473:
        learn: 6.6812822
                                  total: 2.37s
                                                   remaining: 2.63s
474:
        learn: 6.6762479
                                  total: 2.37s
                                                   remaining: 2.62s
                                  total: 2.38s
                                                   remaining: 2.61s
475:
        learn: 6.6755027
476:
        learn: 6.6717562
                                  total: 2.46s
                                                   remaining: 2.69s
477:
        learn: 6.6644221
                                  total: 2.46s
                                                   remaining: 2.69s
        learn: 6.6620089
478:
                                  total: 2.46s
                                                   remaining: 2.67s
                                                   remaining: 2.67s
479:
        learn: 6.6565811
                                  total: 2.46s
480:
        learn: 6.6499546
                                  total: 2.46s
                                                   remaining: 2.65s
481:
        learn: 6.6383822
                                  total: 2.46s
                                                   remaining: 2.65s
        learn: 6.6376703
                                  total: 2.46s
482:
                                                   remaining: 2.63s
        learn: 6.6313846
483:
                                  total: 2.46s
                                                   remaining: 2.63s
484:
        learn: 6.6266750
                                  total: 2.46s
                                                   remaining: 2.62s
485:
        learn: 6.6247361
                                  total: 2.46s
                                                   remaining: 2.61s
                                  total: 2.46s
486:
        learn: 6.6195121
                                                   remaining: 2.6s
                                  total: 2.46s
487:
        learn: 6.6159480
                                                   remaining: 2.59s
488:
        learn: 6.6153510
                                  total: 2.46s
                                                   remaining: 2.58s
        learn: 6.6106754
489:
                                  total: 2.47s
                                                   remaining: 2.57s
490:
        learn: 6.6065790
                                  total: 2.47s
                                                   remaining: 2.56s
491:
        learn: 6.5962874
                                  total: 2.47s
                                                   remaining: 2.55s
492:
        learn: 6.5906373
                                  total: 2.55s
                                                   remaining: 2.63s
493:
        learn: 6.5839848
                                  total: 2.55s
                                                   remaining: 2.62s
494:
        learn: 6.5797716
                                  total: 2.55s
                                                   remaining: 2.6s
495:
        learn: 6.5757776
                                  total: 2.55s
                                                   remaining: 2.6s
496:
        learn: 6.5685252
                                  total: 2.56s
                                                   remaining: 2.59s
497:
                                  total: 2.56s
        learn: 6.5678312
                                                   remaining: 2.58s
498:
        learn: 6.5596861
                                  total: 2.56s
                                                   remaining: 2.57s
499:
        learn: 6.5525727
                                  total: 2.56s
                                                   remaining: 2.56s
500:
        learn: 6.5441364
                                  total: 2.56s
                                                   remaining: 2.55s
```

```
501:
        learn: 6.5296401
                                  total: 2.56s
                                                   remaining: 2.54s
502:
        learn: 6.5209479
                                  total: 2.56s
                                                   remaining: 2.53s
                                  total: 2.57s
503:
        learn: 6.5153313
                                                   remaining: 2.52s
504:
        learn: 6.5102705
                                  total: 2.57s
                                                   remaining: 2.52s
505:
        learn: 6.5025903
                                  total: 2.57s
                                                   remaining: 2.51s
        learn: 6.4926378
506:
                                  total: 2.57s
                                                   remaining: 2.5s
507:
        learn: 6.4877192
                                  total: 2.57s
                                                   remaining: 2.49s
508:
        learn: 6.4752102
                                                   remaining: 2.48s
                                  total: 2.57s
509:
        learn: 6.4730707
                                  total: 2.57s
                                                   remaining: 2.47s
        learn: 6.4717982
                                  total: 2.65s
510:
                                                   remaining: 2.53s
511:
        learn: 6.4585108
                                  total: 2.65s
                                                   remaining: 2.52s
512:
        learn: 6.4571919
                                                   remaining: 2.51s
                                  total: 2.65s
513:
        learn: 6.4528138
                                  total: 2.65s
                                                   remaining: 2.5s
514:
        learn: 6.4436572
                                  total: 2.65s
                                                   remaining: 2.49s
515:
        learn: 6.4345162
                                  total: 2.65s
                                                   remaining: 2.48s
516:
        learn: 6.4325966
                                  total: 2.65s
                                                   remaining: 2.48s
517:
        learn: 6.4319486
                                  total: 2.65s
                                                   remaining: 2.47s
518:
        learn: 6.4273669
                                  total: 2.65s
                                                   remaining: 2.46s
                                  total: 2.65s
519:
        learn: 6.4219747
                                                   remaining: 2.45s
520:
        learn: 6.4100159
                                  total: 2.65s
                                                   remaining: 2.44s
        learn: 6.4030797
521:
                                  total: 2.65s
                                                   remaining: 2.43s
522:
        learn: 6.3992125
                                  total: 2.65s
                                                   remaining: 2.42s
523:
        learn: 6.3985891
                                  total: 2.65s
                                                   remaining: 2.41s
        learn: 6.3913700
524:
                                  total: 2.65s
                                                   remaining: 2.4s
525:
                                  total: 2.66s
                                                   remaining: 2.39s
        learn: 6.3882860
526:
        learn: 6.3811180
                                  total: 2.66s
                                                   remaining: 2.38s
527:
        learn: 6.3740104
                                  total: 2.66s
                                                   remaining: 2.38s
528:
        learn: 6.3686795
                                  total: 2.74s
                                                   remaining: 2.44s
529:
        learn: 6.3631495
                                  total: 2.74s
                                                   remaining: 2.43s
530:
        learn: 6.3612310
                                  total: 2.74s
                                                   remaining: 2.42s
531:
        learn: 6.3544390
                                  total: 2.74s
                                                   remaining: 2.41s
                                  total: 2.74s
532:
        learn: 6.3422989
                                                   remaining: 2.4s
533:
        learn: 6.3344564
                                  total: 2.74s
                                                   remaining: 2.39s
534:
        learn: 6.3279618
                                  total: 2.74s
                                                   remaining: 2.38s
535:
        learn: 6.3208788
                                  total: 2.74s
                                                   remaining: 2.38s
                                  total: 2.75s
                                                   remaining: 2.37s
536:
        learn: 6.3168430
537:
        learn: 6.3112656
                                  total: 2.75s
                                                   remaining: 2.36s
538:
        learn: 6.3061334
                                  total: 2.75s
                                                   remaining: 2.35s
539:
        learn: 6.3051578
                                  total: 2.75s
                                                   remaining: 2.34s
540:
        learn: 6.3029744
                                  total: 2.75s
                                                   remaining: 2.33s
541:
        learn: 6.2964917
                                  total: 2.75s
                                                   remaining: 2.32s
542:
        learn: 6.2960372
                                  total: 2.75s
                                                   remaining: 2.31s
543:
        learn: 6.2919641
                                  total: 2.75s
                                                   remaining: 2.3s
        learn: 6.2880468
                                  total: 2.75s
544:
                                                   remaining: 2.3s
545:
        learn: 6.2859734
                                  total: 2.76s
                                                   remaining: 2.29s
546:
        learn: 6.2790502
                                  total: 2.83s
                                                   remaining: 2.35s
547:
        learn: 6.2749827
                                  total: 2.83s
                                                   remaining: 2.34s
                                  total: 2.83s
                                                   remaining: 2.33s
548:
        learn: 6.2663594
549:
        learn: 6.2625651
                                  total: 2.83s
                                                   remaining: 2.32s
550:
        learn: 6.2560648
                                  total: 2.83s
                                                   remaining: 2.31s
551:
        learn: 6.2512792
                                  total: 2.84s
                                                   remaining: 2.3s
552:
        learn: 6.2478723
                                  total: 2.84s
                                                   remaining: 2.29s
553:
        learn: 6.2415645
                                  total: 2.84s
                                                   remaining: 2.28s
554:
        learn: 6.2358292
                                  total: 2.84s
                                                   remaining: 2.27s
555:
        learn: 6.2288148
                                  total: 2.84s
                                                   remaining: 2.27s
556:
        learn: 6.2219923
                                  total: 2.84s
                                                   remaining: 2.26s
557:
        learn: 6.2173703
                                  total: 2.84s
                                                   remaining: 2.25s
558:
        learn: 6.2070807
                                  total: 2.84s
                                                   remaining: 2.24s
559:
        learn: 6.2009486
                                  total: 2.84s
                                                   remaining: 2.23s
560:
        learn: 6.1997590
                                  total: 2.84s
                                                   remaining: 2.22s
        learn: 6.1944073
561:
                                  total: 2.84s
                                                   remaining: 2.21s
```

```
learn: 6.1937377
562:
                                  total: 2.84s
                                                   remaining: 2.21s
563:
        learn: 6.1932194
                                  total: 2.85s
                                                   remaining: 2.2s
                                  total: 2.93s
564:
        learn: 6.1878776
                                                   remaining: 2.25s
565:
        learn: 6.1871618
                                  total: 2.93s
                                                   remaining: 2.24s
566:
        learn: 6.1829685
                                  total: 2.93s
                                                   remaining: 2.23s
567:
        learn: 6.1773526
                                  total: 2.93s
                                                   remaining: 2.23s
568:
        learn: 6.1695039
                                  total: 2.93s
                                                   remaining: 2.22s
        learn: 6.1595764
                                  total: 2.93s
                                                   remaining: 2.21s
569:
570:
        learn: 6.1533052
                                  total: 2.93s
                                                   remaining: 2.2s
        learn: 6.1440989
                                  total: 2.93s
571:
                                                   remaining: 2.19s
572:
        learn: 6.1377717
                                  total: 2.93s
                                                   remaining: 2.18s
        learn: 6.1369679
                                                   remaining: 2.18s
573:
                                  total: 2.93s
574:
        learn: 6.1288085
                                  total: 2.93s
                                                   remaining: 2.17s
                                  total: 2.93s
575:
        learn: 6.1230056
                                                   remaining: 2.16s
576:
        learn: 6.1180165
                                  total: 2.93s
                                                   remaining: 2.15s
577:
        learn: 6.1124425
                                  total: 2.94s
                                                   remaining: 2.14s
578:
        learn: 6.1094271
                                  total: 2.94s
                                                   remaining: 2.13s
579:
        learn: 6.1080474
                                  total: 2.94s
                                                   remaining: 2.13s
                                  total: 3.02s
580:
        learn: 6.1044062
                                                   remaining: 2.18s
581:
        learn: 6.1000962
                                                   remaining: 2.17s
                                  total: 3.02s
582:
        learn: 6.0940091
                                  total: 3.02s
                                                   remaining: 2.16s
                                  total: 3.02s
583:
        learn: 6.0861461
                                                   remaining: 2.15s
584:
        learn: 6.0800476
                                  total: 3.02s
                                                   remaining: 2.14s
585:
        learn: 6.0774440
                                  total: 3.02s
                                                   remaining: 2.14s
586:
        learn: 6.0733063
                                  total: 3.02s
                                                   remaining: 2.13s
587:
        learn: 6.0715304
                                  total: 3.02s
                                                   remaining: 2.12s
588:
        learn: 6.0693606
                                  total: 3.02s
                                                   remaining: 2.11s
589:
        learn: 6.0648357
                                  total: 3.03s
                                                   remaining: 2.1s
590:
        learn: 6.0577595
                                  total: 3.03s
                                                   remaining: 2.1s
591:
        learn: 6.0533514
                                  total: 3.03s
                                                   remaining: 2.09s
592:
        learn: 6.0434609
                                  total: 3.03s
                                                   remaining: 2.08s
593:
        learn: 6.0354439
                                  total: 3.03s
                                                   remaining: 2.07s
594:
        learn: 6.0345101
                                  total: 3.03s
                                                   remaining: 2.06s
595:
        learn: 6.0332095
                                  total: 3.03s
                                                   remaining: 2.05s
596:
        learn: 6.0299428
                                  total: 3.04s
                                                   remaining: 2.05s
                                                   remaining: 2.04s
597:
        learn: 6.0206762
                                  total: 3.04s
598:
        learn: 6.0132565
                                  total: 3.11s
                                                   remaining: 2.08s
599:
        learn: 6.0117970
                                  total: 3.12s
                                                   remaining: 2.08s
        learn: 6.0034731
                                  total: 3.12s
600:
                                                   remaining: 2.07s
601:
        learn: 6.0029775
                                  total: 3.12s
                                                   remaining: 2.06s
602:
        learn: 6.0009804
                                                   remaining: 2.05s
                                  total: 3.12s
        learn: 5.9974145
603:
                                  total: 3.12s
                                                   remaining: 2.04s
        learn: 5.9954939
604:
                                  total: 3.12s
                                                   remaining: 2.04s
        learn: 5.9936066
605:
                                  total: 3.12s
                                                   remaining: 2.03s
        learn: 5.9883148
                                                   remaining: 2.02s
606:
                                  total: 3.12s
607:
        learn: 5.9826647
                                  total: 3.12s
                                                   remaining: 2.01s
        learn: 5.9776480
                                  total: 3.12s
608:
                                                   remaining: 2s
609:
        learn: 5.9744974
                                  total: 3.12s
                                                   remaining: 2s
610:
        learn: 5.9697604
                                  total: 3.12s
                                                   remaining: 1.99s
611:
        learn: 5.9691919
                                  total: 3.12s
                                                   remaining: 1.98s
612:
        learn: 5.9630856
                                  total: 3.12s
                                                   remaining: 1.97s
613:
        learn: 5.9620949
                                  total: 3.13s
                                                   remaining: 1.96s
614:
        learn: 5.9550050
                                  total: 3.13s
                                                   remaining: 1.96s
615:
        learn: 5.9508293
                                  total: 3.13s
                                                   remaining: 1.95s
        learn: 5.9434223
616:
                                  total: 3.21s
                                                   remaining: 1.99s
617:
        learn: 5.9424202
                                                   remaining: 1.98s
                                  total: 3.21s
618:
        learn: 5.9394679
                                  total: 3.21s
                                                   remaining: 1.98s
619:
        learn: 5.9384612
                                  total: 3.21s
                                                   remaining: 1.97s
620:
        learn: 5.9320709
                                  total: 3.21s
                                                   remaining: 1.96s
621:
        learn: 5.9269668
                                  total: 3.21s
                                                   remaining: 1.95s
622:
        learn: 5.9265159
                                  total: 3.21s
                                                   remaining: 1.94s
```

```
623:
        learn: 5.9212387
                                  total: 3.21s
                                                   remaining: 1.94s
624:
        learn: 5.9156635
                                  total: 3.21s
                                                   remaining: 1.93s
625:
        learn: 5.9147917
                                  total: 3.21s
                                                   remaining: 1.92s
626:
        learn: 5.9096448
                                  total: 3.21s
                                                   remaining: 1.91s
627:
        learn: 5.9034494
                                  total: 3.21s
                                                   remaining: 1.9s
        learn: 5.8953488
628:
                                  total: 3.22s
                                                   remaining: 1.9s
629:
        learn: 5.8922801
                                  total: 3.22s
                                                   remaining: 1.89s
630:
        learn: 5.8889355
                                                   remaining: 1.88s
                                  total: 3.22s
631:
        learn: 5.8805642
                                  total: 3.22s
                                                   remaining: 1.87s
632:
        learn: 5.8727060
                                  total: 3.3s
                                                   remaining: 1.91s
633:
        learn: 5.8686639
                                  total: 3.3s
                                                   remaining: 1.91s
634:
        learn: 5.8677101
                                                   remaining: 1.9s
                                  total: 3.3s
635:
        learn: 5.8657473
                                  total: 3.31s
                                                   remaining: 1.89s
                                  total: 3.31s
636:
        learn: 5.8626995
                                                   remaining: 1.88s
637:
        learn: 5.8578041
                                  total: 3.31s
                                                   remaining: 1.88s
638:
        learn: 5.8511728
                                  total: 3.31s
                                                   remaining: 1.87s
639:
        learn: 5.8501020
                                  total: 3.31s
                                                   remaining: 1.86s
640:
        learn: 5.8473091
                                  total: 3.31s
                                                   remaining: 1.85s
                                  total: 3.31s
641:
        learn: 5.8468902
                                                   remaining: 1.84s
642:
        learn: 5.8418158
                                  total: 3.31s
                                                   remaining: 1.84s
643:
        learn: 5.8401518
                                  total: 3.31s
                                                   remaining: 1.83s
644:
        learn: 5.8392103
                                  total: 3.31s
                                                   remaining: 1.82s
645:
        learn: 5.8347505
                                  total: 3.31s
                                                   remaining: 1.81s
646:
        learn: 5.8340433
                                  total: 3.31s
                                                   remaining: 1.81s
647:
        learn: 5.8283847
                                  total: 3.31s
                                                   remaining: 1.8s
648:
        learn: 5.8215380
                                  total: 3.31s
                                                   remaining: 1.79s
649:
        learn: 5.8132605
                                  total: 3.31s
                                                   remaining: 1.78s
650:
        learn: 5.8080391
                                  total: 3.4s
                                                   remaining: 1.82s
651:
        learn: 5.8072689
                                  total: 3.4s
                                                   remaining: 1.81s
652:
        learn: 5.8030989
                                  total: 3.4s
                                                   remaining: 1.8s
653:
        learn: 5.8023999
                                  total: 3.4s
                                                   remaining: 1.8s
654:
        learn: 5.7957565
                                  total: 3.4s
                                                   remaining: 1.79s
655:
        learn: 5.7902753
                                  total: 3.4s
                                                   remaining: 1.78s
656:
        learn: 5.7862407
                                  total: 3.4s
                                                   remaining: 1.77s
657:
        learn: 5.7829245
                                  total: 3.4s
                                                   remaining: 1.77s
                                  total: 3.4s
658:
        learn: 5.7727091
                                                   remaining: 1.76s
659:
        learn: 5.7675402
                                  total: 3.4s
                                                   remaining: 1.75s
660:
        learn: 5.7616794
                                  total: 3.4s
                                                   remaining: 1.75s
661:
        learn: 5.7548500
                                  total: 3.4s
                                                   remaining: 1.74s
662:
        learn: 5.7511221
                                  total: 3.4s
                                                   remaining: 1.73s
663:
        learn: 5.7461935
                                  total: 3.4s
                                                   remaining: 1.72s
        learn: 5.7369103
664:
                                  total: 3.4s
                                                   remaining: 1.72s
        learn: 5.7350306
665:
                                  total: 3.41s
                                                   remaining: 1.71s
        learn: 5.7345530
666:
                                  total: 3.41s
                                                   remaining: 1.7s
        learn: 5.7308013
                                                   remaining: 1.73s
667:
                                  total: 3.49s
668:
        learn: 5.7301878
                                  total: 3.49s
                                                   remaining: 1.73s
        learn: 5.7295099
                                  total: 3.49s
669:
                                                   remaining: 1.72s
                                                   remaining: 1.71s
670:
        learn: 5.7285089
                                  total: 3.49s
671:
        learn: 5.7223060
                                  total: 3.5s
                                                   remaining: 1.71s
672:
        learn: 5.7140121
                                  total: 3.5s
                                                   remaining: 1.7s
673:
        learn: 5.7137216
                                  total: 3.5s
                                                   remaining: 1.69s
674:
        learn: 5.7051321
                                  total: 3.5s
                                                   remaining: 1.68s
675:
        learn: 5.6984742
                                  total: 3.5s
                                                   remaining: 1.68s
                                  total: 3.5s
676:
        learn: 5.6919380
                                                   remaining: 1.67s
        learn: 5.6897009
677:
                                  total: 3.5s
                                                   remaining: 1.66s
        learn: 5.6859524
                                                   remaining: 1.65s
678:
                                  total: 3.5s
679:
        learn: 5.6814851
                                  total: 3.5s
                                                   remaining: 1.65s
680:
        learn: 5.6771344
                                  total: 3.5s
                                                   remaining: 1.64s
681:
        learn: 5.6766833
                                  total: 3.5s
                                                   remaining: 1.63s
682:
        learn: 5.6727045
                                  total: 3.5s
                                                   remaining: 1.63s
683:
        learn: 5.6671378
                                  total: 3.5s
                                                   remaining: 1.62s
```

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684:
        learn: 5.6568728
                                  total: 3.5s
                                                   remaining: 1.61s
685:
        learn: 5.6547706
                                  total: 3.58s
                                                   remaining: 1.64s
        learn: 5.6543646
686:
                                  total: 3.58s
                                                   remaining: 1.63s
687:
        learn: 5.6513728
                                  total: 3.58s
                                                   remaining: 1.63s
688:
        learn: 5.6467110
                                  total: 3.58s
                                                   remaining: 1.62s
        learn: 5.6424448
                                  total: 3.59s
689:
                                                   remaining: 1.61s
690:
        learn: 5.6418630
                                  total: 3.59s
                                                   remaining: 1.6s
691:
        learn: 5.6415790
                                                   remaining: 1.6s
                                  total: 3.59s
692:
        learn: 5.6410437
                                  total: 3.59s
                                                   remaining: 1.59s
693:
        learn: 5.6385164
                                  total: 3.59s
                                                   remaining: 1.58s
694:
        learn: 5.6325100
                                  total: 3.59s
                                                   remaining: 1.57s
695:
        learn: 5.6272264
                                                   remaining: 1.57s
                                  total: 3.59s
696:
        learn: 5.6268641
                                  total: 3.59s
                                                   remaining: 1.56s
        learn: 5.6220281
                                  total: 3.59s
697:
                                                   remaining: 1.55s
698:
        learn: 5.6145160
                                  total: 3.59s
                                                   remaining: 1.55s
699:
        learn: 5.6094916
                                  total: 3.59s
                                                   remaining: 1.54s
700:
        learn: 5.6035044
                                  total: 3.6s
                                                   remaining: 1.53s
701:
        learn: 5.6016515
                                  total: 3.6s
                                                   remaining: 1.53s
702:
        learn: 5.5952443
                                  total: 3.6s
                                                   remaining: 1.52s
703:
        learn: 5.5948733
                                  total: 3.68s
                                                   remaining: 1.54s
704:
        learn: 5.5896211
                                  total: 3.68s
                                                   remaining: 1.54s
705:
        learn: 5.5819609
                                  total: 3.68s
                                                   remaining: 1.53s
706:
        learn: 5.5752609
                                  total: 3.68s
                                                   remaining: 1.52s
707:
        learn: 5.5690565
                                  total: 3.68s
                                                   remaining: 1.52s
708:
        learn: 5.5673763
                                  total: 3.68s
                                                   remaining: 1.51s
709:
        learn: 5.5623256
                                  total: 3.68s
                                                   remaining: 1.5s
710:
        learn: 5.5610050
                                  total: 3.68s
                                                   remaining: 1.5s
711:
        learn: 5.5593056
                                  total: 3.68s
                                                   remaining: 1.49s
712:
        learn: 5.5561310
                                  total: 3.68s
                                                   remaining: 1.48s
713:
        learn: 5.5555669
                                  total: 3.68s
                                                   remaining: 1.48s
714:
        learn: 5.5506268
                                  total: 3.68s
                                                   remaining: 1.47s
                                  total: 3.69s
715:
        learn: 5.5483801
                                                   remaining: 1.46s
716:
        learn: 5.5443977
                                  total: 3.69s
                                                   remaining: 1.45s
717:
        learn: 5.5400320
                                  total: 3.69s
                                                   remaining: 1.45s
718:
        learn: 5.5395769
                                  total: 3.69s
                                                   remaining: 1.44s
719:
                                  total: 3.69s
                                                   remaining: 1.44s
        learn: 5.5391497
720:
        learn: 5.5306456
                                  total: 3.77s
                                                   remaining: 1.46s
721:
        learn: 5.5254245
                                  total: 3.77s
                                                   remaining: 1.45s
722:
        learn: 5.5249329
                                  total: 3.77s
                                                   remaining: 1.45s
723:
        learn: 5.5243547
                                  total: 3.77s
                                                   remaining: 1.44s
724:
        learn: 5.5179390
                                                   remaining: 1.43s
                                  total: 3.77s
725:
        learn: 5.5158827
                                  total: 3.77s
                                                   remaining: 1.42s
726:
        learn: 5.5149858
                                  total: 3.77s
                                                   remaining: 1.42s
727:
        learn: 5.5107311
                                  total: 3.77s
                                                   remaining: 1.41s
                                                   remaining: 1.4s
728:
        learn: 5.5084987
                                  total: 3.78s
729:
        learn: 5.4991973
                                  total: 3.78s
                                                   remaining: 1.4s
730:
        learn: 5.4988797
                                  total: 3.78s
                                                   remaining: 1.39s
                                                   remaining: 1.38s
731:
        learn: 5.4930335
                                  total: 3.78s
732:
        learn: 5.4894489
                                  total: 3.78s
                                                   remaining: 1.38s
733:
        learn: 5.4868044
                                  total: 3.78s
                                                   remaining: 1.37s
734:
        learn: 5.4819211
                                  total: 3.78s
                                                   remaining: 1.36s
735:
        learn: 5.4765293
                                  total: 3.78s
                                                   remaining: 1.36s
736:
        learn: 5.4724903
                                  total: 3.79s
                                                   remaining: 1.35s
737:
        learn: 5.4691624
                                  total: 3.79s
                                                   remaining: 1.34s
738:
        learn: 5.4636395
                                  total: 3.79s
                                                   remaining: 1.34s
739:
        learn: 5.4590288
                                  total: 3.79s
                                                   remaining: 1.33s
740:
        learn: 5.4577415
                                  total: 3.79s
                                                   remaining: 1.32s
741:
        learn: 5.4492012
                                  total: 3.79s
                                                   remaining: 1.32s
742:
        learn: 5.4469791
                                  total: 3.79s
                                                   remaining: 1.31s
743:
        learn: 5.4427083
                                  total: 3.79s
                                                   remaining: 1.3s
        learn: 5.4388845
744:
                                  total: 3.79s
                                                   remaining: 1.3s
```

```
745:
        learn: 5.4338388
                                  total: 3.79s
                                                   remaining: 1.29s
746:
        learn: 5.4277031
                                  total: 3.79s
                                                   remaining: 1.28s
747:
        learn: 5.4260055
                                  total: 3.8s
                                                   remaining: 1.28s
748:
        learn: 5.4195133
                                  total: 3.8s
                                                   remaining: 1.27s
749:
        learn: 5.4159555
                                  total: 3.8s
                                                   remaining: 1.27s
750:
        learn: 5.4105835
                                  total: 3.8s
                                                   remaining: 1.26s
751:
        learn: 5.4097087
                                  total: 3.8s
                                                   remaining: 1.25s
752:
        learn: 5.4062713
                                                   remaining: 1.25s
                                  total: 3.8s
753:
        learn: 5.4054258
                                  total: 3.88s
                                                   remaining: 1.27s
754:
        learn: 5.3980538
                                  total: 3.88s
                                                   remaining: 1.26s
755:
        learn: 5.3935827
                                  total: 3.88s
                                                   remaining: 1.25s
756:
        learn: 5.3901778
                                                   remaining: 1.25s
                                  total: 3.88s
757:
        learn: 5.3885363
                                  total: 3.88s
                                                   remaining: 1.24s
758:
        learn: 5.3840241
                                  total: 3.88s
                                                   remaining: 1.23s
759:
        learn: 5.3794793
                                  total: 3.89s
                                                   remaining: 1.23s
760:
        learn: 5.3787394
                                  total: 3.89s
                                                   remaining: 1.22s
761:
        learn: 5.3736829
                                  total: 3.89s
                                                   remaining: 1.21s
762:
        learn: 5.3668568
                                  total: 3.89s
                                                   remaining: 1.21s
                                  total: 3.89s
763:
        learn: 5.3664200
                                                   remaining: 1.2s
764:
        learn: 5.3661358
                                  total: 3.89s
                                                   remaining: 1.19s
765:
        learn: 5.3615703
                                  total: 3.89s
                                                   remaining: 1.19s
766:
        learn: 5.3586914
                                  total: 3.89s
                                                   remaining: 1.18s
767:
        learn: 5.3582137
                                  total: 3.89s
                                                   remaining: 1.18s
768:
        learn: 5.3573325
                                  total: 3.89s
                                                   remaining: 1.17s
769:
        learn: 5.3526060
                                  total: 3.89s
                                                   remaining: 1.16s
770:
        learn: 5.3504316
                                  total: 3.98s
                                                   remaining: 1.18s
771:
        learn: 5.3495166
                                  total: 3.98s
                                                   remaining: 1.17s
772:
        learn: 5.3481956
                                  total: 3.98s
                                                   remaining: 1.17s
773:
        learn: 5.3459515
                                  total: 3.98s
                                                   remaining: 1.16s
774:
        learn: 5.3437890
                                  total: 3.98s
                                                   remaining: 1.16s
775:
        learn: 5.3434255
                                  total: 3.98s
                                                   remaining: 1.15s
                                  total: 3.98s
776:
        learn: 5.3389136
                                                   remaining: 1.14s
                                                   remaining: 1.14s
777:
        learn: 5.3320915
                                  total: 3.98s
778:
        learn: 5.3257444
                                  total: 3.98s
                                                   remaining: 1.13s
779:
        learn: 5.3223650
                                  total: 3.98s
                                                   remaining: 1.12s
780:
                                  total: 3.98s
                                                   remaining: 1.12s
        learn: 5.3128185
781:
        learn: 5.3088452
                                  total: 3.98s
                                                   remaining: 1.11s
782:
        learn: 5.3074598
                                  total: 3.98s
                                                   remaining: 1.1s
783:
        learn: 5.3060083
                                  total: 3.99s
                                                   remaining: 1.1s
784:
        learn: 5.3056579
                                  total: 3.99s
                                                   remaining: 1.09s
785:
        learn: 5.3034349
                                  total: 3.99s
                                                   remaining: 1.08s
786:
        learn: 5.3032304
                                  total: 4.07s
                                                   remaining: 1.1s
787:
        learn: 5.3017254
                                  total: 4.07s
                                                   remaining: 1.09s
        learn: 5.2993261
788:
                                  total: 4.07s
                                                   remaining: 1.09s
789:
        learn: 5.2988851
                                  total: 4.07s
                                                   remaining: 1.08s
790:
        learn: 5.2909179
                                  total: 4.07s
                                                   remaining: 1.08s
791:
        learn: 5.2893786
                                  total: 4.07s
                                                   remaining: 1.07s
                                                   remaining: 1.06s
792:
        learn: 5.2815450
                                  total: 4.08s
793:
        learn: 5.2801038
                                  total: 4.08s
                                                   remaining: 1.06s
794:
        learn: 5.2749063
                                  total: 4.08s
                                                   remaining: 1.05s
795:
        learn: 5.2690159
                                  total: 4.08s
                                                   remaining: 1.04s
        learn: 5.2637294
796:
                                  total: 4.08s
                                                   remaining: 1.04s
797:
        learn: 5.2598634
                                  total: 4.08s
                                                   remaining: 1.03s
        learn: 5.2560793
798:
                                  total: 4.08s
                                                   remaining: 1.03s
799:
        learn: 5.2552900
                                  total: 4.08s
                                                   remaining: 1.02s
800:
        learn: 5.2500895
                                  total: 4.08s
                                                   remaining: 1.01s
801:
        learn: 5.2445998
                                  total: 4.09s
                                                   remaining: 1.01s
802:
        learn: 5.2389620
                                  total: 4.16s
                                                   remaining: 1.02s
803:
        learn: 5.2342645
                                  total: 4.16s
                                                   remaining: 1.01s
804:
        learn: 5.2337087
                                  total: 4.16s
                                                   remaining: 1.01s
805:
        learn: 5.2317890
                                  total: 4.17s
                                                   remaining: 1s
```

```
learn: 5.2284153
806:
                                  total: 4.17s
                                                   remaining: 996ms
807:
        learn: 5.2279731
                                  total: 4.17s
                                                   remaining: 990ms
        learn: 5.2275866
808:
                                  total: 4.17s
                                                   remaining: 984ms
809:
        learn: 5.2274060
                                  total: 4.17s
                                                   remaining: 978ms
810:
        learn: 5.2268616
                                  total: 4.17s
                                                   remaining: 971ms
        learn: 5.2175791
811:
                                  total: 4.17s
                                                   remaining: 965ms
812:
        learn: 5.2172371
                                  total: 4.17s
                                                   remaining: 959ms
813:
        learn: 5.2122516
                                  total: 4.17s
                                                   remaining: 953ms
        learn: 5.2097469
                                  total: 4.17s
                                                   remaining: 947ms
814:
815:
        learn: 5.2049887
                                  total: 4.17s
                                                   remaining: 941ms
816:
        learn: 5.2036950
                                  total: 4.17s
                                                   remaining: 935ms
817:
        learn: 5.2014925
                                  total: 4.17s
                                                   remaining: 928ms
818:
        learn: 5.2012999
                                  total: 4.17s
                                                   remaining: 922ms
819:
        learn: 5.1981214
                                  total: 4.17s
                                                   remaining: 916ms
820:
        learn: 5.1936585
                                  total: 4.26s
                                                   remaining: 928ms
821:
        learn: 5.1928359
                                  total: 4.26s
                                                   remaining: 922ms
822:
        learn: 5.1881456
                                  total: 4.26s
                                                   remaining: 916ms
823:
        learn: 5.1830481
                                  total: 4.26s
                                                   remaining: 910ms
824:
        learn: 5.1822817
                                  total: 4.26s
                                                   remaining: 904ms
825:
        learn: 5.1801062
                                  total: 4.26s
                                                   remaining: 897ms
826:
        learn: 5.1797546
                                  total: 4.26s
                                                   remaining: 891ms
                                  total: 4.26s
827:
        learn: 5.1755477
                                                   remaining: 885ms
828:
        learn: 5.1749670
                                  total: 4.26s
                                                   remaining: 879ms
829:
        learn: 5.1724699
                                  total: 4.26s
                                                   remaining: 873ms
830:
        learn: 5.1685686
                                  total: 4.26s
                                                   remaining: 867ms
831:
        learn: 5.1646187
                                  total: 4.26s
                                                   remaining: 861ms
832:
        learn: 5.1634714
                                  total: 4.26s
                                                   remaining: 855ms
833:
        learn: 5.1631534
                                  total: 4.26s
                                                   remaining: 849ms
834:
        learn: 5.1600048
                                  total: 4.27s
                                                   remaining: 843ms
                                  total: 4.27s
835:
        learn: 5.1597040
                                                   remaining: 838ms
836:
        learn: 5.1566371
                                  total: 4.27s
                                                   remaining: 832ms
837:
        learn: 5.1524527
                                  total: 4.35s
                                                   remaining: 841ms
838:
        learn: 5.1451054
                                  total: 4.35s
                                                   remaining: 835ms
839:
        learn: 5.1377153
                                  total: 4.35s
                                                   remaining: 829ms
840:
        learn: 5.1353581
                                  total: 4.35s
                                                   remaining: 823ms
841:
        learn: 5.1342783
                                  total: 4.35s
                                                   remaining: 817ms
842:
        learn: 5.1300480
                                  total: 4.35s
                                                   remaining: 811ms
843:
        learn: 5.1250429
                                  total: 4.35s
                                                   remaining: 805ms
844:
        learn: 5.1221862
                                  total: 4.36s
                                                   remaining: 799ms
845:
        learn: 5.1192067
                                  total: 4.36s
                                                   remaining: 793ms
846:
        learn: 5.1188272
                                  total: 4.36s
                                                   remaining: 787ms
847:
        learn: 5.1149251
                                                   remaining: 781ms
                                  total: 4.36s
        learn: 5.1146100
848:
                                  total: 4.36s
                                                   remaining: 775ms
        learn: 5.1136277
849:
                                  total: 4.36s
                                                   remaining: 769ms
850:
        learn: 5.1072182
                                  total: 4.36s
                                                   remaining: 763ms
851:
        learn: 5.1010689
                                  total: 4.36s
                                                   remaining: 757ms
852:
        learn: 5.0945597
                                  total: 4.36s
                                                   remaining: 752ms
                                                   remaining: 746ms
853:
        learn: 5.0939115
                                  total: 4.36s
854:
        learn: 5.0923269
                                  total: 4.36s
                                                   remaining: 740ms
855:
        learn: 5.0870331
                                  total: 4.44s
                                                   remaining: 748ms
856:
        learn: 5.0825074
                                  total: 4.45s
                                                   remaining: 742ms
857:
        learn: 5.0794972
                                  total: 4.45s
                                                   remaining: 736ms
858:
        learn: 5.0792309
                                  total: 4.45s
                                                   remaining: 730ms
859:
        learn: 5.0764942
                                  total: 4.45s
                                                   remaining: 724ms
        learn: 5.0710070
860:
                                  total: 4.45s
                                                   remaining: 718ms
        learn: 5.0707096
                                  total: 4.45s
                                                   remaining: 712ms
861:
862:
        learn: 5.0664023
                                  total: 4.45s
                                                   remaining: 706ms
        learn: 5.0597487
                                  total: 4.45s
863:
                                                   remaining: 700ms
864:
        learn: 5.0577706
                                  total: 4.45s
                                                   remaining: 695ms
865:
        learn: 5.0556226
                                  total: 4.45s
                                                   remaining: 689ms
866:
        learn: 5.0529701
                                  total: 4.45s
                                                   remaining: 683ms
```

```
learn: 5.0499585
867:
                                  total: 4.45s
                                                   remaining: 677ms
868:
        learn: 5.0455548
                                  total: 4.45s
                                                   remaining: 671ms
        learn: 5.0418189
869:
                                  total: 4.45s
                                                   remaining: 666ms
870:
        learn: 5.0390769
                                  total: 4.45s
                                                   remaining: 660ms
871:
        learn: 5.0351672
                                  total: 4.46s
                                                   remaining: 654ms
        learn: 5.0306192
872:
                                  total: 4.54s
                                                   remaining: 660ms
873:
        learn: 5.0278287
                                  total: 4.54s
                                                   remaining: 654ms
874:
        learn: 5.0239786
                                  total: 4.54s
                                                   remaining: 648ms
875:
        learn: 5.0205424
                                  total: 4.54s
                                                   remaining: 643ms
876:
        learn: 5.0134201
                                  total: 4.54s
                                                   remaining: 637ms
                                  total: 4.54s
877:
        learn: 5.0083903
                                                   remaining: 631ms
878:
        learn: 5.0064225
                                                   remaining: 625ms
                                  total: 4.54s
879:
        learn: 5.0001581
                                  total: 4.54s
                                                   remaining: 619ms
        learn: 4.9959832
880:
                                  total: 4.54s
                                                   remaining: 614ms
881:
        learn: 4.9957149
                                  total: 4.54s
                                                   remaining: 608ms
882:
        learn: 4.9893015
                                  total: 4.54s
                                                   remaining: 602ms
                                                   remaining: 596ms
883:
        learn: 4.9866000
                                  total: 4.54s
884:
        learn: 4.9829692
                                  total: 4.54s
                                                   remaining: 591ms
885:
        learn: 4.9819851
                                  total: 4.55s
                                                   remaining: 585ms
886:
        learn: 4.9807928
                                  total: 4.55s
                                                   remaining: 579ms
        learn: 4.9763305
                                  total: 4.55s
887:
                                                   remaining: 574ms
                                  total: 4.55s
888:
        learn: 4.9734409
                                                   remaining: 568ms
889:
        learn: 4.9722891
                                  total: 4.63s
                                                   remaining: 572ms
890:
        learn: 4.9678706
                                  total: 4.63s
                                                   remaining: 567ms
891:
        learn: 4.9646037
                                  total: 4.63s
                                                   remaining: 561ms
892:
        learn: 4.9634592
                                  total: 4.63s
                                                   remaining: 555ms
893:
        learn: 4.9595333
                                  total: 4.63s
                                                   remaining: 550ms
894:
        learn: 4.9560643
                                  total: 4.63s
                                                   remaining: 544ms
895:
        learn: 4.9544294
                                  total: 4.64s
                                                   remaining: 538ms
896:
        learn: 4.9502923
                                  total: 4.64s
                                                   remaining: 532ms
897:
        learn: 4.9457578
                                  total: 4.64s
                                                   remaining: 527ms
898:
        learn: 4.9419515
                                  total: 4.64s
                                                   remaining: 521ms
899:
        learn: 4.9366774
                                  total: 4.64s
                                                   remaining: 515ms
900:
        learn: 4.9361386
                                  total: 4.64s
                                                   remaining: 510ms
901:
        learn: 4.9337100
                                  total: 4.64s
                                                   remaining: 504ms
902:
        learn: 4.9295334
                                  total: 4.64s
                                                   remaining: 499ms
903:
        learn: 4.9275231
                                  total: 4.64s
                                                   remaining: 493ms
904:
        learn: 4.9238166
                                  total: 4.64s
                                                   remaining: 487ms
905:
        learn: 4.9230717
                                  total: 4.64s
                                                   remaining: 482ms
906:
        learn: 4.9195995
                                  total: 4.72s
                                                   remaining: 485ms
907:
        learn: 4.9149656
                                  total: 4.73s
                                                   remaining: 479ms
        learn: 4.9118177
                                  total: 4.73s
                                                   remaining: 473ms
908:
909:
        learn: 4.9075176
                                  total: 4.73s
                                                   remaining: 468ms
910:
        learn: 4.9034513
                                  total: 4.73s
                                                   remaining: 462ms
911:
        learn: 4.9002236
                                  total: 4.73s
                                                   remaining: 456ms
912:
        learn: 4.8983531
                                  total: 4.73s
                                                   remaining: 451ms
913:
        learn: 4.8920768
                                  total: 4.73s
                                                   remaining: 445ms
914:
        learn: 4.8891784
                                  total: 4.73s
                                                   remaining: 439ms
915:
        learn: 4.8875246
                                  total: 4.73s
                                                   remaining: 434ms
916:
        learn: 4.8872519
                                  total: 4.73s
                                                   remaining: 428ms
917:
        learn: 4.8834556
                                  total: 4.73s
                                                   remaining: 423ms
918:
        learn: 4.8820089
                                  total: 4.73s
                                                   remaining: 417ms
919:
        learn: 4.8780886
                                  total: 4.73s
                                                   remaining: 412ms
920:
        learn: 4.8772797
                                  total: 4.73s
                                                   remaining: 406ms
921:
        learn: 4.8745089
                                  total: 4.74s
                                                   remaining: 401ms
922:
        learn: 4.8739111
                                  total: 4.82s
                                                   remaining: 402ms
923:
        learn: 4.8725545
                                  total: 4.82s
                                                   remaining: 396ms
924:
        learn: 4.8664318
                                  total: 4.82s
                                                   remaining: 391ms
925:
        learn: 4.8640907
                                  total: 4.82s
                                                   remaining: 385ms
926:
        learn: 4.8635019
                                  total: 4.82s
                                                   remaining: 380ms
927:
        learn: 4.8605517
                                  total: 4.82s
                                                   remaining: 374ms
```

```
928:
        learn: 4.8577474
                                  total: 4.82s
                                                   remaining: 369ms
929:
        learn: 4.8521337
                                  total: 4.82s
                                                   remaining: 363ms
930:
        learn: 4.8492206
                                  total: 4.83s
                                                   remaining: 358ms
931:
        learn: 4.8452487
                                  total: 4.83s
                                                   remaining: 352ms
932:
        learn: 4.8404240
                                  total: 4.83s
                                                   remaining: 347ms
933:
        learn: 4.8379147
                                  total: 4.83s
                                                   remaining: 341ms
934:
        learn: 4.8357982
                                  total: 4.83s
                                                   remaining: 336ms
935:
        learn: 4.8355435
                                  total: 4.83s
                                                   remaining: 330ms
936:
        learn: 4.8311622
                                  total: 4.83s
                                                   remaining: 325ms
937:
        learn: 4.8287247
                                  total: 4.83s
                                                   remaining: 319ms
938:
        learn: 4.8260534
                                  total: 4.91s
                                                   remaining: 319ms
939:
        learn: 4.8234014
                                  total: 4.91s
                                                   remaining: 314ms
940:
        learn: 4.8201811
                                  total: 4.91s
                                                   remaining: 308ms
941:
        learn: 4.8153178
                                  total: 4.91s
                                                   remaining: 303ms
942:
        learn: 4.8117707
                                  total: 4.92s
                                                   remaining: 297ms
943:
        learn: 4.8068742
                                  total: 4.92s
                                                   remaining: 292ms
944:
        learn: 4.8000983
                                  total: 4.92s
                                                   remaining: 286ms
945:
        learn: 4.7953369
                                  total: 4.92s
                                                   remaining: 281ms
946:
        learn: 4.7936090
                                  total: 4.92s
                                                   remaining: 275ms
947:
        learn: 4.7909459
                                  total: 4.92s
                                                   remaining: 270ms
948:
        learn: 4.7880416
                                  total: 4.92s
                                                   remaining: 264ms
                                  total: 4.92s
949:
        learn: 4.7852948
                                                   remaining: 259ms
950:
        learn: 4.7800562
                                  total: 4.92s
                                                   remaining: 254ms
951:
        learn: 4.7782437
                                  total: 4.92s
                                                   remaining: 248ms
952:
        learn: 4.7781828
                                  total: 4.92s
                                                   remaining: 243ms
953:
        learn: 4.7748449
                                  total: 4.92s
                                                   remaining: 237ms
954:
        learn: 4.7733061
                                  total: 4.92s
                                                   remaining: 232ms
955:
        learn: 4.7688160
                                  total: 5s
                                                   remaining: 230ms
956:
        learn: 4.7654462
                                  total: 5.01s
                                                   remaining: 225ms
957:
        learn: 4.7649015
                                  total: 5.01s
                                                   remaining: 220ms
958:
        learn: 4.7633739
                                  total: 5.01s
                                                   remaining: 214ms
959:
        learn: 4.7594038
                                  total: 5.01s
                                                   remaining: 209ms
960:
        learn: 4.7566436
                                  total: 5.01s
                                                   remaining: 203ms
961:
        learn: 4.7526040
                                  total: 5.01s
                                                   remaining: 198ms
962:
        learn: 4.7497835
                                  total: 5.01s
                                                   remaining: 193ms
963:
        learn: 4.7421425
                                  total: 5.01s
                                                   remaining: 187ms
964:
        learn: 4.7411488
                                  total: 5.01s
                                                   remaining: 182ms
965:
        learn: 4.7345003
                                  total: 5.01s
                                                   remaining: 176ms
966:
        learn: 4.7268488
                                  total: 5.01s
                                                   remaining: 171ms
967:
        learn: 4.7242264
                                  total: 5.01s
                                                   remaining: 166ms
968:
        learn: 4.7240769
                                  total: 5.01s
                                                   remaining: 160ms
969:
        learn: 4.7191695
                                  total: 5.02s
                                                   remaining: 155ms
970:
        learn: 4.7177394
                                  total: 5.02s
                                                   remaining: 150ms
971:
        learn: 4.7158175
                                  total: 5.02s
                                                   remaining: 145ms
972:
        learn: 4.7135878
                                                   remaining: 139ms
                                  total: 5.02s
973:
        learn: 4.7065532
                                  total: 5.1s
                                                   remaining: 136ms
974:
        learn: 4.6979639
                                  total: 5.1s
                                                   remaining: 131ms
                                                   remaining: 125ms
975:
        learn: 4.6940403
                                  total: 5.1s
976:
        learn: 4.6925514
                                  total: 5.1s
                                                   remaining: 120ms
        learn: 4.6903006
977:
                                  total: 5.1s
                                                   remaining: 115ms
978:
        learn: 4.6867923
                                  total: 5.1s
                                                   remaining: 109ms
979:
        learn: 4.6849403
                                  total: 5.1s
                                                   remaining: 104ms
980:
        learn: 4.6784580
                                                   remaining: 98.9ms
                                  total: 5.1s
981:
        learn: 4.6756783
                                  total: 5.1s
                                                   remaining: 93.6ms
982:
        learn: 4.6711591
                                  total: 5.11s
                                                   remaining: 88.3ms
983:
        learn: 4.6706153
                                                   remaining: 83ms
                                  total: 5.11s
984:
        learn: 4.6694377
                                  total: 5.11s
                                                   remaining: 77.8ms
                                                   remaining: 72.5ms
985:
                                  total: 5.11s
        learn: 4.6691205
986:
        learn: 4.6669066
                                  total: 5.11s
                                                   remaining: 67.3ms
987:
        learn: 4.6622869
                                  total: 5.11s
                                                   remaining: 62ms
988:
        learn: 4.6586502
                                  total: 5.11s
                                                   remaining: 56.9ms
```

```
989:
        learn: 4.6580612
                                  total: 5.12s
                                                   remaining: 51.7ms
990:
        learn: 4.6559163
                                  total: 5.19s
                                                   remaining: 47.2ms
        learn: 4.6515251
                                  total: 5.19s
991:
                                                   remaining: 41.9ms
992:
        learn: 4.6488861
                                  total: 5.19s
                                                   remaining: 36.6ms
993:
        learn: 4.6460574
                                  total: 5.2s
                                                   remaining: 31.4ms
        learn: 4.6416645
                                  total: 5.2s
994:
                                                   remaining: 26.1ms
995:
        learn: 4.6403512
                                  total: 5.2s
                                                   remaining: 20.9ms
996:
        learn: 4.6367510
                                  total: 5.2s
                                                   remaining: 15.6ms
997:
        learn: 4.6325273
                                  total: 5.2s
                                                   remaining: 10.4ms
998:
        learn: 4.6311934
                                  total: 5.2s
                                                   remaining: 5.2ms
999:
        learn: 4.6273801
                                  total: 5.2s
                                                   remaining: Ous
        learn: 20.2420715
                                                   remaining: 908ms
0:
                                  total: 909us
1:
        learn: 20.0308370
                                  total: 1.73ms
                                                   remaining: 861ms
2:
        learn: 19.8325081
                                  total: 2.36ms
                                                   remaining: 786ms
3:
        learn: 19.6813400
                                  total: 3.05ms
                                                   remaining: 761ms
4:
        learn: 19.4972911
                                  total: 3.66ms
                                                   remaining: 728ms
5:
        learn: 19.3178698
                                  total: 4.3ms
                                                   remaining: 712ms
        learn: 19.1427909
6:
                                  total: 4.96ms
                                                   remaining: 704ms
7:
        learn: 18.9777475
                                  total: 5.59ms
                                                   remaining: 693ms
8:
        learn: 18.8084160
                                  total: 6.21ms
                                                   remaining: 684ms
9:
        learn: 18.6517775
                                  total: 6.88ms
                                                   remaining: 681ms
10:
        learn: 18.5073179
                                  total: 7.51ms
                                                   remaining: 675ms
                                                   remaining: 673ms
        learn: 18.3690573
                                  total: 8.17ms
11:
12:
        learn: 18.2364670
                                  total: 8.76ms
                                                   remaining: 665ms
        learn: 17.8976289
                                  total: 9.44ms
                                                   remaining: 665ms
13:
14:
        learn: 17.7728732
                                  total: 10.1ms
                                                   remaining: 661ms
15:
        learn: 17.6556005
                                  total: 40.6ms
                                                   remaining: 2.5s
16:
        learn: 17.5399285
                                  total: 41.5ms
                                                   remaining: 2.4s
17:
        learn: 17.4286592
                                  total: 42.2ms
                                                   remaining: 2.3s
        learn: 17.0628246
                                  total: 42.8ms
18:
                                                   remaining: 2.21s
19:
        learn: 16.9633614
                                  total: 43.5ms
                                                   remaining: 2.13s
        learn: 16.8464719
20:
                                  total: 44.3ms
                                                   remaining: 2.06s
        learn: 16.7435251
                                  total: 44.9ms
                                                   remaining: 2s
21:
22:
                                  total: 45.6ms
                                                   remaining: 1.94s
        learn: 16.4442727
        learn: 16.3572675
23:
                                  total: 46.3ms
                                                   remaining: 1.88s
24:
        learn: 16.2744345
                                  total: 46.9ms
                                                   remaining: 1.83s
25:
        learn: 16.1963972
                                  total: 47.6ms
                                                   remaining: 1.78s
26:
        learn: 15.9237608
                                  total: 48.3ms
                                                   remaining: 1.74s
27:
        learn: 15.8450175
                                  total: 49ms
                                                   remaining: 1.7s
28:
        learn: 15.7758845
                                  total: 49.6ms
                                                   remaining: 1.66s
29:
        learn: 15.5691015
                                  total: 50.3ms
                                                   remaining: 1.63s
30:
        learn: 15.3080816
                                  total: 51.2ms
                                                   remaining: 1.6s
        learn: 15.2418902
                                  total: 52.4ms
31:
                                                   remaining: 1.59s
        learn: 15.1796168
                                  total: 134ms
32:
                                                   remaining: 3.93s
        learn: 15.1161012
                                                   remaining: 3.83s
33:
                                  total: 135ms
34:
        learn: 15.0454127
                                  total: 136ms
                                                   remaining: 3.74s
35:
        learn: 14.8315619
                                  total: 136ms
                                                   remaining: 3.65s
                                                   remaining: 3.56s
36:
        learn: 14.7771715
                                  total: 137ms
37:
        learn: 14.7238311
                                  total: 138ms
                                                   remaining: 3.48s
38:
        learn: 14.6470903
                                  total: 138ms
                                                   remaining: 3.4s
39:
        learn: 14.5728537
                                  total: 139ms
                                                   remaining: 3.33s
40:
        learn: 14.4393640
                                  total: 140ms
                                                   remaining: 3.26s
41:
        learn: 14.2927395
                                  total: 140ms
                                                   remaining: 3.2s
        learn: 14.0951327
42:
                                  total: 141ms
                                                   remaining: 3.13s
43:
        learn: 13.9657055
                                  total: 142ms
                                                   remaining: 3.08s
44:
        learn: 13.8820714
                                  total: 142ms
                                                   remaining: 3.02s
45:
        learn: 13.8220407
                                  total: 143ms
                                                   remaining: 2.96s
46:
        learn: 13.6828312
                                  total: 143ms
                                                   remaining: 2.91s
47:
        learn: 13.6209345
                                  total: 144ms
                                                   remaining: 2.86s
48:
        learn: 13.5845578
                                  total: 230ms
                                                   remaining: 4.47s
        learn: 13.5423676
49:
                                  total: 231ms
                                                   remaining: 4.4s
```

```
50:
        learn: 13.5071030
                                  total: 232ms
                                                   remaining: 4.32s
51:
        learn: 13.3802422
                                  total: 233ms
                                                   remaining: 4.24s
        learn: 13.2934755
                                  total: 233ms
52:
                                                   remaining: 4.17s
53:
        learn: 13.2607336
                                  total: 235ms
                                                   remaining: 4.12s
54:
        learn: 13.1502781
                                  total: 236ms
                                                   remaining: 4.06s
55:
        learn: 13.1242415
                                  total: 237ms
                                                   remaining: 3.99s
56:
        learn: 13.0919963
                                  total: 238ms
                                                   remaining: 3.93s
        learn: 12.9846674
                                                   remaining: 3.87s
57:
                                  total: 238ms
        learn: 12.8437549
                                  total: 239ms
                                                   remaining: 3.81s
58:
59:
        learn: 12.8177274
                                  total: 240ms
                                                   remaining: 3.76s
                                  total: 241ms
60:
        learn: 12.7322637
                                                   remaining: 3.7s
        learn: 12.7097797
                                  total: 241ms
                                                   remaining: 3.65s
61:
62:
        learn: 12.6732377
                                  total: 323ms
                                                   remaining: 4.8s
        learn: 12.6438138
                                  total: 323ms
63:
                                                   remaining: 4.73s
64:
        learn: 12.5678721
                                  total: 324ms
                                                   remaining: 4.66s
65:
        learn: 12.5320125
                                  total: 326ms
                                                   remaining: 4.61s
66:
        learn: 12.5124632
                                  total: 326ms
                                                   remaining: 4.55s
67:
        learn: 12.4841108
                                  total: 327ms
                                                   remaining: 4.48s
68:
        learn: 12.4660575
                                  total: 328ms
                                                   remaining: 4.42s
69:
        learn: 12.4442557
                                  total: 329ms
                                                   remaining: 4.37s
70:
        learn: 12.3742692
                                  total: 329ms
                                                   remaining: 4.31s
71:
        learn: 12.3401759
                                  total: 330ms
                                                   remaining: 4.25s
72:
        learn: 12.3103767
                                  total: 331ms
                                                   remaining: 4.2s
        learn: 12.2848267
73:
                                  total: 332ms
                                                   remaining: 4.15s
                                  total: 332ms
                                                   remaining: 4.1s
74:
        learn: 12.2460856
75:
        learn: 12.2127643
                                  total: 333ms
                                                   remaining: 4.05s
76:
        learn: 12.1668428
                                  total: 334ms
                                                   remaining: 4s
77:
        learn: 12.1484447
                                  total: 417ms
                                                   remaining: 4.93s
        learn: 12.0316464
78:
                                  total: 418ms
                                                   remaining: 4.87s
        learn: 11.9963356
79:
                                  total: 418ms
                                                   remaining: 4.81s
80:
        learn: 11.9829864
                                  total: 419ms
                                                   remaining: 4.75s
        learn: 11.9700322
                                  total: 420ms
81:
                                                   remaining: 4.71s
82:
        learn: 11.9270470
                                  total: 421ms
                                                   remaining: 4.65s
        learn: 11.9141327
                                  total: 422ms
                                                   remaining: 4.6s
83:
        learn: 11.8386300
84:
                                  total: 423ms
                                                   remaining: 4.55s
                                  total: 423ms
                                                   remaining: 4.5s
85:
        learn: 11.8232602
86:
        learn: 11.8039744
                                  total: 424ms
                                                   remaining: 4.45s
        learn: 11.7937393
87:
                                  total: 425ms
                                                   remaining: 4.41s
88:
        learn: 11.7689206
                                  total: 426ms
                                                   remaining: 4.36s
89:
        learn: 11.6812098
                                  total: 427ms
                                                   remaining: 4.31s
90:
        learn: 11.6653851
                                  total: 427ms
                                                   remaining: 4.27s
91:
        learn: 11.6315669
                                  total: 428ms
                                                   remaining: 4.22s
92:
        learn: 11.6218460
                                  total: 434ms
                                                   remaining: 4.23s
        learn: 11.5716852
                                  total: 435ms
93:
                                                   remaining: 4.19s
94:
        learn: 11.4887885
                                  total: 511ms
                                                   remaining: 4.86s
95:
        learn: 11.4802288
                                  total: 512ms
                                                   remaining: 4.82s
96:
        learn: 11.4720889
                                  total: 512ms
                                                   remaining: 4.77s
97:
        learn: 11.4560735
                                  total: 513ms
                                                   remaining: 4.72s
98:
        learn: 11.4484506
                                  total: 513ms
                                                   remaining: 4.67s
99:
        learn: 11.4341522
                                  total: 514ms
                                                   remaining: 4.63s
100:
        learn: 11.3570779
                                  total: 515ms
                                                   remaining: 4.58s
101:
        learn: 11.3218201
                                  total: 516ms
                                                   remaining: 4.54s
102:
        learn: 11.2859082
                                  total: 516ms
                                                   remaining: 4.5s
103:
        learn: 11.2776268
                                  total: 517ms
                                                   remaining: 4.45s
        learn: 11.2405299
104:
                                  total: 518ms
                                                   remaining: 4.41s
105:
        learn: 11.1758594
                                                   remaining: 4.37s
                                  total: 518ms
106:
        learn: 11.1428698
                                  total: 519ms
                                                   remaining: 4.33s
107:
        learn: 11.0953106
                                  total: 520ms
                                                   remaining: 4.29s
108:
        learn: 11.0768666
                                  total: 520ms
                                                   remaining: 4.25s
109:
        learn: 11.0420893
                                  total: 605ms
                                                   remaining: 4.89s
        learn: 11.0356792
110:
                                  total: 606ms
                                                   remaining: 4.85s
```

```
learn: 11.0290132
111:
                                  total: 606ms
                                                   remaining: 4.81s
112:
        learn: 11.0230146
                                  total: 607ms
                                                   remaining: 4.76s
        learn: 11.0174742
                                  total: 607ms
113:
                                                   remaining: 4.72s
114:
        learn: 10.9726071
                                  total: 608ms
                                                   remaining: 4.68s
115:
        learn: 10.9421074
                                  total: 609ms
                                                   remaining: 4.64s
        learn: 10.9125695
                                  total: 610ms
116:
                                                   remaining: 4.6s
117:
        learn: 10.9068711
                                  total: 611ms
                                                   remaining: 4.57s
118:
        learn: 10.8596259
                                                   remaining: 4.53s
                                  total: 611ms
119:
        learn: 10.8270587
                                  total: 612ms
                                                   remaining: 4.49s
120:
        learn: 10.8005968
                                  total: 613ms
                                                   remaining: 4.45s
121:
        learn: 10.7663846
                                  total: 613ms
                                                   remaining: 4.42s
122:
        learn: 10.7598231
                                                   remaining: 4.38s
                                  total: 614ms
123:
        learn: 10.7545417
                                  total: 620ms
                                                   remaining: 4.38s
        learn: 10.7270189
                                  total: 621ms
124:
                                                   remaining: 4.34s
125:
        learn: 10.6943979
                                  total: 699ms
                                                   remaining: 4.85s
126:
        learn: 10.6635952
                                  total: 700ms
                                                   remaining: 4.81s
127:
        learn: 10.6508714
                                  total: 700ms
                                                   remaining: 4.77s
                                  total: 701ms
128:
        learn: 10.6253542
                                                   remaining: 4.73s
129:
        learn: 10.5929049
                                  total: 702ms
                                                   remaining: 4.7s
130:
        learn: 10.5670440
                                  total: 702ms
                                                   remaining: 4.66s
        learn: 10.5594420
                                  total: 703ms
131:
                                                   remaining: 4.62s
        learn: 10.5082801
132:
                                  total: 704ms
                                                   remaining: 4.59s
133:
        learn: 10.4858456
                                  total: 704ms
                                                   remaining: 4.55s
134:
        learn: 10.4700006
                                  total: 705ms
                                                   remaining: 4.52s
                                  total: 706ms
135:
        learn: 10.4562722
                                                   remaining: 4.48s
136:
        learn: 10.4508114
                                  total: 706ms
                                                   remaining: 4.45s
137:
        learn: 10.4463256
                                  total: 707ms
                                                   remaining: 4.42s
138:
        learn: 10.4322222
                                  total: 707ms
                                                   remaining: 4.38s
                                  total: 708ms
139:
        learn: 10.4100191
                                                   remaining: 4.35s
140:
        learn: 10.3958077
                                  total: 709ms
                                                   remaining: 4.32s
141:
        learn: 10.3774839
                                  total: 710ms
                                                   remaining: 4.29s
        learn: 10.3517559
142:
                                  total: 792ms
                                                   remaining: 4.75s
143:
        learn: 10.3077262
                                  total: 793ms
                                                   remaining: 4.71s
144:
        learn: 10.2794624
                                  total: 794ms
                                                   remaining: 4.68s
        learn: 10.2530991
                                  total: 795ms
145:
                                                   remaining: 4.65s
                                  total: 796ms
        learn: 10.2380776
146:
                                                   remaining: 4.62s
147:
        learn: 10.1976470
                                  total: 796ms
                                                   remaining: 4.58s
148:
        learn: 10.1825620
                                  total: 797ms
                                                   remaining: 4.55s
149:
        learn: 10.1662186
                                  total: 798ms
                                                   remaining: 4.52s
150:
        learn: 10.1516619
                                  total: 799ms
                                                   remaining: 4.49s
151:
        learn: 10.1311321
                                  total: 800ms
                                                   remaining: 4.46s
152:
        learn: 10.0884771
                                  total: 800ms
                                                   remaining: 4.43s
        learn: 10.0843000
                                  total: 801ms
153:
                                                   remaining: 4.4s
        learn: 10.0738622
154:
                                  total: 801ms
                                                   remaining: 4.37s
155:
        learn: 10.0521372
                                                   remaining: 4.34s
                                  total: 802ms
156:
        learn: 10.0431198
                                  total: 803ms
                                                   remaining: 4.31s
157:
        learn: 10.0187072
                                  total: 887ms
                                                   remaining: 4.72s
                                                   remaining: 4.69s
158:
        learn: 9.9988780
                                  total: 887ms
159:
        learn: 9.9949227
                                  total: 888ms
                                                   remaining: 4.66s
160:
        learn: 9.9620319
                                  total: 889ms
                                                   remaining: 4.63s
161:
        learn: 9.9448431
                                  total: 889ms
                                                   remaining: 4.6s
162:
        learn: 9.9319828
                                  total: 890ms
                                                   remaining: 4.57s
163:
        learn: 9.9167387
                                  total: 891ms
                                                   remaining: 4.54s
                                  total: 891ms
164:
        learn: 9.9057128
                                                   remaining: 4.51s
        learn: 9.8715589
165:
                                  total: 892ms
                                                   remaining: 4.48s
        learn: 9.8446509
                                                   remaining: 4.45s
166:
                                  total: 893ms
167:
        learn: 9.8349099
                                  total: 893ms
                                                   remaining: 4.42s
        learn: 9.8182110
                                  total: 894ms
168:
                                                   remaining: 4.4s
169:
        learn: 9.7890384
                                  total: 895ms
                                                   remaining: 4.37s
170:
        learn: 9.7742953
                                  total: 895ms
                                                   remaining: 4.34s
        learn: 9.7581776
171:
                                  total: 896ms
                                                   remaining: 4.31s
```

```
172:
        learn: 9.7511264
                                  total: 897ms
                                                   remaining: 4.29s
173:
        learn: 9.7390471
                                  total: 903ms
                                                   remaining: 4.28s
        learn: 9.7327292
                                  total: 903ms
174:
                                                   remaining: 4.26s
175:
        learn: 9.7289793
                                  total: 981ms
                                                   remaining: 4.59s
176:
        learn: 9.7123141
                                  total: 981ms
                                                   remaining: 4.56s
        learn: 9.6917377
                                  total: 982ms
177:
                                                   remaining: 4.53s
178:
        learn: 9.6687449
                                  total: 984ms
                                                   remaining: 4.51s
179:
        learn: 9.6582059
                                                   remaining: 4.49s
                                  total: 985ms
180:
        learn: 9.6498574
                                  total: 985ms
                                                   remaining: 4.46s
        learn: 9.6463007
                                  total: 986ms
181:
                                                   remaining: 4.43s
        learn: 9.6332019
                                  total: 986ms
182:
                                                   remaining: 4.4s
183:
        learn: 9.6227919
                                  total: 988ms
                                                   remaining: 4.38s
184:
        learn: 9.6037918
                                  total: 989ms
                                                   remaining: 4.36s
        learn: 9.5927684
                                  total: 990ms
185:
                                                   remaining: 4.33s
186:
        learn: 9.5786625
                                  total: 990ms
                                                   remaining: 4.31s
187:
        learn: 9.5677498
                                  total: 991ms
                                                   remaining: 4.28s
                                  total: 997ms
188:
        learn: 9.5626368
                                                   remaining: 4.28s
189:
        learn: 9.5505799
                                  total: 998ms
                                                   remaining: 4.25s
190:
        learn: 9.5428491
                                  total: 1.07s
                                                   remaining: 4.55s
191:
        learn: 9.5198126
                                  total: 1.07s
                                                   remaining: 4.53s
192:
        learn: 9.5067712
                                  total: 1.08s
                                                   remaining: 4.5s
193:
        learn: 9.5018082
                                  total: 1.08s
                                                   remaining: 4.47s
194:
        learn: 9.4880844
                                  total: 1.08s
                                                   remaining: 4.45s
195:
        learn: 9.4782246
                                  total: 1.08s
                                                   remaining: 4.42s
        learn: 9.4676327
                                  total: 1.08s
196:
                                                   remaining: 4.4s
197:
        learn: 9.4565140
                                  total: 1.08s
                                                   remaining: 4.38s
198:
        learn: 9.4502795
                                  total: 1.08s
                                                   remaining: 4.35s
199:
        learn: 9.4382961
                                  total: 1.08s
                                                   remaining: 4.33s
200:
        learn: 9.4296111
                                  total: 1.08s
                                                   remaining: 4.3s
201:
        learn: 9.4173545
                                  total: 1.08s
                                                   remaining: 4.28s
202:
        learn: 9.4141044
                                  total: 1.08s
                                                   remaining: 4.25s
                                  total: 1.09s
203:
        learn: 9.4109250
                                                   remaining: 4.25s
204:
        learn: 9.4021904
                                  total: 1.09s
                                                   remaining: 4.23s
205:
        learn: 9.3928218
                                  total: 1.17s
                                                   remaining: 4.51s
        learn: 9.3890100
206:
                                  total: 1.17s
                                                   remaining: 4.48s
207:
        learn: 9.3792756
                                  total: 1.17s
                                                   remaining: 4.46s
208:
        learn: 9.3767065
                                  total: 1.17s
                                                   remaining: 4.43s
209:
        learn: 9.3665992
                                  total: 1.17s
                                                   remaining: 4.41s
210:
        learn: 9.3607650
                                  total: 1.17s
                                                   remaining: 4.39s
211:
        learn: 9.3457390
                                  total: 1.17s
                                                   remaining: 4.36s
212:
        learn: 9.3324537
                                                   remaining: 4.34s
                                  total: 1.17s
213:
        learn: 9.3241675
                                  total: 1.18s
                                                   remaining: 4.32s
214:
        learn: 9.3048287
                                  total: 1.18s
                                                   remaining: 4.29s
215:
        learn: 9.2973383
                                  total: 1.18s
                                                   remaining: 4.27s
216:
        learn: 9.2845720
                                                   remaining: 4.25s
                                  total: 1.18s
217:
        learn: 9.2779529
                                  total: 1.18s
                                                   remaining: 4.23s
218:
        learn: 9.2750136
                                  total: 1.18s
                                                   remaining: 4.21s
                                                   remaining: 4.2s
219:
        learn: 9.2676287
                                  total: 1.19s
220:
        learn: 9.2617032
                                  total: 1.26s
                                                   remaining: 4.45s
221:
        learn: 9.2489052
                                  total: 1.26s
                                                   remaining: 4.43s
222:
        learn: 9.2457481
                                  total: 1.26s
                                                   remaining: 4.41s
        learn: 9.2355211
223:
                                  total: 1.27s
                                                   remaining: 4.39s
224:
        learn: 9.2327118
                                  total: 1.27s
                                                   remaining: 4.36s
225:
        learn: 9.2251437
                                  total: 1.27s
                                                   remaining: 4.34s
        learn: 9.2059824
226:
                                  total: 1.27s
                                                   remaining: 4.32s
227:
        learn: 9.1964555
                                  total: 1.27s
                                                   remaining: 4.3s
228:
        learn: 9.1859435
                                  total: 1.27s
                                                   remaining: 4.28s
229:
        learn: 9.1832609
                                  total: 1.27s
                                                   remaining: 4.25s
230:
        learn: 9.1639275
                                  total: 1.27s
                                                   remaining: 4.23s
231:
        learn: 9.1527147
                                  total: 1.27s
                                                   remaining: 4.21s
        learn: 9.1429082
232:
                                  total: 1.27s
                                                   remaining: 4.19s
```

```
233:
        learn: 9.1341307
                                  total: 1.27s
                                                   remaining: 4.17s
234:
        learn: 9.1251556
                                  total: 1.27s
                                                   remaining: 4.15s
235:
        learn: 9.1097378
                                  total: 1.27s
                                                   remaining: 4.13s
236:
        learn: 9.1049685
                                  total: 1.27s
                                                   remaining: 4.11s
237:
        learn: 9.1014393
                                  total: 1.36s
                                                   remaining: 4.34s
        learn: 9.0988926
                                  total: 1.36s
238:
                                                   remaining: 4.32s
239:
        learn: 9.0789929
                                  total: 1.36s
                                                   remaining: 4.3s
240:
        learn: 9.0680653
                                  total: 1.36s
                                                   remaining: 4.28s
241:
        learn: 9.0537067
                                  total: 1.36s
                                                   remaining: 4.26s
242:
        learn: 9.0443721
                                  total: 1.36s
                                                   remaining: 4.24s
        learn: 9.0418870
243:
                                  total: 1.36s
                                                   remaining: 4.21s
244:
        learn: 9.0274496
                                                   remaining: 4.2s
                                  total: 1.36s
245:
        learn: 9.0131354
                                  total: 1.36s
                                                   remaining: 4.17s
        learn: 8.9906311
                                  total: 1.36s
246:
                                                   remaining: 4.15s
247:
        learn: 8.9804728
                                  total: 1.36s
                                                   remaining: 4.13s
248:
        learn: 8.9780475
                                  total: 1.36s
                                                   remaining: 4.11s
249:
        learn: 8.9752814
                                  total: 1.36s
                                                   remaining: 4.09s
250:
        learn: 8.9561809
                                  total: 1.36s
                                                   remaining: 4.07s
251:
        learn: 8.9502214
                                  total: 1.37s
                                                   remaining: 4.06s
252:
        learn: 8.9408290
                                  total: 1.37s
                                                   remaining: 4.04s
253:
        learn: 8.9275579
                                  total: 1.37s
                                                   remaining: 4.02s
254:
        learn: 8.9224314
                                  total: 1.45s
                                                   remaining: 4.24s
255:
        learn: 8.9201049
                                  total: 1.45s
                                                   remaining: 4.21s
256:
        learn: 8.9144296
                                  total: 1.45s
                                                   remaining: 4.2s
257:
        learn: 8.9114550
                                  total: 1.45s
                                                   remaining: 4.17s
258:
        learn: 8.9011415
                                  total: 1.45s
                                                   remaining: 4.16s
259:
        learn: 8.8949369
                                  total: 1.45s
                                                   remaining: 4.14s
                                                   remaining: 4.13s
260:
        learn: 8.8803278
                                  total: 1.46s
261:
        learn: 8.8726416
                                  total: 1.46s
                                                   remaining: 4.11s
262:
        learn: 8.8676606
                                  total: 1.46s
                                                   remaining: 4.09s
263:
        learn: 8.8622776
                                  total: 1.46s
                                                   remaining: 4.07s
                                  total: 1.46s
264:
        learn: 8.8482427
                                                   remaining: 4.05s
265:
        learn: 8.8418468
                                  total: 1.46s
                                                   remaining: 4.03s
                                                   remaining: 4.01s
266:
        learn: 8.8387250
                                  total: 1.46s
267:
        learn: 8.8347139
                                  total: 1.46s
                                                   remaining: 4s
                                                   remaining: 3.98s
                                  total: 1.46s
268:
        learn: 8.8297673
269:
        learn: 8.8252548
                                  total: 1.46s
                                                   remaining: 3.96s
270:
        learn: 8.8190230
                                  total: 1.54s
                                                   remaining: 4.15s
271:
        learn: 8.8126257
                                  total: 1.54s
                                                   remaining: 4.13s
272:
        learn: 8.8047927
                                  total: 1.54s
                                                   remaining: 4.11s
                                  total: 1.54s
273:
        learn: 8.7773922
                                                   remaining: 4.09s
274:
        learn: 8.7628774
                                  total: 1.55s
                                                   remaining: 4.08s
275:
        learn: 8.7503645
                                  total: 1.55s
                                                   remaining: 4.06s
        learn: 8.7414124
276:
                                  total: 1.55s
                                                   remaining: 4.04s
277:
        learn: 8.7279273
                                  total: 1.55s
                                                   remaining: 4.02s
278:
        learn: 8.7246501
                                  total: 1.55s
                                                   remaining: 4s
279:
        learn: 8.7211916
                                  total: 1.55s
                                                   remaining: 3.98s
                                                   remaining: 3.97s
280:
        learn: 8.7000166
                                  total: 1.55s
281:
        learn: 8.6978260
                                  total: 1.55s
                                                   remaining: 3.95s
        learn: 8.6957016
282:
                                  total: 1.55s
                                                   remaining: 3.93s
283:
        learn: 8.6887663
                                  total: 1.55s
                                                   remaining: 3.91s
284:
        learn: 8.6809097
                                  total: 1.55s
                                                   remaining: 3.9s
285:
        learn: 8.6763662
                                  total: 1.55s
                                                   remaining: 3.88s
286:
        learn: 8.6709823
                                  total: 1.55s
                                                   remaining: 3.86s
287:
        learn: 8.6688820
                                  total: 1.55s
                                                   remaining: 3.85s
288:
        learn: 8.6567990
                                                   remaining: 4.03s
                                  total: 1.64s
289:
        learn: 8.6403086
                                  total: 1.64s
                                                   remaining: 4.01s
290:
        learn: 8.6210386
                                  total: 1.64s
                                                   remaining: 3.99s
291:
        learn: 8.6149668
                                  total: 1.64s
                                                   remaining: 3.97s
292:
        learn: 8.6033299
                                  total: 1.64s
                                                   remaining: 3.96s
        learn: 8.5943331
293:
                                  total: 1.64s
                                                   remaining: 3.94s
```

```
294:
        learn: 8.5860148
                                  total: 1.64s
                                                   remaining: 3.92s
295:
        learn: 8.5688265
                                  total: 1.64s
                                                   remaining: 3.9s
        learn: 8.5586118
                                  total: 1.64s
296:
                                                   remaining: 3.89s
297:
        learn: 8.5423409
                                  total: 1.64s
                                                   remaining: 3.87s
298:
        learn: 8.5328751
                                  total: 1.64s
                                                   remaining: 3.85s
299:
        learn: 8.5228830
                                  total: 1.64s
                                                   remaining: 3.84s
300:
        learn: 8.5134757
                                  total: 1.64s
                                                   remaining: 3.82s
301:
        learn: 8.5100995
                                  total: 1.65s
                                                   remaining: 3.8s
302:
        learn: 8.5050112
                                  total: 1.73s
                                                   remaining: 3.98s
303:
        learn: 8.4949721
                                  total: 1.73s
                                                   remaining: 3.96s
        learn: 8.4908626
304:
                                  total: 1.73s
                                                   remaining: 3.95s
305:
        learn: 8.4782115
                                                   remaining: 3.93s
                                  total: 1.73s
306:
        learn: 8.4703453
                                  total: 1.73s
                                                   remaining: 3.91s
307:
        learn: 8.4682983
                                  total: 1.73s
                                                   remaining: 3.9s
308:
        learn: 8.4618223
                                  total: 1.74s
                                                   remaining: 3.88s
309:
        learn: 8.4596863
                                  total: 1.74s
                                                   remaining: 3.86s
310:
        learn: 8.4544880
                                  total: 1.74s
                                                   remaining: 3.85s
311:
        learn: 8.4507748
                                  total: 1.74s
                                                   remaining: 3.83s
312:
        learn: 8.4450769
                                  total: 1.74s
                                                   remaining: 3.81s
313:
        learn: 8.4312433
                                  total: 1.74s
                                                   remaining: 3.8s
314:
        learn: 8.4293419
                                  total: 1.74s
                                                   remaining: 3.78s
315:
        learn: 8.4213716
                                  total: 1.74s
                                                   remaining: 3.77s
316:
        learn: 8.4086035
                                  total: 1.74s
                                                   remaining: 3.75s
317:
        learn: 8.4014959
                                  total: 1.75s
                                                   remaining: 3.74s
318:
        learn: 8.3836804
                                  total: 1.82s
                                                   remaining: 3.9s
319:
        learn: 8.3775984
                                  total: 1.83s
                                                   remaining: 3.88s
320:
        learn: 8.3732870
                                  total: 1.83s
                                                   remaining: 3.86s
321:
        learn: 8.3672777
                                  total: 1.83s
                                                   remaining: 3.85s
322:
        learn: 8.3508868
                                  total: 1.83s
                                                   remaining: 3.83s
323:
        learn: 8.3466348
                                  total: 1.83s
                                                   remaining: 3.81s
324:
        learn: 8.3355589
                                  total: 1.83s
                                                   remaining: 3.8s
                                  total: 1.83s
325:
        learn: 8.3337515
                                                   remaining: 3.78s
326:
        learn: 8.3265345
                                  total: 1.83s
                                                   remaining: 3.77s
327:
        learn: 8.3180755
                                  total: 1.83s
                                                   remaining: 3.75s
        learn: 8.3074838
328:
                                  total: 1.83s
                                                   remaining: 3.74s
                                                   remaining: 3.72s
329:
        learn: 8.2947306
                                  total: 1.83s
330:
        learn: 8.2926754
                                  total: 1.83s
                                                   remaining: 3.71s
331:
        learn: 8.2864614
                                  total: 1.83s
                                                   remaining: 3.69s
332:
        learn: 8.2734964
                                  total: 1.83s
                                                   remaining: 3.67s
333:
        learn: 8.2691786
                                  total: 1.92s
                                                   remaining: 3.83s
334:
        learn: 8.2567550
                                  total: 1.92s
                                                   remaining: 3.81s
335:
        learn: 8.2425014
                                  total: 1.92s
                                                   remaining: 3.79s
        learn: 8.2312881
                                  total: 1.92s
336:
                                                   remaining: 3.78s
        learn: 8.2243759
337:
                                  total: 1.92s
                                                   remaining: 3.76s
338:
        learn: 8.2229500
                                  total: 1.92s
                                                   remaining: 3.75s
339:
        learn: 8.2091280
                                  total: 1.92s
                                                   remaining: 3.73s
340:
        learn: 8.2035673
                                  total: 1.92s
                                                   remaining: 3.72s
                                                   remaining: 3.7s
341:
        learn: 8.2002718
                                  total: 1.92s
342:
        learn: 8.1877737
                                  total: 1.93s
                                                   remaining: 3.69s
343:
        learn: 8.1812985
                                  total: 1.93s
                                                   remaining: 3.67s
344:
        learn: 8.1746986
                                  total: 1.93s
                                                   remaining: 3.66s
345:
        learn: 8.1644777
                                  total: 1.93s
                                                   remaining: 3.64s
346:
        learn: 8.1558602
                                  total: 1.93s
                                                   remaining: 3.63s
347:
        learn: 8.1535196
                                  total: 1.93s
                                                   remaining: 3.61s
348:
        learn: 8.1507960
                                  total: 2.01s
                                                   remaining: 3.76s
349:
        learn: 8.1469527
                                  total: 2.01s
                                                   remaining: 3.74s
350:
        learn: 8.1412571
                                  total: 2.02s
                                                   remaining: 3.73s
351:
        learn: 8.1381294
                                  total: 2.02s
                                                   remaining: 3.71s
352:
        learn: 8.1280658
                                  total: 2.02s
                                                   remaining: 3.7s
353:
        learn: 8.1047848
                                  total: 2.02s
                                                   remaining: 3.68s
        learn: 8.0982033
354:
                                  total: 2.02s
                                                   remaining: 3.67s
```

```
355:
        learn: 8.0841230
                                  total: 2.02s
                                                   remaining: 3.65s
356:
        learn: 8.0819539
                                  total: 2.02s
                                                   remaining: 3.64s
357:
        learn: 8.0676300
                                  total: 2.02s
                                                   remaining: 3.62s
358:
        learn: 8.0631123
                                  total: 2.02s
                                                   remaining: 3.61s
359:
        learn: 8.0528122
                                  total: 2.02s
                                                   remaining: 3.59s
        learn: 8.0436875
360:
                                  total: 2.02s
                                                   remaining: 3.58s
361:
        learn: 8.0424905
                                  total: 2.02s
                                                   remaining: 3.56s
362:
        learn: 8.0311690
                                  total: 2.02s
                                                   remaining: 3.55s
363:
        learn: 8.0169894
                                  total: 2.02s
                                                   remaining: 3.54s
364:
        learn: 8.0075605
                                  total: 2.11s
                                                   remaining: 3.67s
365:
        learn: 7.9975238
                                  total: 2.11s
                                                   remaining: 3.65s
366:
        learn: 7.9914197
                                                   remaining: 3.64s
                                  total: 2.11s
367:
        learn: 7.9810113
                                  total: 2.11s
                                                   remaining: 3.62s
        learn: 7.9787510
                                  total: 2.11s
368:
                                                   remaining: 3.61s
369:
        learn: 7.9699741
                                  total: 2.11s
                                                   remaining: 3.6s
370:
        learn: 7.9605844
                                  total: 2.11s
                                                   remaining: 3.58s
371:
        learn: 7.9563477
                                  total: 2.11s
                                                   remaining: 3.57s
372:
        learn: 7.9548873
                                  total: 2.11s
                                                   remaining: 3.55s
                                  total: 2.11s
373:
        learn: 7.9454827
                                                   remaining: 3.54s
374:
        learn: 7.9423741
                                  total: 2.11s
                                                   remaining: 3.52s
375:
        learn: 7.9402252
                                  total: 2.12s
                                                   remaining: 3.51s
376:
        learn: 7.9349469
                                  total: 2.12s
                                                   remaining: 3.5s
        learn: 7.9252800
                                  total: 2.12s
                                                   remaining: 3.48s
377:
378:
        learn: 7.9226831
                                  total: 2.12s
                                                   remaining: 3.47s
                                                   remaining: 3.46s
379:
        learn: 7.9193334
                                  total: 2.12s
380:
        learn: 7.9174310
                                  total: 2.12s
                                                   remaining: 3.45s
381:
        learn: 7.9107374
                                  total: 2.2s
                                                   remaining: 3.56s
382:
        learn: 7.9086776
                                  total: 2.2s
                                                   remaining: 3.55s
383:
        learn: 7.9066991
                                  total: 2.2s
                                                   remaining: 3.53s
384:
        learn: 7.8917755
                                  total: 2.2s
                                                   remaining: 3.52s
385:
        learn: 7.8868263
                                  total: 2.2s
                                                   remaining: 3.51s
        learn: 7.8811162
                                  total: 2.21s
386:
                                                   remaining: 3.49s
387:
        learn: 7.8770707
                                  total: 2.21s
                                                   remaining: 3.48s
388:
        learn: 7.8681174
                                  total: 2.21s
                                                   remaining: 3.47s
389:
        learn: 7.8603327
                                  total: 2.21s
                                                   remaining: 3.45s
                                                   remaining: 3.44s
390:
        learn: 7.8563250
                                  total: 2.21s
391:
        learn: 7.8463876
                                  total: 2.21s
                                                   remaining: 3.43s
392:
        learn: 7.8423591
                                  total: 2.21s
                                                   remaining: 3.41s
393:
        learn: 7.8326914
                                  total: 2.21s
                                                   remaining: 3.4s
394:
        learn: 7.8290603
                                  total: 2.21s
                                                   remaining: 3.39s
395:
        learn: 7.8258010
                                                   remaining: 3.37s
                                  total: 2.21s
        learn: 7.8235049
396:
                                  total: 2.21s
                                                   remaining: 3.36s
397:
        learn: 7.8206289
                                  total: 2.29s
                                                   remaining: 3.47s
398:
        learn: 7.8142170
                                  total: 2.29s
                                                   remaining: 3.46s
399:
        learn: 7.8097596
                                  total: 2.29s
                                                   remaining: 3.44s
400:
        learn: 7.8077184
                                  total: 2.3s
                                                   remaining: 3.43s
401:
        learn: 7.8046751
                                  total: 2.3s
                                                   remaining: 3.42s
                                                   remaining: 3.4s
402:
        learn: 7.8032144
                                  total: 2.3s
403:
        learn: 7.7875342
                                  total: 2.3s
                                                   remaining: 3.39s
404:
        learn: 7.7813088
                                  total: 2.3s
                                                   remaining: 3.38s
405:
        learn: 7.7685208
                                  total: 2.3s
                                                   remaining: 3.36s
406:
        learn: 7.7587319
                                  total: 2.3s
                                                   remaining: 3.35s
407:
        learn: 7.7548153
                                                   remaining: 3.34s
                                  total: 2.3s
408:
        learn: 7.7438539
                                  total: 2.3s
                                                   remaining: 3.33s
        learn: 7.7409486
409:
                                  total: 2.3s
                                                   remaining: 3.31s
410:
        learn: 7.7307580
                                                   remaining: 3.3s
                                  total: 2.3s
411:
        learn: 7.7234513
                                  total: 2.3s
                                                   remaining: 3.29s
412:
        learn: 7.7119066
                                  total: 2.3s
                                                   remaining: 3.27s
413:
        learn: 7.7097846
                                  total: 2.4s
                                                   remaining: 3.39s
414:
        learn: 7.7084697
                                  total: 2.4s
                                                   remaining: 3.38s
        learn: 7.7070200
415:
                                  total: 2.4s
                                                   remaining: 3.37s
```

```
learn: 7.6949462
416:
                                  total: 2.4s
                                                   remaining: 3.35s
417:
        learn: 7.6860100
                                  total: 2.4s
                                                   remaining: 3.34s
        learn: 7.6796090
418:
                                  total: 2.4s
                                                   remaining: 3.33s
419:
        learn: 7.6720739
                                  total: 2.4s
                                                   remaining: 3.32s
420:
        learn: 7.6680525
                                  total: 2.4s
                                                   remaining: 3.3s
421:
        learn: 7.6575890
                                  total: 2.4s
                                                   remaining: 3.29s
422:
        learn: 7.6486595
                                  total: 2.4s
                                                   remaining: 3.28s
423:
        learn: 7.6468564
                                                   remaining: 3.27s
                                  total: 2.4s
424:
        learn: 7.6325797
                                  total: 2.41s
                                                   remaining: 3.25s
425:
        learn: 7.6302428
                                  total: 2.41s
                                                   remaining: 3.24s
426:
        learn: 7.6276670
                                  total: 2.41s
                                                   remaining: 3.23s
427:
        learn: 7.6256285
                                  total: 2.41s
                                                   remaining: 3.22s
428:
        learn: 7.6201231
                                  total: 2.48s
                                                   remaining: 3.3s
429:
        learn: 7.6109552
                                  total: 2.48s
                                                   remaining: 3.29s
430:
        learn: 7.5999189
                                  total: 2.48s
                                                   remaining: 3.28s
431:
        learn: 7.5896763
                                  total: 2.48s
                                                   remaining: 3.27s
432:
        learn: 7.5766438
                                  total: 2.48s
                                                   remaining: 3.25s
433:
        learn: 7.5642431
                                  total: 2.49s
                                                   remaining: 3.24s
434:
                                  total: 2.49s
        learn: 7.5628435
                                                   remaining: 3.23s
435:
        learn: 7.5573072
                                  total: 2.49s
                                                   remaining: 3.22s
436:
        learn: 7.5510793
                                  total: 2.49s
                                                   remaining: 3.21s
437:
        learn: 7.5480153
                                  total: 2.49s
                                                   remaining: 3.19s
438:
        learn: 7.5391425
                                  total: 2.49s
                                                   remaining: 3.18s
439:
        learn: 7.5377421
                                  total: 2.49s
                                                   remaining: 3.17s
440:
        learn: 7.5326429
                                                   remaining: 3.16s
                                  total: 2.49s
441:
        learn: 7.5265249
                                  total: 2.49s
                                                   remaining: 3.15s
442:
        learn: 7.5065690
                                  total: 2.49s
                                                   remaining: 3.13s
443:
        learn: 7.4911479
                                  total: 2.49s
                                                   remaining: 3.12s
444:
        learn: 7.4889537
                                  total: 2.5s
                                                   remaining: 3.11s
445:
        learn: 7.4855258
                                  total: 2.58s
                                                   remaining: 3.2s
446:
        learn: 7.4786599
                                  total: 2.58s
                                                   remaining: 3.19s
        learn: 7.4724916
                                  total: 2.58s
447:
                                                   remaining: 3.18s
448:
        learn: 7.4619038
                                  total: 2.58s
                                                   remaining: 3.16s
449:
        learn: 7.4594350
                                  total: 2.58s
                                                   remaining: 3.15s
450:
        learn: 7.4579220
                                  total: 2.58s
                                                   remaining: 3.14s
                                                   remaining: 3.13s
451:
        learn: 7.4550318
                                  total: 2.58s
452:
        learn: 7.4446332
                                  total: 2.58s
                                                   remaining: 3.12s
453:
        learn: 7.4377508
                                  total: 2.58s
                                                   remaining: 3.11s
454:
        learn: 7.4218512
                                  total: 2.59s
                                                   remaining: 3.1s
455:
        learn: 7.4128359
                                  total: 2.59s
                                                   remaining: 3.09s
456:
        learn: 7.4036805
                                  total: 2.59s
                                                   remaining: 3.07s
457:
        learn: 7.3953364
                                  total: 2.59s
                                                   remaining: 3.06s
458:
        learn: 7.3845057
                                  total: 2.59s
                                                   remaining: 3.06s
459:
        learn: 7.3746791
                                  total: 2.6s
                                                   remaining: 3.05s
460:
        learn: 7.3594599
                                                   remaining: 3.12s
                                  total: 2.67s
461:
        learn: 7.3509845
                                  total: 2.67s
                                                   remaining: 3.11s
462:
        learn: 7.3442680
                                  total: 2.67s
                                                   remaining: 3.1s
                                                   remaining: 3.09s
463:
        learn: 7.3410462
                                  total: 2.67s
464:
        learn: 7.3297431
                                  total: 2.67s
                                                   remaining: 3.08s
465:
        learn: 7.3228299
                                  total: 2.67s
                                                   remaining: 3.06s
466:
        learn: 7.3216459
                                  total: 2.67s
                                                   remaining: 3.05s
467:
        learn: 7.3159123
                                  total: 2.67s
                                                   remaining: 3.04s
468:
        learn: 7.3144169
                                                   remaining: 3.03s
                                  total: 2.68s
469:
        learn: 7.3042942
                                  total: 2.68s
                                                   remaining: 3.02s
        learn: 7.2968874
470:
                                  total: 2.68s
                                                   remaining: 3.01s
471:
        learn: 7.2933264
                                                   remaining: 3s
                                  total: 2.68s
472:
        learn: 7.2889735
                                  total: 2.68s
                                                   remaining: 2.98s
473:
        learn: 7.2877205
                                  total: 2.68s
                                                   remaining: 2.97s
474:
        learn: 7.2833597
                                  total: 2.68s
                                                   remaining: 2.96s
475:
        learn: 7.2812982
                                  total: 2.68s
                                                   remaining: 2.95s
        learn: 7.2758722
476:
                                  total: 2.76s
                                                   remaining: 3.03s
```

```
477:
        learn: 7.2675224
                                  total: 2.76s
                                                   remaining: 3.02s
478:
        learn: 7.2621261
                                  total: 2.77s
                                                   remaining: 3.01s
479:
        learn: 7.2601123
                                  total: 2.77s
                                                   remaining: 3s
480:
        learn: 7.2522063
                                  total: 2.77s
                                                   remaining: 2.98s
481:
        learn: 7.2454629
                                  total: 2.77s
                                                   remaining: 2.97s
                                  total: 2.77s
        learn: 7.2341193
482:
                                                   remaining: 2.96s
483:
        learn: 7.2290829
                                  total: 2.77s
                                                   remaining: 2.95s
484:
        learn: 7.2235384
                                  total: 2.77s
                                                   remaining: 2.94s
485:
        learn: 7.2196648
                                  total: 2.77s
                                                   remaining: 2.93s
486:
        learn: 7.2164163
                                  total: 2.77s
                                                   remaining: 2.92s
487:
        learn: 7.2128029
                                  total: 2.77s
                                                   remaining: 2.91s
488:
        learn: 7.2083547
                                                   remaining: 2.9s
                                  total: 2.77s
489:
        learn: 7.1998838
                                  total: 2.78s
                                                   remaining: 2.89s
490:
        learn: 7.1983452
                                  total: 2.78s
                                                   remaining: 2.88s
491:
        learn: 7.1959725
                                  total: 2.86s
                                                   remaining: 2.95s
492:
        learn: 7.1893291
                                  total: 2.86s
                                                   remaining: 2.94s
493:
        learn: 7.1831567
                                  total: 2.86s
                                                   remaining: 2.93s
494:
        learn: 7.1748443
                                  total: 2.86s
                                                   remaining: 2.92s
                                  total: 2.86s
495:
        learn: 7.1713469
                                                   remaining: 2.91s
496:
        learn: 7.1594288
                                  total: 2.86s
                                                   remaining: 2.9s
497:
        learn: 7.1534808
                                  total: 2.86s
                                                   remaining: 2.88s
        learn: 7.1456188
498:
                                  total: 2.86s
                                                   remaining: 2.87s
499:
        learn: 7.1381881
                                  total: 2.86s
                                                   remaining: 2.86s
500:
        learn: 7.1337180
                                  total: 2.86s
                                                   remaining: 2.85s
        learn: 7.1266345
                                  total: 2.86s
501:
                                                   remaining: 2.84s
502:
        learn: 7.0951378
                                  total: 2.87s
                                                   remaining: 2.83s
503:
        learn: 7.0911655
                                  total: 2.87s
                                                   remaining: 2.82s
504:
        learn: 7.0813772
                                  total: 2.87s
                                                   remaining: 2.81s
505:
        learn: 7.0750573
                                  total: 2.87s
                                                   remaining: 2.8s
506:
        learn: 7.0721679
                                  total: 2.95s
                                                   remaining: 2.87s
507:
        learn: 7.0652763
                                  total: 2.95s
                                                   remaining: 2.86s
        learn: 7.0577349
                                  total: 2.95s
508:
                                                   remaining: 2.85s
509:
        learn: 7.0465752
                                  total: 2.95s
                                                   remaining: 2.84s
        learn: 7.0452229
510:
                                  total: 2.96s
                                                   remaining: 2.83s
        learn: 7.0411169
511:
                                  total: 2.96s
                                                   remaining: 2.82s
                                  total: 2.96s
                                                   remaining: 2.81s
512:
        learn: 7.0395992
513:
        learn: 7.0328161
                                  total: 2.96s
                                                   remaining: 2.8s
514:
        learn: 7.0268630
                                  total: 2.96s
                                                   remaining: 2.79s
515:
        learn: 7.0239135
                                  total: 2.96s
                                                   remaining: 2.77s
516:
        learn: 7.0217477
                                  total: 2.96s
                                                   remaining: 2.77s
517:
        learn: 7.0199413
                                  total: 2.96s
                                                   remaining: 2.75s
518:
        learn: 7.0078270
                                  total: 2.96s
                                                   remaining: 2.74s
519:
        learn: 6.9992773
                                  total: 2.96s
                                                   remaining: 2.73s
520:
        learn: 6.9900458
                                  total: 2.96s
                                                   remaining: 2.72s
521:
        learn: 6.9780855
                                  total: 2.96s
                                                   remaining: 2.71s
522:
        learn: 6.9740732
                                  total: 3.05s
                                                   remaining: 2.78s
523:
        learn: 6.9729109
                                  total: 3.05s
                                                   remaining: 2.77s
                                                   remaining: 2.76s
524:
        learn: 6.9718324
                                  total: 3.05s
525:
        learn: 6.9651297
                                  total: 3.05s
                                                   remaining: 2.75s
526:
        learn: 6.9637503
                                  total: 3.05s
                                                   remaining: 2.74s
527:
        learn: 6.9450688
                                  total: 3.05s
                                                   remaining: 2.73s
528:
        learn: 6.9435643
                                  total: 3.05s
                                                   remaining: 2.72s
529:
        learn: 6.9399545
                                  total: 3.05s
                                                   remaining: 2.71s
530:
        learn: 6.9244698
                                  total: 3.05s
                                                   remaining: 2.7s
531:
        learn: 6.9151157
                                  total: 3.05s
                                                   remaining: 2.69s
532:
        learn: 6.9102341
                                                   remaining: 2.68s
                                  total: 3.05s
533:
        learn: 6.9031938
                                  total: 3.06s
                                                   remaining: 2.67s
534:
        learn: 6.8970280
                                  total: 3.06s
                                                   remaining: 2.66s
535:
        learn: 6.8925217
                                  total: 3.06s
                                                   remaining: 2.65s
536:
        learn: 6.8884739
                                  total: 3.06s
                                                   remaining: 2.64s
        learn: 6.8845028
537:
                                  total: 3.06s
                                                   remaining: 2.63s
```

```
learn: 6.8833776
538:
                                  total: 3.14s
                                                   remaining: 2.68s
539:
        learn: 6.8770702
                                  total: 3.14s
                                                   remaining: 2.67s
        learn: 6.8751903
                                  total: 3.14s
540:
                                                   remaining: 2.66s
541:
        learn: 6.8711941
                                  total: 3.14s
                                                   remaining: 2.65s
542:
        learn: 6.8658693
                                  total: 3.14s
                                                   remaining: 2.64s
        learn: 6.8614858
543:
                                  total: 3.14s
                                                   remaining: 2.63s
544:
        learn: 6.8570468
                                  total: 3.14s
                                                   remaining: 2.62s
545:
        learn: 6.8496868
                                                   remaining: 2.61s
                                  total: 3.14s
546:
        learn: 6.8405666
                                  total: 3.14s
                                                   remaining: 2.6s
547:
        learn: 6.8310686
                                  total: 3.15s
                                                   remaining: 2.59s
548:
        learn: 6.8252166
                                  total: 3.15s
                                                   remaining: 2.58s
549:
        learn: 6.8189883
                                                   remaining: 2.57s
                                  total: 3.15s
550:
        learn: 6.8173146
                                  total: 3.15s
                                                   remaining: 2.56s
        learn: 6.8093013
                                  total: 3.15s
551:
                                                   remaining: 2.56s
552:
        learn: 6.8054273
                                  total: 3.15s
                                                   remaining: 2.54s
553:
        learn: 6.7993647
                                  total: 3.15s
                                                   remaining: 2.54s
554:
        learn: 6.7941444
                                  total: 3.15s
                                                   remaining: 2.53s
555:
        learn: 6.7869647
                                  total: 3.16s
                                                   remaining: 2.52s
                                  total: 3.23s
556:
        learn: 6.7817993
                                                   remaining: 2.57s
557:
        learn: 6.7794133
                                                   remaining: 2.56s
                                  total: 3.23s
558:
        learn: 6.7722000
                                  total: 3.23s
                                                   remaining: 2.55s
559:
        learn: 6.7677121
                                  total: 3.23s
                                                   remaining: 2.54s
560:
        learn: 6.7657247
                                  total: 3.24s
                                                   remaining: 2.53s
561:
        learn: 6.7544391
                                  total: 3.24s
                                                   remaining: 2.52s
562:
        learn: 6.7472562
                                  total: 3.24s
                                                   remaining: 2.51s
563:
        learn: 6.7418994
                                  total: 3.24s
                                                   remaining: 2.5s
564:
        learn: 6.7408512
                                  total: 3.24s
                                                   remaining: 2.49s
565:
        learn: 6.7343717
                                  total: 3.24s
                                                   remaining: 2.48s
566:
        learn: 6.7260127
                                  total: 3.24s
                                                   remaining: 2.47s
        learn: 6.7235633
567:
                                  total: 3.24s
                                                   remaining: 2.46s
568:
        learn: 6.7211310
                                  total: 3.24s
                                                   remaining: 2.46s
                                  total: 3.24s
569:
        learn: 6.7196341
                                                   remaining: 2.44s
570:
        learn: 6.7155419
                                  total: 3.24s
                                                   remaining: 2.44s
571:
        learn: 6.7120250
                                  total: 3.25s
                                                   remaining: 2.43s
        learn: 6.7044252
572:
                                  total: 3.25s
                                                   remaining: 2.42s
                                  total: 3.33s
                                                   remaining: 2.47s
573:
        learn: 6.7034543
574:
        learn: 6.6997614
                                  total: 3.33s
                                                   remaining: 2.46s
575:
        learn: 6.6988805
                                  total: 3.33s
                                                   remaining: 2.45s
576:
        learn: 6.6973933
                                  total: 3.33s
                                                   remaining: 2.44s
577:
        learn: 6.6911536
                                  total: 3.33s
                                                   remaining: 2.43s
578:
        learn: 6.6859414
                                                   remaining: 2.42s
                                  total: 3.33s
579:
        learn: 6.6791459
                                  total: 3.33s
                                                   remaining: 2.41s
        learn: 6.6752795
                                  total: 3.33s
580:
                                                   remaining: 2.4s
        learn: 6.6606884
                                  total: 3.33s
581:
                                                   remaining: 2.39s
582:
        learn: 6.6518869
                                  total: 3.33s
                                                   remaining: 2.38s
583:
        learn: 6.6308286
                                  total: 3.33s
                                                   remaining: 2.38s
584:
        learn: 6.6267118
                                  total: 3.33s
                                                   remaining: 2.37s
                                                   remaining: 2.36s
585:
        learn: 6.6195346
                                  total: 3.34s
586:
        learn: 6.6124938
                                  total: 3.34s
                                                   remaining: 2.35s
587:
        learn: 6.5977205
                                  total: 3.34s
                                                   remaining: 2.34s
588:
        learn: 6.5950977
                                  total: 3.42s
                                                   remaining: 2.39s
589:
        learn: 6.5901765
                                  total: 3.42s
                                                   remaining: 2.38s
590:
        learn: 6.5838433
                                  total: 3.42s
                                                   remaining: 2.37s
591:
        learn: 6.5741985
                                  total: 3.42s
                                                   remaining: 2.36s
592:
        learn: 6.5698514
                                  total: 3.42s
                                                   remaining: 2.35s
593:
        learn: 6.5628887
                                  total: 3.42s
                                                   remaining: 2.34s
594:
        learn: 6.5584364
                                  total: 3.43s
                                                   remaining: 2.33s
595:
        learn: 6.5532522
                                  total: 3.43s
                                                   remaining: 2.32s
596:
        learn: 6.5471932
                                  total: 3.43s
                                                   remaining: 2.31s
597:
        learn: 6.5427532
                                  total: 3.43s
                                                   remaining: 2.31s
        learn: 6.5399813
598:
                                  total: 3.43s
                                                   remaining: 2.3s
```

```
599:
        learn: 6.5356812
                                  total: 3.43s
                                                   remaining: 2.29s
600:
        learn: 6.5346224
                                  total: 3.43s
                                                   remaining: 2.28s
601:
        learn: 6.5319114
                                  total: 3.43s
                                                   remaining: 2.27s
602:
        learn: 6.5247876
                                  total: 3.43s
                                                   remaining: 2.26s
603:
        learn: 6.5201496
                                  total: 3.43s
                                                   remaining: 2.25s
        learn: 6.5182550
604:
                                  total: 3.43s
                                                   remaining: 2.24s
605:
        learn: 6.5142853
                                  total: 3.44s
                                                   remaining: 2.23s
        learn: 6.5079109
                                                   remaining: 2.27s
606:
                                  total: 3.51s
607:
        learn: 6.5043161
                                  total: 3.52s
                                                   remaining: 2.27s
        learn: 6.4952485
                                  total: 3.52s
608:
                                                   remaining: 2.26s
609:
        learn: 6.4830429
                                  total: 3.52s
                                                   remaining: 2.25s
        learn: 6.4775823
                                                   remaining: 2.24s
610:
                                  total: 3.52s
611:
        learn: 6.4759511
                                  total: 3.52s
                                                   remaining: 2.23s
                                  total: 3.52s
612:
        learn: 6.4711023
                                                   remaining: 2.22s
613:
        learn: 6.4581230
                                  total: 3.52s
                                                   remaining: 2.21s
614:
        learn: 6.4512879
                                  total: 3.52s
                                                   remaining: 2.2s
615:
        learn: 6.4412355
                                  total: 3.52s
                                                   remaining: 2.19s
616:
        learn: 6.4336425
                                  total: 3.52s
                                                   remaining: 2.19s
                                  total: 3.52s
617:
        learn: 6.4316133
                                                   remaining: 2.18s
618:
        learn: 6.4275710
                                                   remaining: 2.17s
                                  total: 3.52s
619:
        learn: 6.4196018
                                  total: 3.52s
                                                   remaining: 2.16s
                                  total: 3.52s
620:
        learn: 6.4100697
                                                   remaining: 2.15s
621:
        learn: 6.4063452
                                  total: 3.52s
                                                   remaining: 2.14s
622:
        learn: 6.4039354
                                  total: 3.53s
                                                   remaining: 2.14s
623:
        learn: 6.3994837
                                  total: 3.61s
                                                   remaining: 2.17s
624:
        learn: 6.3963737
                                  total: 3.61s
                                                   remaining: 2.16s
625:
        learn: 6.3912750
                                  total: 3.61s
                                                   remaining: 2.16s
626:
        learn: 6.3846293
                                  total: 3.61s
                                                   remaining: 2.15s
627:
        learn: 6.3750398
                                  total: 3.61s
                                                   remaining: 2.14s
628:
        learn: 6.3726845
                                  total: 3.61s
                                                   remaining: 2.13s
629:
        learn: 6.3703011
                                  total: 3.61s
                                                   remaining: 2.12s
630:
        learn: 6.3653081
                                  total: 3.61s
                                                   remaining: 2.11s
631:
        learn: 6.3589494
                                  total: 3.61s
                                                   remaining: 2.1s
632:
        learn: 6.3550185
                                  total: 3.61s
                                                   remaining: 2.1s
633:
        learn: 6.3539785
                                  total: 3.61s
                                                   remaining: 2.09s
                                                   remaining: 2.08s
634:
        learn: 6.3504567
                                  total: 3.62s
635:
        learn: 6.3409493
                                  total: 3.62s
                                                   remaining: 2.07s
636:
        learn: 6.3395058
                                  total: 3.62s
                                                   remaining: 2.06s
637:
        learn: 6.3344720
                                  total: 3.62s
                                                   remaining: 2.05s
638:
        learn: 6.3221795
                                  total: 3.7s
                                                   remaining: 2.09s
639:
        learn: 6.3152182
                                                   remaining: 2.08s
                                  total: 3.7s
640:
        learn: 6.3091835
                                  total: 3.7s
                                                   remaining: 2.07s
        learn: 6.3024391
                                  total: 3.7s
641:
                                                   remaining: 2.06s
        learn: 6.3009312
642:
                                  total: 3.7s
                                                   remaining: 2.06s
643:
        learn: 6.2968840
                                                   remaining: 2.05s
                                  total: 3.7s
644:
        learn: 6.2937679
                                  total: 3.71s
                                                   remaining: 2.04s
645:
        learn: 6.2839708
                                  total: 3.71s
                                                   remaining: 2.03s
                                                   remaining: 2.02s
646:
        learn: 6.2806138
                                  total: 3.71s
647:
        learn: 6.2779359
                                  total: 3.71s
                                                   remaining: 2.01s
648:
        learn: 6.2714729
                                  total: 3.71s
                                                   remaining: 2s
649:
        learn: 6.2706160
                                  total: 3.71s
                                                   remaining: 2s
650:
        learn: 6.2653769
                                  total: 3.71s
                                                   remaining: 1.99s
651:
        learn: 6.2559373
                                  total: 3.71s
                                                   remaining: 1.98s
652:
        learn: 6.2484142
                                  total: 3.72s
                                                   remaining: 1.97s
653:
        learn: 6.2403812
                                  total: 3.8s
                                                   remaining: 2.01s
654:
        learn: 6.2322127
                                                   remaining: 2s
                                  total: 3.8s
655:
        learn: 6.2265316
                                  total: 3.8s
                                                   remaining: 1.99s
656:
        learn: 6.2199904
                                  total: 3.8s
                                                   remaining: 1.98s
657:
        learn: 6.2131463
                                  total: 3.8s
                                                   remaining: 1.97s
658:
        learn: 6.2023054
                                  total: 3.8s
                                                   remaining: 1.97s
659:
        learn: 6.2010324
                                  total: 3.8s
                                                   remaining: 1.96s
```

```
learn: 6.1981710
660:
                                  total: 3.8s
                                                   remaining: 1.95s
661:
        learn: 6.1928180
                                  total: 3.8s
                                                   remaining: 1.94s
662:
        learn: 6.1872864
                                  total: 3.8s
                                                   remaining: 1.93s
663:
        learn: 6.1858929
                                  total: 3.8s
                                                   remaining: 1.92s
664:
        learn: 6.1824050
                                  total: 3.8s
                                                   remaining: 1.92s
665:
        learn: 6.1787176
                                  total: 3.81s
                                                   remaining: 1.91s
666:
        learn: 6.1720227
                                  total: 3.81s
                                                   remaining: 1.9s
        learn: 6.1713590
                                                   remaining: 1.89s
667:
                                  total: 3.81s
668:
        learn: 6.1677404
                                  total: 3.89s
                                                   remaining: 1.92s
        learn: 6.1639896
                                  total: 3.89s
669:
                                                   remaining: 1.92s
670:
        learn: 6.1533172
                                  total: 3.89s
                                                   remaining: 1.91s
        learn: 6.1518340
                                                   remaining: 1.9s
671:
                                  total: 3.89s
672:
        learn: 6.1507701
                                  total: 3.89s
                                                   remaining: 1.89s
                                  total: 3.89s
673:
        learn: 6.1481182
                                                   remaining: 1.88s
674:
        learn: 6.1446650
                                  total: 3.89s
                                                   remaining: 1.88s
675:
        learn: 6.1414576
                                  total: 3.9s
                                                   remaining: 1.87s
676:
        learn: 6.1407692
                                  total: 3.9s
                                                   remaining: 1.86s
677:
        learn: 6.1351548
                                  total: 3.9s
                                                   remaining: 1.85s
678:
        learn: 6.1286255
                                  total: 3.9s
                                                   remaining: 1.84s
679:
        learn: 6.1150223
                                                   remaining: 1.83s
                                  total: 3.9s
        learn: 6.1093227
                                  total: 3.9s
680:
                                                   remaining: 1.83s
681:
        learn: 6.1082734
                                  total: 3.9s
                                                   remaining: 1.82s
682:
        learn: 6.1012743
                                  total: 3.9s
                                                   remaining: 1.81s
683:
        learn: 6.0944500
                                  total: 3.9s
                                                   remaining: 1.8s
684:
        learn: 6.0930266
                                  total: 3.98s
                                                   remaining: 1.83s
685:
        learn: 6.0886302
                                  total: 3.98s
                                                   remaining: 1.82s
686:
        learn: 6.0877917
                                  total: 3.99s
                                                   remaining: 1.82s
687:
        learn: 6.0857762
                                  total: 3.99s
                                                   remaining: 1.81s
688:
        learn: 6.0796956
                                  total: 3.99s
                                                   remaining: 1.8s
689:
        learn: 6.0777622
                                  total: 3.99s
                                                   remaining: 1.79s
690:
        learn: 6.0727681
                                  total: 3.99s
                                                   remaining: 1.78s
691:
        learn: 6.0680660
                                  total: 3.99s
                                                   remaining: 1.78s
692:
        learn: 6.0599059
                                  total: 3.99s
                                                   remaining: 1.77s
693:
        learn: 6.0562985
                                  total: 3.99s
                                                   remaining: 1.76s
694:
        learn: 6.0539990
                                  total: 3.99s
                                                   remaining: 1.75s
695:
        learn: 6.0443297
                                  total: 4s
                                                   remaining: 1.75s
696:
        learn: 6.0347881
                                  total: 4s
                                                   remaining: 1.74s
697:
        learn: 6.0300452
                                  total: 4s
                                                   remaining: 1.73s
                                  total: 4s
        learn: 6.0277066
698:
                                                   remaining: 1.72s
699:
        learn: 6.0243591
                                  total: 4s
                                                   remaining: 1.71s
700:
        learn: 6.0235262
                                  total: 4.08s
                                                   remaining: 1.74s
701:
        learn: 6.0220215
                                  total: 4.08s
                                                   remaining: 1.73s
702:
        learn: 6.0203036
                                  total: 4.08s
                                                   remaining: 1.72s
703:
        learn: 6.0150990
                                  total: 4.08s
                                                   remaining: 1.72s
704:
        learn: 6.0134411
                                                   remaining: 1.71s
                                  total: 4.08s
705:
        learn: 6.0084723
                                  total: 4.08s
                                                   remaining: 1.7s
706:
        learn: 5.9993904
                                  total: 4.08s
                                                   remaining: 1.69s
707:
        learn: 5.9949145
                                  total: 4.08s
                                                   remaining: 1.68s
708:
        learn: 5.9867757
                                  total: 4.08s
                                                   remaining: 1.68s
709:
        learn: 5.9861225
                                  total: 4.08s
                                                   remaining: 1.67s
710:
        learn: 5.9825689
                                  total: 4.08s
                                                   remaining: 1.66s
711:
        learn: 5.9765097
                                  total: 4.08s
                                                   remaining: 1.65s
712:
        learn: 5.9754748
                                  total: 4.09s
                                                   remaining: 1.64s
713:
        learn: 5.9677243
                                  total: 4.09s
                                                   remaining: 1.64s
714:
        learn: 5.9635954
                                  total: 4.09s
                                                   remaining: 1.63s
715:
        learn: 5.9619658
                                  total: 4.09s
                                                   remaining: 1.62s
716:
        learn: 5.9520280
                                  total: 4.17s
                                                   remaining: 1.65s
717:
        learn: 5.9481750
                                  total: 4.17s
                                                   remaining: 1.64s
718:
        learn: 5.9403833
                                  total: 4.17s
                                                   remaining: 1.63s
719:
        learn: 5.9393280
                                  total: 4.17s
                                                   remaining: 1.62s
        learn: 5.9314317
720:
                                  total: 4.17s
                                                   remaining: 1.61s
```

```
721:
        learn: 5.9268063
                                  total: 4.17s
                                                   remaining: 1.61s
722:
        learn: 5.9204382
                                  total: 4.18s
                                                   remaining: 1.6s
723:
        learn: 5.9187831
                                  total: 4.18s
                                                   remaining: 1.59s
724:
        learn: 5.9167147
                                  total: 4.18s
                                                   remaining: 1.58s
725:
        learn: 5.9098064
                                  total: 4.18s
                                                   remaining: 1.58s
726:
        learn: 5.9057004
                                  total: 4.18s
                                                   remaining: 1.57s
727:
        learn: 5.9020248
                                  total: 4.18s
                                                   remaining: 1.56s
728:
        learn: 5.8973165
                                  total: 4.18s
                                                   remaining: 1.55s
729:
        learn: 5.8865312
                                  total: 4.19s
                                                   remaining: 1.55s
730:
        learn: 5.8835290
                                  total: 4.19s
                                                   remaining: 1.54s
                                  total: 4.27s
731:
        learn: 5.8826671
                                                   remaining: 1.56s
732:
        learn: 5.8762097
                                  total: 4.27s
                                                   remaining: 1.55s
733:
        learn: 5.8732317
                                  total: 4.27s
                                                   remaining: 1.55s
734:
        learn: 5.8685443
                                  total: 4.27s
                                                   remaining: 1.54s
735:
        learn: 5.8625757
                                  total: 4.27s
                                                   remaining: 1.53s
736:
        learn: 5.8585241
                                  total: 4.27s
                                                   remaining: 1.52s
737:
        learn: 5.8515214
                                  total: 4.27s
                                                   remaining: 1.52s
738:
        learn: 5.8484994
                                  total: 4.27s
                                                   remaining: 1.51s
739:
        learn: 5.8464815
                                  total: 4.27s
                                                   remaining: 1.5s
740:
        learn: 5.8446095
                                  total: 4.27s
                                                   remaining: 1.49s
741:
        learn: 5.8441420
                                  total: 4.27s
                                                   remaining: 1.49s
742:
        learn: 5.8399054
                                  total: 4.27s
                                                   remaining: 1.48s
743:
        learn: 5.8357362
                                  total: 4.27s
                                                   remaining: 1.47s
744:
        learn: 5.8271248
                                  total: 4.28s
                                                   remaining: 1.46s
745:
        learn: 5.8244075
                                  total: 4.28s
                                                   remaining: 1.46s
746:
        learn: 5.8207907
                                  total: 4.28s
                                                   remaining: 1.45s
747:
        learn: 5.8162876
                                  total: 4.28s
                                                   remaining: 1.44s
                                                   remaining: 1.46s
748:
        learn: 5.8088957
                                  total: 4.36s
749:
        learn: 5.8072641
                                  total: 4.36s
                                                   remaining: 1.45s
750:
                                  total: 4.36s
        learn: 5.8060160
                                                   remaining: 1.45s
751:
        learn: 5.8025112
                                  total: 4.36s
                                                   remaining: 1.44s
        learn: 5.7978913
752:
                                  total: 4.36s
                                                   remaining: 1.43s
                                                   remaining: 1.42s
753:
        learn: 5.7938158
                                  total: 4.36s
754:
                                  total: 4.36s
        learn: 5.7855086
                                                   remaining: 1.42s
755:
        learn: 5.7780906
                                  total: 4.37s
                                                   remaining: 1.41s
756:
                                                   remaining: 1.4s
        learn: 5.7757631
                                  total: 4.37s
757:
        learn: 5.7693176
                                  total: 4.37s
                                                   remaining: 1.39s
758:
        learn: 5.7659182
                                  total: 4.37s
                                                   remaining: 1.39s
759:
        learn: 5.7647254
                                  total: 4.37s
                                                   remaining: 1.38s
760:
        learn: 5.7602088
                                  total: 4.37s
                                                   remaining: 1.37s
761:
        learn: 5.7560732
                                  total: 4.37s
                                                   remaining: 1.36s
762:
        learn: 5.7526966
                                  total: 4.37s
                                                   remaining: 1.36s
763:
        learn: 5.7496192
                                  total: 4.46s
                                                   remaining: 1.38s
764:
        learn: 5.7467731
                                  total: 4.46s
                                                   remaining: 1.37s
765:
        learn: 5.7395041
                                  total: 4.46s
                                                   remaining: 1.36s
766:
        learn: 5.7350367
                                  total: 4.46s
                                                   remaining: 1.35s
767:
        learn: 5.7342324
                                  total: 4.46s
                                                   remaining: 1.35s
                                                   remaining: 1.34s
768:
        learn: 5.7304483
                                  total: 4.46s
769:
        learn: 5.7273829
                                  total: 4.46s
                                                   remaining: 1.33s
770:
        learn: 5.7241594
                                  total: 4.46s
                                                   remaining: 1.32s
771:
        learn: 5.7179498
                                  total: 4.46s
                                                   remaining: 1.32s
772:
        learn: 5.7128376
                                  total: 4.46s
                                                   remaining: 1.31s
773:
        learn: 5.7111450
                                  total: 4.46s
                                                   remaining: 1.3s
774:
        learn: 5.7101648
                                  total: 4.47s
                                                   remaining: 1.3s
775:
        learn: 5.6984108
                                  total: 4.47s
                                                   remaining: 1.29s
776:
        learn: 5.6963932
                                  total: 4.47s
                                                   remaining: 1.28s
777:
        learn: 5.6906063
                                  total: 4.47s
                                                   remaining: 1.27s
778:
        learn: 5.6828274
                                  total: 4.47s
                                                   remaining: 1.27s
779:
        learn: 5.6726880
                                  total: 4.55s
                                                   remaining: 1.28s
780:
        learn: 5.6681457
                                  total: 4.55s
                                                   remaining: 1.27s
781:
        learn: 5.6630421
                                  total: 4.55s
                                                   remaining: 1.27s
```

```
782:
        learn: 5.6593392
                                  total: 4.55s
                                                   remaining: 1.26s
783:
        learn: 5.6535032
                                  total: 4.55s
                                                   remaining: 1.25s
        learn: 5.6518591
784:
                                  total: 4.55s
                                                   remaining: 1.25s
785:
        learn: 5.6435251
                                  total: 4.55s
                                                   remaining: 1.24s
786:
        learn: 5.6394044
                                  total: 4.55s
                                                   remaining: 1.23s
787:
        learn: 5.6362084
                                  total: 4.55s
                                                   remaining: 1.23s
788:
        learn: 5.6327570
                                  total: 4.55s
                                                   remaining: 1.22s
789:
        learn: 5.6321411
                                  total: 4.55s
                                                   remaining: 1.21s
790:
        learn: 5.6255634
                                  total: 4.56s
                                                   remaining: 1.2s
791:
        learn: 5.6189552
                                  total: 4.56s
                                                   remaining: 1.2s
792:
        learn: 5.6181853
                                  total: 4.56s
                                                   remaining: 1.19s
793:
        learn: 5.6169563
                                                   remaining: 1.18s
                                  total: 4.56s
794:
        learn: 5.6151560
                                  total: 4.56s
                                                   remaining: 1.18s
795:
        learn: 5.6135491
                                  total: 4.64s
                                                   remaining: 1.19s
796:
        learn: 5.6090881
                                  total: 4.64s
                                                   remaining: 1.18s
797:
        learn: 5.6016669
                                  total: 4.64s
                                                   remaining: 1.18s
798:
        learn: 5.5906088
                                  total: 4.65s
                                                   remaining: 1.17s
799:
        learn: 5.5872886
                                  total: 4.65s
                                                   remaining: 1.16s
800:
        learn: 5.5821780
                                  total: 4.65s
                                                   remaining: 1.15s
801:
        learn: 5.5761603
                                  total: 4.65s
                                                   remaining: 1.15s
802:
        learn: 5.5704773
                                  total: 4.65s
                                                   remaining: 1.14s
                                  total: 4.65s
803:
        learn: 5.5683219
                                                   remaining: 1.13s
804:
        learn: 5.5651320
                                  total: 4.65s
                                                   remaining: 1.13s
805:
        learn: 5.5607691
                                  total: 4.65s
                                                   remaining: 1.12s
806:
        learn: 5.5556165
                                  total: 4.65s
                                                   remaining: 1.11s
807:
        learn: 5.5508689
                                  total: 4.65s
                                                   remaining: 1.1s
808:
        learn: 5.5501349
                                  total: 4.65s
                                                   remaining: 1.1s
809:
        learn: 5.5441227
                                  total: 4.65s
                                                   remaining: 1.09s
810:
        learn: 5.5406253
                                  total: 4.66s
                                                   remaining: 1.08s
811:
                                  total: 4.74s
        learn: 5.5391756
                                                   remaining: 1.1s
812:
        learn: 5.5309824
                                  total: 4.74s
                                                   remaining: 1.09s
                                  total: 4.74s
813:
        learn: 5.5305884
                                                   remaining: 1.08s
814:
        learn: 5.5245895
                                  total: 4.74s
                                                   remaining: 1.07s
815:
                                  total: 4.74s
        learn: 5.5240840
                                                   remaining: 1.07s
816:
        learn: 5.5197659
                                  total: 4.74s
                                                   remaining: 1.06s
817:
        learn: 5.5191793
                                  total: 4.74s
                                                   remaining: 1.05s
818:
        learn: 5.5185307
                                  total: 4.74s
                                                   remaining: 1.05s
819:
        learn: 5.5138361
                                  total: 4.74s
                                                   remaining: 1.04s
820:
        learn: 5.5080241
                                  total: 4.74s
                                                   remaining: 1.03s
821:
        learn: 5.5052460
                                  total: 4.74s
                                                   remaining: 1.03s
822:
        learn: 5.4994773
                                  total: 4.74s
                                                   remaining: 1.02s
823:
        learn: 5.4953420
                                  total: 4.74s
                                                   remaining: 1.01s
                                  total: 4.74s
824:
        learn: 5.4924635
                                                   remaining: 1.01s
        learn: 5.4887892
825:
                                  total: 4.75s
                                                   remaining: 1000ms
826:
        learn: 5.4857453
                                                   remaining: 1.01s
                                  total: 4.83s
827:
        learn: 5.4828064
                                  total: 4.83s
                                                   remaining: 1s
828:
        learn: 5.4812529
                                  total: 4.83s
                                                   remaining: 997ms
829:
        learn: 5.4772293
                                  total: 4.83s
                                                   remaining: 990ms
830:
        learn: 5.4753109
                                  total: 4.83s
                                                   remaining: 983ms
831:
        learn: 5.4707979
                                  total: 4.83s
                                                   remaining: 976ms
832:
        learn: 5.4680911
                                  total: 4.84s
                                                   remaining: 970ms
833:
        learn: 5.4645196
                                  total: 4.84s
                                                   remaining: 963ms
834:
        learn: 5.4600942
                                  total: 4.84s
                                                   remaining: 956ms
835:
        learn: 5.4564143
                                  total: 4.84s
                                                   remaining: 949ms
        learn: 5.4518442
836:
                                  total: 4.84s
                                                   remaining: 942ms
837:
        learn: 5.4502302
                                  total: 4.84s
                                                   remaining: 936ms
838:
        learn: 5.4490583
                                  total: 4.84s
                                                   remaining: 929ms
839:
        learn: 5.4435927
                                  total: 4.84s
                                                   remaining: 922ms
840:
        learn: 5.4385446
                                  total: 4.84s
                                                   remaining: 916ms
841:
        learn: 5.4362092
                                  total: 4.84s
                                                   remaining: 909ms
842:
        learn: 5.4356085
                                  total: 4.85s
                                                   remaining: 903ms
```

```
learn: 5.4331511
843:
                                  total: 4.92s
                                                   remaining: 910ms
844:
        learn: 5.4305749
                                  total: 4.92s
                                                   remaining: 903ms
        learn: 5.4256484
845:
                                  total: 4.92s
                                                   remaining: 896ms
846:
        learn: 5.4224903
                                  total: 4.92s
                                                   remaining: 889ms
847:
        learn: 5.4214842
                                  total: 4.92s
                                                   remaining: 883ms
848:
        learn: 5.4190515
                                  total: 4.92s
                                                   remaining: 876ms
849:
        learn: 5.4143893
                                  total: 4.92s
                                                   remaining: 869ms
850:
        learn: 5.4057034
                                  total: 4.93s
                                                   remaining: 863ms
        learn: 5.4052911
                                  total: 4.93s
                                                   remaining: 856ms
851:
        learn: 5.4048115
                                  total: 4.93s
852:
                                                   remaining: 849ms
                                  total: 4.93s
        learn: 5.4016455
853:
                                                   remaining: 843ms
854:
        learn: 5.3995418
                                  total: 4.93s
                                                   remaining: 836ms
855:
        learn: 5.3950895
                                  total: 4.93s
                                                   remaining: 829ms
        learn: 5.3947052
                                  total: 4.93s
856:
                                                   remaining: 823ms
857:
        learn: 5.3897855
                                  total: 4.93s
                                                   remaining: 816ms
858:
        learn: 5.3834746
                                  total: 4.93s
                                                   remaining: 809ms
                                                   remaining: 803ms
859:
        learn: 5.3810342
                                  total: 4.93s
860:
        learn: 5.3805083
                                  total: 5.01s
                                                   remaining: 810ms
861:
        learn: 5.3751101
                                  total: 5.01s
                                                   remaining: 803ms
862:
        learn: 5.3728029
                                  total: 5.02s
                                                   remaining: 796ms
        learn: 5.3722888
                                  total: 5.02s
863:
                                                   remaining: 790ms
864:
        learn: 5.3681286
                                  total: 5.02s
                                                   remaining: 783ms
865:
        learn: 5.3625919
                                  total: 5.02s
                                                   remaining: 777ms
866:
        learn: 5.3570911
                                  total: 5.02s
                                                   remaining: 770ms
867:
        learn: 5.3523120
                                  total: 5.02s
                                                   remaining: 763ms
868:
        learn: 5.3446950
                                  total: 5.02s
                                                   remaining: 757ms
869:
        learn: 5.3375610
                                  total: 5.02s
                                                   remaining: 750ms
870:
        learn: 5.3338494
                                  total: 5.02s
                                                   remaining: 744ms
871:
        learn: 5.3298013
                                  total: 5.02s
                                                   remaining: 737ms
        learn: 5.3258785
872:
                                  total: 5.02s
                                                   remaining: 731ms
873:
        learn: 5.3245115
                                  total: 5.02s
                                                   remaining: 724ms
                                  total: 5.03s
874:
        learn: 5.3128244
                                                   remaining: 718ms
                                                   remaining: 723ms
875:
        learn: 5.3100595
                                  total: 5.11s
                                                   remaining: 717ms
876:
        learn: 5.3088015
                                  total: 5.11s
877:
        learn: 5.3077526
                                  total: 5.11s
                                                   remaining: 710ms
878:
        learn: 5.3060558
                                  total: 5.11s
                                                   remaining: 704ms
879:
        learn: 5.2989228
                                  total: 5.11s
                                                   remaining: 697ms
880:
        learn: 5.2984047
                                  total: 5.11s
                                                   remaining: 691ms
881:
        learn: 5.2976900
                                  total: 5.11s
                                                   remaining: 684ms
882:
        learn: 5.2935381
                                  total: 5.12s
                                                   remaining: 678ms
883:
        learn: 5.2858346
                                                   remaining: 671ms
                                  total: 5.12s
        learn: 5.2850364
884:
                                  total: 5.12s
                                                   remaining: 665ms
        learn: 5.2813712
885:
                                  total: 5.12s
                                                   remaining: 658ms
        learn: 5.2770065
886:
                                  total: 5.12s
                                                   remaining: 652ms
887:
        learn: 5.2719399
                                                   remaining: 646ms
                                  total: 5.12s
888:
        learn: 5.2709258
                                  total: 5.12s
                                                   remaining: 639ms
889:
        learn: 5.2701163
                                  total: 5.12s
                                                   remaining: 633ms
                                                   remaining: 626ms
890:
        learn: 5.2634135
                                  total: 5.12s
891:
        learn: 5.2612810
                                  total: 5.2s
                                                   remaining: 630ms
892:
        learn: 5.2587800
                                  total: 5.2s
                                                   remaining: 624ms
893:
        learn: 5.2564065
                                  total: 5.21s
                                                   remaining: 617ms
894:
        learn: 5.2495026
                                  total: 5.21s
                                                   remaining: 611ms
895:
        learn: 5.2477700
                                  total: 5.21s
                                                   remaining: 604ms
896:
        learn: 5.2445375
                                  total: 5.21s
                                                   remaining: 598ms
        learn: 5.2386495
897:
                                  total: 5.21s
                                                   remaining: 592ms
898:
        learn: 5.2343627
                                                   remaining: 585ms
                                  total: 5.21s
899:
        learn: 5.2270947
                                  total: 5.21s
                                                   remaining: 579ms
900:
        learn: 5.2266440
                                  total: 5.21s
                                                   remaining: 573ms
901:
        learn: 5.2173136
                                  total: 5.21s
                                                   remaining: 566ms
902:
        learn: 5.2159428
                                  total: 5.21s
                                                   remaining: 560ms
903:
        learn: 5.2123129
                                  total: 5.21s
                                                   remaining: 554ms
```

```
904:
        learn: 5.2063115
                                  total: 5.21s
                                                   remaining: 547ms
905:
        learn: 5.2034388
                                  total: 5.21s
                                                   remaining: 541ms
        learn: 5.2026113
906:
                                  total: 5.21s
                                                   remaining: 535ms
907:
        learn: 5.1968804
                                  total: 5.21s
                                                   remaining: 528ms
908:
        learn: 5.1951805
                                  total: 5.22s
                                                   remaining: 522ms
        learn: 5.1929530
909:
                                  total: 5.3s
                                                   remaining: 524ms
910:
        learn: 5.1870592
                                  total: 5.3s
                                                   remaining: 518ms
911:
        learn: 5.1842950
                                  total: 5.3s
                                                   remaining: 511ms
912:
        learn: 5.1805239
                                  total: 5.3s
                                                   remaining: 505ms
913:
        learn: 5.1738254
                                  total: 5.3s
                                                   remaining: 499ms
914:
        learn: 5.1643778
                                  total: 5.3s
                                                   remaining: 492ms
915:
        learn: 5.1614055
                                                   remaining: 486ms
                                  total: 5.3s
916:
        learn: 5.1599788
                                  total: 5.3s
                                                   remaining: 480ms
917:
        learn: 5.1565345
                                  total: 5.3s
                                                   remaining: 474ms
918:
        learn: 5.1514476
                                  total: 5.3s
                                                   remaining: 467ms
919:
        learn: 5.1456005
                                  total: 5.3s
                                                   remaining: 461ms
920:
        learn: 5.1425963
                                  total: 5.3s
                                                   remaining: 455ms
921:
        learn: 5.1378493
                                  total: 5.3s
                                                   remaining: 449ms
922:
        learn: 5.1287463
                                  total: 5.31s
                                                   remaining: 443ms
923:
        learn: 5.1277284
                                  total: 5.31s
                                                   remaining: 437ms
924:
        learn: 5.1258175
                                  total: 5.31s
                                                   remaining: 431ms
925:
        learn: 5.1221719
                                  total: 5.31s
                                                   remaining: 425ms
926:
        learn: 5.1211840
                                  total: 5.39s
                                                   remaining: 425ms
927:
        learn: 5.1206809
                                  total: 5.39s
                                                   remaining: 418ms
928:
        learn: 5.1167100
                                  total: 5.39s
                                                   remaining: 412ms
929:
        learn: 5.1119330
                                  total: 5.39s
                                                   remaining: 406ms
930:
        learn: 5.1113258
                                  total: 5.39s
                                                   remaining: 400ms
931:
        learn: 5.1045083
                                  total: 5.39s
                                                   remaining: 394ms
932:
        learn: 5.1008217
                                  total: 5.4s
                                                   remaining: 388ms
933:
        learn: 5.0999880
                                  total: 5.4s
                                                   remaining: 381ms
934:
        learn: 5.0939621
                                  total: 5.4s
                                                   remaining: 375ms
        learn: 5.0911340
                                  total: 5.4s
935:
                                                   remaining: 369ms
                                                   remaining: 363ms
936:
        learn: 5.0896799
                                  total: 5.4s
937:
                                                   remaining: 357ms
        learn: 5.0839739
                                  total: 5.4s
938:
        learn: 5.0785149
                                  total: 5.4s
                                                   remaining: 351ms
939:
        learn: 5.0772002
                                  total: 5.4s
                                                   remaining: 345ms
940:
        learn: 5.0708664
                                  total: 5.4s
                                                   remaining: 339ms
941:
        learn: 5.0674892
                                  total: 5.49s
                                                   remaining: 338ms
942:
        learn: 5.0627530
                                  total: 5.49s
                                                   remaining: 332ms
943:
        learn: 5.0616978
                                  total: 5.49s
                                                   remaining: 326ms
944:
        learn: 5.0608959
                                                   remaining: 319ms
                                  total: 5.49s
945:
        learn: 5.0586593
                                                   remaining: 313ms
                                  total: 5.49s
946:
        learn: 5.0572443
                                  total: 5.49s
                                                   remaining: 307ms
        learn: 5.0539806
947:
                                  total: 5.49s
                                                   remaining: 301ms
948:
        learn: 5.0525400
                                                   remaining: 295ms
                                  total: 5.49s
949:
        learn: 5.0478576
                                  total: 5.49s
                                                   remaining: 289ms
950:
        learn: 5.0454432
                                  total: 5.49s
                                                   remaining: 283ms
                                                   remaining: 277ms
951:
        learn: 5.0440694
                                  total: 5.49s
952:
        learn: 5.0420399
                                  total: 5.49s
                                                   remaining: 271ms
953:
        learn: 5.0321939
                                  total: 5.49s
                                                   remaining: 265ms
954:
        learn: 5.0252282
                                  total: 5.49s
                                                   remaining: 259ms
955:
        learn: 5.0237470
                                  total: 5.5s
                                                   remaining: 253ms
956:
        learn: 5.0172503
                                                   remaining: 247ms
                                  total: 5.5s
957:
        learn: 5.0110287
                                  total: 5.58s
                                                   remaining: 245ms
958:
        learn: 5.0064489
                                  total: 5.58s
                                                   remaining: 239ms
959:
        learn: 5.0018964
                                                   remaining: 233ms
                                  total: 5.58s
960:
        learn: 5.0004528
                                  total: 5.58s
                                                   remaining: 227ms
961:
        learn: 4.9985350
                                  total: 5.58s
                                                   remaining: 221ms
962:
        learn: 4.9962064
                                  total: 5.58s
                                                   remaining: 215ms
963:
        learn: 4.9944421
                                  total: 5.58s
                                                   remaining: 209ms
        learn: 4.9916832
964:
                                  total: 5.58s
                                                   remaining: 203ms
```

```
965:
        learn: 4.9830952
                                  total: 5.58s
                                                   remaining: 197ms
966:
        learn: 4.9767984
                                  total: 5.58s
                                                   remaining: 191ms
        learn: 4.9748644
967:
                                  total: 5.59s
                                                   remaining: 185ms
968:
        learn: 4.9707761
                                  total: 5.59s
                                                   remaining: 179ms
969:
        learn: 4.9701012
                                  total: 5.59s
                                                   remaining: 173ms
        learn: 4.9637887
970:
                                  total: 5.59s
                                                   remaining: 167ms
971:
        learn: 4.9615806
                                  total: 5.59s
                                                   remaining: 161ms
972:
        learn: 4.9583606
                                                   remaining: 155ms
                                  total: 5.59s
973:
        learn: 4.9524184
                                  total: 5.59s
                                                   remaining: 149ms
974:
        learn: 4.9503440
                                  total: 5.67s
                                                   remaining: 145ms
975:
        learn: 4.9457643
                                  total: 5.67s
                                                   remaining: 140ms
976:
        learn: 4.9444083
                                                   remaining: 134ms
                                  total: 5.67s
977:
        learn: 4.9425648
                                  total: 5.67s
                                                   remaining: 128ms
978:
        learn: 4.9401904
                                  total: 5.68s
                                                   remaining: 122ms
979:
        learn: 4.9388263
                                  total: 5.68s
                                                   remaining: 116ms
980:
        learn: 4.9383571
                                  total: 5.68s
                                                   remaining: 110ms
981:
        learn: 4.9300781
                                  total: 5.68s
                                                   remaining: 104ms
982:
        learn: 4.9262885
                                  total: 5.68s
                                                   remaining: 98.2ms
983:
        learn: 4.9252203
                                  total: 5.68s
                                                   remaining: 92.3ms
984:
        learn: 4.9210289
                                  total: 5.68s
                                                   remaining: 86.5ms
985:
        learn: 4.9155240
                                  total: 5.68s
                                                   remaining: 80.7ms
986:
        learn: 4.9149817
                                  total: 5.68s
                                                   remaining: 74.8ms
987:
        learn: 4.9106939
                                  total: 5.68s
                                                   remaining: 69ms
988:
        learn: 4.9079656
                                  total: 5.68s
                                                   remaining: 63.2ms
989:
        learn: 4.8990058
                                  total: 5.68s
                                                   remaining: 57.4ms
990:
        learn: 4.8986795
                                  total: 5.77s
                                                   remaining: 52.4ms
991:
        learn: 4.8966798
                                  total: 5.77s
                                                   remaining: 46.5ms
992:
        learn: 4.8933249
                                  total: 5.77s
                                                   remaining: 40.7ms
                                                   remaining: 34.8ms
993:
        learn: 4.8806818
                                  total: 5.77s
994:
        learn: 4.8775546
                                  total: 5.77s
                                                   remaining: 29ms
995:
        learn: 4.8739598
                                  total: 5.77s
                                                   remaining: 23.2ms
                                  total: 5.77s
996:
        learn: 4.8708593
                                                   remaining: 17.4ms
997:
        learn: 4.8652476
                                  total: 5.77s
                                                   remaining: 11.6ms
998:
                                                   remaining: 5.78ms
        learn: 4.8639953
                                  total: 5.77s
999:
        learn: 4.8632744
                                  total: 5.77s
                                                   remaining: Ous
        learn: 14.6934410
0:
                                  total: 1.86ms
                                                   remaining: 1.86s
1:
        learn: 14.5700732
                                  total: 3.04ms
                                                   remaining: 1.51s
2:
        learn: 14.4580169
                                  total: 4.21ms
                                                   remaining: 1.4s
3:
        learn: 14.3431805
                                  total: 5.32ms
                                                   remaining: 1.32s
4:
        learn: 14.2306952
                                  total: 6.45ms
                                                   remaining: 1.28s
5:
        learn: 14.1307496
                                  total: 7.66ms
                                                   remaining: 1.27s
6:
        learn: 14.0364512
                                  total: 8.82ms
                                                   remaining: 1.25s
7:
        learn: 13.9518795
                                  total: 10.6ms
                                                   remaining: 1.31s
        learn: 13.8719682
8:
                                  total: 11.7ms
                                                   remaining: 1.28s
9:
        learn: 13.7874877
                                                   remaining: 1.26s
                                  total: 12.8ms
10:
        learn: 13.7068422
                                  total: 13.9ms
                                                   remaining: 1.25s
        learn: 13.6253844
                                  total: 90ms
11:
                                                   remaining: 7.41s
                                                   remaining: 6.91s
12:
        learn: 13.5387940
                                  total: 91.1ms
13:
        learn: 13.4660753
                                  total: 92.3ms
                                                   remaining: 6.5s
14:
        learn: 13.3936045
                                  total: 93.4ms
                                                   remaining: 6.13s
15:
        learn: 13.3217317
                                  total: 94.5ms
                                                   remaining: 5.81s
        learn: 13.2648432
                                  total: 96.7ms
                                                   remaining: 5.59s
16:
17:
        learn: 13.1911880
                                  total: 97.8ms
                                                   remaining: 5.33s
        learn: 13.1298636
18:
                                  total: 98.9ms
                                                   remaining: 5.1s
19:
        learn: 13.0534448
                                  total: 100ms
                                                   remaining: 4.91s
20:
        learn: 13.0024022
                                                   remaining: 4.72s
                                  total: 101ms
21:
        learn: 12.9475382
                                  total: 186ms
                                                   remaining: 8.27s
22:
        learn: 12.8860337
                                  total: 187ms
                                                   remaining: 7.96s
23:
        learn: 12.8355039
                                  total: 189ms
                                                   remaining: 7.67s
24:
        learn: 12.7877230
                                  total: 190ms
                                                   remaining: 7.4s
        learn: 12.7292381
25:
                                  total: 191ms
                                                   remaining: 7.15s
```

```
learn: 12.6743479
26:
                                  total: 192ms
                                                   remaining: 6.92s
27:
        learn: 12.6239069
                                  total: 194ms
                                                   remaining: 6.73s
        learn: 12.5708020
                                  total: 195ms
28:
                                                   remaining: 6.54s
29:
        learn: 12.5166628
                                  total: 202ms
                                                   remaining: 6.53s
30:
        learn: 12.4564445
                                  total: 281ms
                                                   remaining: 8.78s
31:
        learn: 12.4105912
                                  total: 282ms
                                                   remaining: 8.53s
32:
        learn: 12.3615880
                                  total: 283ms
                                                   remaining: 8.3s
        learn: 12.3163048
                                  total: 284ms
                                                   remaining: 8.08s
33:
        learn: 12.2697511
                                  total: 286ms
                                                   remaining: 7.87s
34:
35:
        learn: 12.2384454
                                  total: 287ms
                                                   remaining: 7.68s
                                  total: 288ms
36:
        learn: 12.1957770
                                                   remaining: 7.5s
37:
        learn: 12.1618600
                                  total: 289ms
                                                   remaining: 7.32s
38:
        learn: 12.1199362
                                  total: 290ms
                                                   remaining: 7.15s
39:
        learn: 12.0868455
                                  total: 292ms
                                                   remaining: 7s
40:
        learn: 12.0561650
                                  total: 293ms
                                                   remaining: 6.85s
41:
        learn: 12.0249620
                                  total: 294ms
                                                   remaining: 6.7s
42:
        learn: 11.9888933
                                  total: 376ms
                                                   remaining: 8.37s
43:
        learn: 11.9564915
                                  total: 377ms
                                                   remaining: 8.2s
44:
        learn: 11.9233721
                                  total: 379ms
                                                   remaining: 8.03s
45:
        learn: 11.8920426
                                  total: 380ms
                                                   remaining: 7.88s
        learn: 11.8688609
46:
                                  total: 382ms
                                                   remaining: 7.75s
47:
        learn: 11.8355589
                                  total: 383ms
                                                   remaining: 7.6s
48:
        learn: 11.8041292
                                  total: 384ms
                                                   remaining: 7.46s
        learn: 11.7769146
49:
                                  total: 386ms
                                                   remaining: 7.33s
                                  total: 387ms
50:
        learn: 11.7518500
                                                   remaining: 7.21s
51:
        learn: 11.7311694
                                  total: 389ms
                                                   remaining: 7.09s
52:
        learn: 11.7108256
                                  total: 390ms
                                                   remaining: 6.97s
53:
        learn: 11.6856542
                                  total: 472ms
                                                   remaining: 8.27s
        learn: 11.6663817
54:
                                  total: 473ms
                                                   remaining: 8.13s
        learn: 11.6439976
55:
                                  total: 475ms
                                                   remaining: 8.01s
56:
        learn: 11.6203364
                                  total: 476ms
                                                   remaining: 7.88s
        learn: 11.5934852
                                  total: 477ms
57:
                                                   remaining: 7.75s
                                                   remaining: 7.63s
58:
        learn: 11.5651654
                                  total: 478ms
59:
        learn: 11.5452658
                                  total: 480ms
                                                   remaining: 7.51s
        learn: 11.5224182
                                  total: 481ms
60:
                                                   remaining: 7.4s
                                  total: 482ms
61:
        learn: 11.5026035
                                                   remaining: 7.29s
62:
        learn: 11.4754929
                                  total: 483ms
                                                   remaining: 7.18s
63:
        learn: 11.4566667
                                  total: 484ms
                                                   remaining: 7.08s
64:
        learn: 11.4411120
                                  total: 568ms
                                                   remaining: 8.18s
65:
        learn: 11.4260722
                                  total: 570ms
                                                   remaining: 8.06s
66:
        learn: 11.4076898
                                  total: 571ms
                                                   remaining: 7.95s
67:
        learn: 11.3951912
                                  total: 572ms
                                                   remaining: 7.84s
        learn: 11.3744909
                                  total: 573ms
68:
                                                   remaining: 7.74s
        learn: 11.3569727
69:
                                  total: 574ms
                                                   remaining: 7.63s
70:
        learn: 11.3353393
                                                   remaining: 7.53s
                                  total: 575ms
71:
        learn: 11.3196216
                                  total: 577ms
                                                   remaining: 7.43s
72:
        learn: 11.3041188
                                  total: 578ms
                                                   remaining: 7.34s
                                                   remaining: 8.31s
73:
        learn: 11.2905946
                                  total: 664ms
74:
        learn: 11.2706151
                                  total: 666ms
                                                   remaining: 8.21s
75:
        learn: 11.2581062
                                  total: 667ms
                                                   remaining: 8.11s
76:
        learn: 11.2383206
                                  total: 668ms
                                                   remaining: 8.01s
77:
        learn: 11.2206512
                                  total: 669ms
                                                   remaining: 7.91s
78:
        learn: 11.2046406
                                  total: 671ms
                                                   remaining: 7.83s
79:
        learn: 11.1934332
                                  total: 673ms
                                                   remaining: 7.74s
80:
        learn: 11.1737316
                                  total: 674ms
                                                   remaining: 7.65s
81:
        learn: 11.1515365
                                                   remaining: 7.56s
                                  total: 675ms
82:
        learn: 11.1382507
                                  total: 677ms
                                                   remaining: 7.47s
83:
        learn: 11.1239347
                                  total: 678ms
                                                   remaining: 7.39s
84:
        learn: 11.1038308
                                  total: 761ms
                                                   remaining: 8.19s
85:
        learn: 11.0735301
                                  total: 762ms
                                                   remaining: 8.1s
        learn: 11.0641528
                                  total: 764ms
86:
                                                   remaining: 8.01s
```

```
87:
        learn: 11.0541247
                                  total: 765ms
                                                   remaining: 7.93s
88:
        learn: 11.0373339
                                  total: 766ms
                                                   remaining: 7.84s
                                  total: 767ms
                                                   remaining: 7.76s
89:
        learn: 11.0237962
90:
        learn: 11.0121240
                                  total: 768ms
                                                   remaining: 7.67s
91:
        learn: 10.9926506
                                  total: 769ms
                                                   remaining: 7.59s
92:
        learn: 10.9774716
                                  total: 771ms
                                                   remaining: 7.51s
93:
        learn: 10.9619001
                                  total: 772ms
                                                   remaining: 7.44s
94:
        learn: 10.9537911
                                                   remaining: 7.36s
                                  total: 773ms
95:
        learn: 10.9480971
                                  total: 857ms
                                                   remaining: 8.07s
        learn: 10.9288460
                                  total: 858ms
96:
                                                   remaining: 7.99s
97:
        learn: 10.9155465
                                  total: 859ms
                                                   remaining: 7.91s
        learn: 10.9031451
                                                   remaining: 7.83s
98:
                                  total: 861ms
99:
        learn: 10.8921231
                                  total: 863ms
                                                   remaining: 7.76s
100:
        learn: 10.8765914
                                  total: 864ms
                                                   remaining: 7.69s
101:
        learn: 10.8651098
                                  total: 865ms
                                                   remaining: 7.61s
102:
        learn: 10.8544862
                                  total: 866ms
                                                   remaining: 7.54s
103:
        learn: 10.8480668
                                  total: 867ms
                                                   remaining: 7.47s
                                                   remaining: 7.4s
104:
        learn: 10.8267398
                                  total: 868ms
105:
        learn: 10.8144712
                                  total: 870ms
                                                   remaining: 7.33s
        learn: 10.8052269
                                  total: 952ms
                                                   remaining: 7.95s
106:
        learn: 10.7905174
                                  total: 954ms
107:
                                                   remaining: 7.88s
        learn: 10.7813395
108:
                                  total: 955ms
                                                   remaining: 7.8s
109:
        learn: 10.7776422
                                                   remaining: 7.73s
                                  total: 956ms
110:
        learn: 10.7647051
                                  total: 958ms
                                                   remaining: 7.67s
        learn: 10.7570002
                                  total: 959ms
111:
                                                   remaining: 7.6s
                                                   remaining: 7.54s
112:
        learn: 10.7505099
                                  total: 961ms
113:
        learn: 10.7386988
                                  total: 962ms
                                                   remaining: 7.48s
                                                   remaining: 7.42s
114:
        learn: 10.7293800
                                  total: 964ms
115:
        learn: 10.7190692
                                  total: 1.05s
                                                   remaining: 7.99s
        learn: 10.7014480
116:
                                  total: 1.05s
                                                   remaining: 7.92s
117:
        learn: 10.6963668
                                  total: 1.05s
                                                   remaining: 7.85s
        learn: 10.6869301
118:
                                  total: 1.05s
                                                   remaining: 7.79s
119:
        learn: 10.6632861
                                  total: 1.05s
                                                   remaining: 7.72s
120:
        learn: 10.6528483
                                  total: 1.05s
                                                   remaining: 7.66s
121:
        learn: 10.6338523
                                  total: 1.05s
                                                   remaining: 7.6s
                                                   remaining: 7.53s
122:
        learn: 10.6204651
                                  total: 1.06s
123:
        learn: 10.6114124
                                  total: 1.06s
                                                   remaining: 7.47s
124:
        learn: 10.6064895
                                  total: 1.06s
                                                   remaining: 7.41s
125:
        learn: 10.5815413
                                  total: 1.06s
                                                   remaining: 7.35s
126:
        learn: 10.5705741
                                  total: 1.14s
                                                   remaining: 7.86s
127:
        learn: 10.5603700
                                                   remaining: 7.8s
                                  total: 1.15s
        learn: 10.5505748
128:
                                  total: 1.15s
                                                   remaining: 7.74s
        learn: 10.5371289
129:
                                  total: 1.15s
                                                   remaining: 7.68s
        learn: 10.5244166
130:
                                  total: 1.15s
                                                   remaining: 7.62s
        learn: 10.5095495
                                                   remaining: 7.56s
131:
                                  total: 1.15s
132:
        learn: 10.5039886
                                  total: 1.15s
                                                   remaining: 7.51s
        learn: 10.4939317
133:
                                  total: 1.15s
                                                   remaining: 7.45s
                                                   remaining: 7.39s
134:
        learn: 10.4817763
                                  total: 1.15s
135:
        learn: 10.4730683
                                  total: 1.16s
                                                   remaining: 7.34s
136:
        learn: 10.4629835
                                  total: 1.16s
                                                   remaining: 7.28s
137:
        learn: 10.4544810
                                  total: 1.24s
                                                   remaining: 7.74s
138:
        learn: 10.4457772
                                                   remaining: 7.68s
                                  total: 1.24s
139:
        learn: 10.4357614
                                                   remaining: 7.63s
                                  total: 1.24s
140:
        learn: 10.4248364
                                  total: 1.24s
                                                   remaining: 7.57s
        learn: 10.4191698
141:
                                  total: 1.24s
                                                   remaining: 7.52s
142:
        learn: 10.4151648
                                                   remaining: 7.46s
                                  total: 1.25s
143:
        learn: 10.4021743
                                  total: 1.25s
                                                   remaining: 7.41s
        learn: 10.3930286
                                                   remaining: 7.36s
144:
                                  total: 1.25s
145:
        learn: 10.3759586
                                  total: 1.25s
                                                   remaining: 7.3s
146:
        learn: 10.3672745
                                  total: 1.25s
                                                   remaining: 7.25s
147:
        learn: 10.3512809
                                  total: 1.25s
                                                   remaining: 7.2s
```

```
learn: 10.3478257
148:
                                  total: 1.33s
                                                   remaining: 7.62s
149:
        learn: 10.3347748
                                  total: 1.33s
                                                   remaining: 7.57s
        learn: 10.3152473
150:
                                  total: 1.34s
                                                   remaining: 7.52s
151:
        learn: 10.3065250
                                  total: 1.34s
                                                   remaining: 7.46s
152:
        learn: 10.3041250
                                  total: 1.34s
                                                   remaining: 7.41s
        learn: 10.2933573
153:
                                  total: 1.34s
                                                   remaining: 7.36s
154:
        learn: 10.2878904
                                  total: 1.34s
                                                   remaining: 7.31s
155:
        learn: 10.2830121
                                  total: 1.34s
                                                   remaining: 7.26s
        learn: 10.2699234
                                  total: 1.34s
                                                   remaining: 7.21s
156:
157:
        learn: 10.2619795
                                  total: 1.34s
                                                   remaining: 7.17s
158:
        learn: 10.2544089
                                  total: 1.34s
                                                   remaining: 7.12s
        learn: 10.2486729
                                                   remaining: 7.07s
159:
                                  total: 1.35s
160:
        learn: 10.2402084
                                  total: 1.43s
                                                   remaining: 7.46s
        learn: 10.2277849
                                  total: 1.43s
161:
                                                   remaining: 7.41s
162:
        learn: 10.2187793
                                  total: 1.43s
                                                   remaining: 7.36s
163:
        learn: 10.2105076
                                  total: 1.43s
                                                   remaining: 7.31s
164:
        learn: 10.1964367
                                  total: 1.44s
                                                   remaining: 7.27s
165:
        learn: 10.1883591
                                  total: 1.44s
                                                   remaining: 7.22s
166:
                                  total: 1.44s
        learn: 10.1737952
                                                   remaining: 7.18s
167:
        learn: 10.1633583
                                  total: 1.44s
                                                   remaining: 7.13s
        learn: 10.1516475
                                  total: 1.53s
168:
                                                   remaining: 7.51s
169:
        learn: 10.1413979
                                  total: 1.53s
                                                   remaining: 7.46s
170:
        learn: 10.1333843
                                  total: 1.53s
                                                   remaining: 7.41s
171:
        learn: 10.1275739
                                  total: 1.53s
                                                   remaining: 7.37s
                                                   remaining: 7.32s
172:
        learn: 10.1222399
                                  total: 1.53s
173:
        learn: 10.1181422
                                  total: 1.53s
                                                   remaining: 7.27s
174:
        learn: 10.1082604
                                  total: 1.53s
                                                   remaining: 7.23s
175:
        learn: 10.1038082
                                  total: 1.53s
                                                   remaining: 7.18s
176:
        learn: 10.0914311
                                  total: 1.53s
                                                   remaining: 7.14s
        learn: 10.0830941
177:
                                  total: 1.54s
                                                   remaining: 7.1s
178:
        learn: 10.0733305
                                  total: 1.54s
                                                   remaining: 7.05s
179:
        learn: 10.0616167
                                  total: 1.62s
                                                   remaining: 7.39s
180:
        learn: 10.0463151
                                  total: 1.62s
                                                   remaining: 7.35s
181:
        learn: 10.0388521
                                  total: 1.62s
                                                   remaining: 7.3s
182:
        learn: 10.0333260
                                  total: 1.63s
                                                   remaining: 7.26s
                                                   remaining: 7.22s
183:
        learn: 10.0282873
                                  total: 1.63s
184:
        learn: 10.0194590
                                  total: 1.63s
                                                   remaining: 7.17s
185:
        learn: 10.0142735
                                  total: 1.63s
                                                   remaining: 7.13s
        learn: 10.0098408
                                  total: 1.63s
186:
                                                   remaining: 7.1s
187:
        learn: 10.0050990
                                  total: 1.64s
                                                   remaining: 7.07s
        learn: 9.9978471
                                                   remaining: 7.02s
188:
                                  total: 1.64s
189:
        learn: 9.9920157
                                  total: 1.64s
                                                   remaining: 6.98s
        learn: 9.9825976
                                  total: 1.72s
190:
                                                   remaining: 7.28s
        learn: 9.9770793
191:
                                  total: 1.72s
                                                   remaining: 7.23s
192:
        learn: 9.9735788
                                  total: 1.72s
                                                   remaining: 7.19s
193:
        learn: 9.9689109
                                  total: 1.72s
                                                   remaining: 7.15s
194:
        learn: 9.9655909
                                  total: 1.72s
                                                   remaining: 7.11s
                                                   remaining: 7.07s
195:
        learn: 9.9635866
                                  total: 1.72s
196:
        learn: 9.9567815
                                  total: 1.72s
                                                   remaining: 7.03s
197:
        learn: 9.9518427
                                  total: 1.73s
                                                   remaining: 6.99s
198:
        learn: 9.9448348
                                  total: 1.73s
                                                   remaining: 6.95s
199:
        learn: 9.9376805
                                  total: 1.73s
                                                   remaining: 6.91s
200:
        learn: 9.9273246
                                  total: 1.73s
                                                   remaining: 6.88s
201:
        learn: 9.9228934
                                  total: 1.73s
                                                   remaining: 6.84s
        learn: 9.9127019
202:
                                  total: 1.81s
                                                   remaining: 7.13s
203:
        learn: 9.9060373
                                  total: 1.82s
                                                   remaining: 7.09s
204:
        learn: 9.8993031
                                  total: 1.82s
                                                   remaining: 7.05s
205:
        learn: 9.8864691
                                  total: 1.82s
                                                   remaining: 7.02s
206:
        learn: 9.8786472
                                  total: 1.82s
                                                   remaining: 6.98s
207:
        learn: 9.8604462
                                  total: 1.82s
                                                   remaining: 6.94s
208:
        learn: 9.8516628
                                  total: 1.82s
                                                   remaining: 6.91s
```

```
learn: 9.8394829
209:
                                 total: 1.83s
                                                   remaining: 6.87s
210:
        learn: 9.8217674
                                 total: 1.91s
                                                   remaining: 7.14s
        learn: 9.8102487
                                 total: 1.91s
211:
                                                   remaining: 7.1s
212:
        learn: 9.7969870
                                 total: 1.91s
                                                   remaining: 7.07s
213:
        learn: 9.7814310
                                 total: 1.91s
                                                   remaining: 7.03s
214:
        learn: 9.7768035
                                 total: 1.91s
                                                   remaining: 6.99s
215:
        learn: 9.7697950
                                 total: 1.92s
                                                   remaining: 6.95s
216:
        learn: 9.7601764
                                 total: 1.92s
                                                   remaining: 6.92s
217:
        learn: 9.7511851
                                 total: 1.92s
                                                   remaining: 6.88s
218:
        learn: 9.7442297
                                 total: 1.92s
                                                   remaining: 6.84s
        learn: 9.7349288
219:
                                 total: 1.92s
                                                   remaining: 6.81s
220:
        learn: 9.7325124
                                 total: 1.92s
                                                   remaining: 6.77s
221:
        learn: 9.7258257
                                 total: 2s
                                                   remaining: 7.03s
222:
        learn: 9.7166246
                                 total: 2.01s
                                                   remaining: 6.99s
223:
        learn: 9.7134487
                                 total: 2.01s
                                                   remaining: 6.96s
224:
        learn: 9.7068943
                                 total: 2.01s
                                                   remaining: 6.92s
                                                   remaining: 6.89s
225:
        learn: 9.6996135
                                 total: 2.01s
226:
        learn: 9.6919535
                                 total: 2.01s
                                                   remaining: 6.85s
227:
                                 total: 2.01s
        learn: 9.6802817
                                                   remaining: 6.82s
228:
        learn: 9.6698318
                                 total: 2.02s
                                                   remaining: 6.79s
229:
        learn: 9.6665761
                                 total: 2.02s
                                                   remaining: 6.75s
230:
        learn: 9.6521155
                                 total: 2.02s
                                                   remaining: 6.72s
231:
        learn: 9.6496613
                                 total: 2.02s
                                                   remaining: 6.69s
232:
        learn: 9.6449316
                                 total: 2.1s
                                                   remaining: 6.91s
233:
        learn: 9.6363742
                                 total: 2.1s
                                                   remaining: 6.88s
234:
        learn: 9.6230021
                                 total: 2.1s
                                                   remaining: 6.85s
235:
        learn: 9.6135216
                                 total: 2.1s
                                                   remaining: 6.81s
236:
        learn: 9.6011598
                                 total: 2.1s
                                                   remaining: 6.78s
237:
        learn: 9.5912763
                                 total: 2.11s
                                                   remaining: 6.74s
238:
        learn: 9.5894920
                                 total: 2.11s
                                                   remaining: 6.71s
239:
        learn: 9.5863982
                                 total: 2.11s
                                                   remaining: 6.68s
                                 total: 2.11s
240:
        learn: 9.5805833
                                                   remaining: 6.64s
241:
        learn: 9.5744345
                                 total: 2.11s
                                                   remaining: 6.61s
242:
        learn: 9.5627393
                                 total: 2.11s
                                                   remaining: 6.58s
243:
        learn: 9.5573861
                                 total: 2.2s
                                                   remaining: 6.81s
                                 total: 2.2s
244:
        learn: 9.5485672
                                                   remaining: 6.78s
245:
        learn: 9.5441167
                                 total: 2.2s
                                                   remaining: 6.74s
246:
        learn: 9.5371827
                                 total: 2.2s
                                                   remaining: 6.71s
247:
        learn: 9.5305356
                                 total: 2.2s
                                                   remaining: 6.68s
248:
        learn: 9.5261226
                                 total: 2.2s
                                                   remaining: 6.64s
249:
        learn: 9.5184526
                                                   remaining: 6.61s
                                 total: 2.2s
250:
        learn: 9.5097580
                                 total: 2.21s
                                                   remaining: 6.58s
251:
        learn: 9.4950893
                                 total: 2.21s
                                                   remaining: 6.55s
        learn: 9.4868000
252:
                                 total: 2.21s
                                                   remaining: 6.52s
253:
        learn: 9.4805724
                                 total: 2.29s
                                                   remaining: 6.73s
254:
        learn: 9.4745800
                                 total: 2.29s
                                                   remaining: 6.7s
255:
        learn: 9.4698283
                                 total: 2.29s
                                                   remaining: 6.67s
                                 total: 2.3s
                                                   remaining: 6.64s
256:
        learn: 9.4560299
257:
        learn: 9.4477827
                                 total: 2.3s
                                                   remaining: 6.61s
                                 total: 2.3s
258:
        learn: 9.4404021
                                                   remaining: 6.58s
259:
        learn: 9.4365719
                                 total: 2.3s
                                                   remaining: 6.55s
260:
        learn: 9.4269899
                                 total: 2.3s
                                                   remaining: 6.52s
261:
        learn: 9.4174782
                                                   remaining: 6.49s
                                 total: 2.3s
262:
        learn: 9.4099135
                                 total: 2.39s
                                                   remaining: 6.69s
263:
        learn: 9.3985674
                                 total: 2.39s
                                                   remaining: 6.66s
264:
        learn: 9.3954638
                                                   remaining: 6.63s
                                 total: 2.39s
265:
        learn: 9.3928084
                                 total: 2.39s
                                                   remaining: 6.6s
266:
        learn: 9.3873035
                                 total: 2.39s
                                                   remaining: 6.57s
267:
        learn: 9.3730985
                                 total: 2.39s
                                                   remaining: 6.54s
268:
        learn: 9.3643976
                                 total: 2.4s
                                                   remaining: 6.51s
269:
        learn: 9.3558140
                                 total: 2.4s
                                                   remaining: 6.48s
```

```
270:
        learn: 9.3475585
                                  total: 2.4s
                                                   remaining: 6.45s
271:
        learn: 9.3379984
                                  total: 2.4s
                                                   remaining: 6.42s
272:
        learn: 9.3331159
                                  total: 2.48s
                                                   remaining: 6.62s
273:
        learn: 9.3256719
                                  total: 2.49s
                                                   remaining: 6.59s
274:
        learn: 9.3189414
                                  total: 2.49s
                                                   remaining: 6.56s
275:
        learn: 9.3129870
                                  total: 2.49s
                                                   remaining: 6.53s
276:
        learn: 9.3043183
                                  total: 2.49s
                                                   remaining: 6.5s
277:
        learn: 9.2977505
                                  total: 2.49s
                                                   remaining: 6.47s
278:
        learn: 9.2860963
                                  total: 2.49s
                                                   remaining: 6.44s
279:
        learn: 9.2831894
                                  total: 2.49s
                                                   remaining: 6.41s
        learn: 9.2766246
280:
                                  total: 2.5s
                                                   remaining: 6.38s
281:
        learn: 9.2700345
                                                   remaining: 6.36s
                                  total: 2.5s
282:
        learn: 9.2673885
                                  total: 2.5s
                                                   remaining: 6.33s
283:
        learn: 9.2558048
                                  total: 2.58s
                                                   remaining: 6.5s
284:
        learn: 9.2525139
                                  total: 2.58s
                                                   remaining: 6.48s
285:
        learn: 9.2499965
                                  total: 2.58s
                                                   remaining: 6.45s
286:
        learn: 9.2409537
                                  total: 2.58s
                                                   remaining: 6.42s
287:
        learn: 9.2314500
                                  total: 2.58s
                                                   remaining: 6.39s
288:
        learn: 9.2248207
                                  total: 2.59s
                                                   remaining: 6.36s
289:
        learn: 9.2223874
                                  total: 2.59s
                                                   remaining: 6.33s
290:
        learn: 9.2186291
                                  total: 2.59s
                                                   remaining: 6.31s
291:
        learn: 9.2120228
                                  total: 2.59s
                                                   remaining: 6.28s
292:
        learn: 9.2092023
                                  total: 2.59s
                                                   remaining: 6.25s
        learn: 9.1987922
293:
                                  total: 2.59s
                                                   remaining: 6.22s
                                  total: 2.67s
294:
        learn: 9.1911555
                                                   remaining: 6.39s
295:
        learn: 9.1883307
                                  total: 2.68s
                                                   remaining: 6.37s
296:
        learn: 9.1767393
                                  total: 2.68s
                                                   remaining: 6.34s
                                                   remaining: 6.31s
297:
        learn: 9.1661483
                                  total: 2.68s
298:
        learn: 9.1580988
                                  total: 2.68s
                                                   remaining: 6.29s
299:
        learn: 9.1508945
                                  total: 2.68s
                                                   remaining: 6.26s
300:
        learn: 9.1395372
                                  total: 2.69s
                                                   remaining: 6.24s
                                  total: 2.69s
301:
        learn: 9.1311951
                                                   remaining: 6.21s
302:
        learn: 9.1292467
                                  total: 2.69s
                                                   remaining: 6.18s
303:
        learn: 9.1204156
                                  total: 2.69s
                                                   remaining: 6.16s
304:
        learn: 9.1104263
                                  total: 2.69s
                                                   remaining: 6.13s
                                  total: 2.69s
305:
        learn: 9.1029819
                                                   remaining: 6.1s
306:
        learn: 9.0944510
                                  total: 2.77s
                                                   remaining: 6.26s
307:
        learn: 9.0852166
                                  total: 2.77s
                                                   remaining: 6.23s
308:
        learn: 9.0779667
                                  total: 2.77s
                                                   remaining: 6.21s
309:
        learn: 9.0762172
                                  total: 2.78s
                                                   remaining: 6.18s
                                  total: 2.78s
310:
        learn: 9.0718793
                                                   remaining: 6.15s
311:
        learn: 9.0630789
                                  total: 2.78s
                                                   remaining: 6.13s
312:
        learn: 9.0480418
                                  total: 2.78s
                                                   remaining: 6.1s
        learn: 9.0407462
                                  total: 2.78s
313:
                                                   remaining: 6.08s
314:
        learn: 9.0383542
                                  total: 2.78s
                                                   remaining: 6.05s
315:
        learn: 9.0365506
                                  total: 2.78s
                                                   remaining: 6.02s
        learn: 9.0349102
                                  total: 2.78s
316:
                                                   remaining: 6s
                                                   remaining: 6.15s
317:
        learn: 9.0294231
                                  total: 2.87s
318:
        learn: 9.0264134
                                  total: 2.87s
                                                   remaining: 6.12s
319:
        learn: 9.0235703
                                  total: 2.87s
                                                   remaining: 6.1s
320:
        learn: 9.0196732
                                  total: 2.87s
                                                   remaining: 6.07s
321:
        learn: 9.0168068
                                  total: 2.87s
                                                   remaining: 6.05s
322:
        learn: 9.0081171
                                  total: 2.87s
                                                   remaining: 6.02s
323:
        learn: 8.9992974
                                  total: 2.87s
                                                   remaining: 6s
324:
        learn: 8.9895132
                                  total: 2.88s
                                                   remaining: 5.97s
325:
        learn: 8.9824966
                                  total: 2.88s
                                                   remaining: 5.95s
326:
        learn: 8.9805506
                                  total: 2.88s
                                                   remaining: 5.92s
327:
        learn: 8.9697894
                                  total: 2.88s
                                                   remaining: 5.9s
328:
        learn: 8.9621278
                                  total: 2.88s
                                                   remaining: 5.88s
329:
        learn: 8.9568438
                                  total: 2.88s
                                                   remaining: 5.85s
        learn: 8.9459821
330:
                                  total: 2.88s
                                                   remaining: 5.83s
```

```
learn: 8.9440062
331:
                                  total: 2.96s
                                                   remaining: 5.96s
332:
        learn: 8.9330227
                                  total: 2.96s
                                                   remaining: 5.94s
        learn: 8.9314068
                                  total: 2.96s
333:
                                                   remaining: 5.91s
334:
        learn: 8.9219675
                                  total: 2.97s
                                                   remaining: 5.89s
335:
        learn: 8.9192256
                                  total: 2.97s
                                                   remaining: 5.86s
        learn: 8.9154554
                                  total: 2.97s
336:
                                                   remaining: 5.84s
337:
        learn: 8.9136465
                                  total: 2.97s
                                                   remaining: 5.82s
338:
        learn: 8.9116313
                                  total: 2.97s
                                                   remaining: 5.79s
339:
        learn: 8.8998595
                                  total: 2.97s
                                                   remaining: 5.77s
340:
        learn: 8.8927754
                                  total: 2.97s
                                                   remaining: 5.75s
        learn: 8.8891687
341:
                                  total: 3.06s
                                                   remaining: 5.88s
342:
        learn: 8.8816724
                                                   remaining: 5.86s
                                  total: 3.06s
343:
        learn: 8.8706405
                                  total: 3.06s
                                                   remaining: 5.83s
344:
        learn: 8.8606230
                                  total: 3.06s
                                                   remaining: 5.81s
345:
        learn: 8.8507396
                                  total: 3.06s
                                                   remaining: 5.79s
346:
        learn: 8.8408277
                                  total: 3.06s
                                                   remaining: 5.76s
347:
        learn: 8.8385090
                                  total: 3.06s
                                                   remaining: 5.74s
348:
        learn: 8.8313972
                                  total: 3.06s
                                                   remaining: 5.72s
349:
        learn: 8.8183139
                                  total: 3.07s
                                                   remaining: 5.7s
350:
        learn: 8.8162903
                                  total: 3.07s
                                                   remaining: 5.67s
351:
        learn: 8.8110987
                                  total: 3.07s
                                                   remaining: 5.65s
352:
        learn: 8.8011386
                                  total: 3.07s
                                                   remaining: 5.63s
353:
        learn: 8.7902456
                                  total: 3.15s
                                                   remaining: 5.75s
354:
        learn: 8.7817922
                                  total: 3.15s
                                                   remaining: 5.73s
355:
        learn: 8.7804624
                                  total: 3.16s
                                                   remaining: 5.71s
356:
        learn: 8.7713169
                                  total: 3.16s
                                                   remaining: 5.69s
357:
        learn: 8.7621041
                                  total: 3.16s
                                                   remaining: 5.67s
358:
        learn: 8.7554348
                                  total: 3.16s
                                                   remaining: 5.64s
359:
        learn: 8.7446562
                                  total: 3.16s
                                                   remaining: 5.62s
        learn: 8.7364835
360:
                                  total: 3.16s
                                                   remaining: 5.6s
361:
        learn: 8.7264415
                                  total: 3.16s
                                                   remaining: 5.58s
                                  total: 3.17s
362:
        learn: 8.7168635
                                                   remaining: 5.55s
363:
        learn: 8.7089376
                                  total: 3.17s
                                                   remaining: 5.53s
364:
        learn: 8.6997880
                                  total: 3.25s
                                                   remaining: 5.65s
        learn: 8.6948727
365:
                                  total: 3.25s
                                                   remaining: 5.63s
                                  total: 3.25s
                                                   remaining: 5.61s
366:
        learn: 8.6916462
367:
        learn: 8.6825323
                                  total: 3.25s
                                                   remaining: 5.59s
368:
        learn: 8.6749328
                                  total: 3.25s
                                                   remaining: 5.56s
369:
        learn: 8.6725987
                                  total: 3.26s
                                                   remaining: 5.54s
370:
        learn: 8.6582556
                                  total: 3.26s
                                                   remaining: 5.52s
371:
        learn: 8.6516432
                                  total: 3.26s
                                                   remaining: 5.5s
372:
        learn: 8.6453772
                                  total: 3.27s
                                                   remaining: 5.49s
373:
        learn: 8.6421247
                                  total: 3.34s
                                                   remaining: 5.6s
        learn: 8.6380805
                                  total: 3.35s
374:
                                                   remaining: 5.58s
375:
        learn: 8.6355795
                                  total: 3.35s
                                                   remaining: 5.55s
376:
        learn: 8.6262529
                                  total: 3.35s
                                                   remaining: 5.53s
377:
        learn: 8.6199207
                                  total: 3.35s
                                                   remaining: 5.51s
                                                   remaining: 5.49s
378:
        learn: 8.6112015
                                  total: 3.35s
379:
        learn: 8.6001510
                                  total: 3.35s
                                                   remaining: 5.47s
380:
        learn: 8.5953489
                                  total: 3.35s
                                                   remaining: 5.45s
381:
        learn: 8.5931681
                                  total: 3.35s
                                                   remaining: 5.42s
382:
        learn: 8.5855102
                                  total: 3.35s
                                                   remaining: 5.4s
383:
        learn: 8.5764134
                                  total: 3.35s
                                                   remaining: 5.38s
384:
        learn: 8.5643105
                                  total: 3.36s
                                                   remaining: 5.36s
        learn: 8.5631275
385:
                                  total: 3.44s
                                                   remaining: 5.47s
386:
        learn: 8.5536968
                                  total: 3.44s
                                                   remaining: 5.45s
387:
        learn: 8.5420821
                                  total: 3.44s
                                                   remaining: 5.43s
388:
        learn: 8.5391433
                                  total: 3.44s
                                                   remaining: 5.41s
389:
        learn: 8.5317735
                                  total: 3.44s
                                                   remaining: 5.39s
390:
        learn: 8.5306830
                                  total: 3.44s
                                                   remaining: 5.37s
391:
        learn: 8.5163908
                                  total: 3.45s
                                                   remaining: 5.35s
```

```
392:
        learn: 8.5049964
                                  total: 3.45s
                                                   remaining: 5.33s
393:
        learn: 8.4930596
                                  total: 3.45s
                                                   remaining: 5.31s
        learn: 8.4870958
394:
                                  total: 3.45s
                                                   remaining: 5.29s
395:
        learn: 8.4804462
                                  total: 3.45s
                                                   remaining: 5.26s
396:
        learn: 8.4788105
                                  total: 3.53s
                                                   remaining: 5.37s
        learn: 8.4699578
397:
                                  total: 3.54s
                                                   remaining: 5.35s
398:
        learn: 8.4616737
                                  total: 3.54s
                                                   remaining: 5.33s
399:
        learn: 8.4549368
                                                   remaining: 5.31s
                                  total: 3.54s
400:
        learn: 8.4493618
                                  total: 3.54s
                                                   remaining: 5.29s
401:
        learn: 8.4469437
                                  total: 3.54s
                                                   remaining: 5.27s
402:
        learn: 8.4456056
                                  total: 3.54s
                                                   remaining: 5.25s
403:
        learn: 8.4370042
                                                   remaining: 5.23s
                                  total: 3.54s
404:
        learn: 8.4301576
                                  total: 3.54s
                                                   remaining: 5.21s
405:
        learn: 8.4224114
                                  total: 3.54s
                                                   remaining: 5.19s
406:
        learn: 8.4068444
                                  total: 3.55s
                                                   remaining: 5.17s
407:
        learn: 8.4055479
                                  total: 3.55s
                                                   remaining: 5.15s
        learn: 8.4002246
408:
                                  total: 3.63s
                                                   remaining: 5.25s
409:
        learn: 8.3927414
                                  total: 3.63s
                                                   remaining: 5.23s
                                  total: 3.63s
410:
        learn: 8.3867854
                                                   remaining: 5.21s
411:
        learn: 8.3760852
                                                   remaining: 5.19s
                                  total: 3.63s
        learn: 8.3675315
412:
                                  total: 3.63s
                                                   remaining: 5.17s
413:
        learn: 8.3594452
                                  total: 3.64s
                                                   remaining: 5.15s
414:
        learn: 8.3519088
                                  total: 3.64s
                                                   remaining: 5.13s
415:
        learn: 8.3443786
                                  total: 3.64s
                                                   remaining: 5.11s
416:
        learn: 8.3355874
                                  total: 3.64s
                                                   remaining: 5.09s
417:
        learn: 8.3293000
                                  total: 3.64s
                                                   remaining: 5.07s
418:
        learn: 8.3202163
                                  total: 3.73s
                                                   remaining: 5.17s
419:
        learn: 8.3156657
                                  total: 3.73s
                                                   remaining: 5.15s
420:
        learn: 8.3096959
                                  total: 3.73s
                                                   remaining: 5.13s
421:
        learn: 8.3084254
                                  total: 3.73s
                                                   remaining: 5.11s
422:
        learn: 8.3012303
                                  total: 3.73s
                                                   remaining: 5.09s
                                  total: 3.73s
423:
        learn: 8.2954884
                                                   remaining: 5.07s
424:
        learn: 8.2942795
                                  total: 3.73s
                                                   remaining: 5.05s
425:
        learn: 8.2847191
                                  total: 3.73s
                                                   remaining: 5.03s
426:
        learn: 8.2830510
                                  total: 3.74s
                                                   remaining: 5.01s
427:
                                  total: 3.74s
        learn: 8.2754751
                                                   remaining: 5s
428:
        learn: 8.2666130
                                  total: 3.74s
                                                   remaining: 4.98s
429:
        learn: 8.2564383
                                  total: 3.75s
                                                   remaining: 4.96s
430:
        learn: 8.2471320
                                  total: 3.82s
                                                   remaining: 5.05s
431:
        learn: 8.2409044
                                  total: 3.82s
                                                   remaining: 5.03s
432:
        learn: 8.2341968
                                                   remaining: 5.01s
                                  total: 3.82s
433:
        learn: 8.2262132
                                  total: 3.83s
                                                   remaining: 4.99s
434:
        learn: 8.2173701
                                  total: 3.83s
                                                   remaining: 4.97s
        learn: 8.2163597
435:
                                  total: 3.83s
                                                   remaining: 4.95s
436:
        learn: 8.2121804
                                                   remaining: 4.93s
                                  total: 3.83s
437:
        learn: 8.2059631
                                  total: 3.83s
                                                   remaining: 4.92s
438:
        learn: 8.2014687
                                  total: 3.83s
                                                   remaining: 4.9s
                                                   remaining: 4.88s
439:
        learn: 8.2002784
                                  total: 3.83s
440:
        learn: 8.1961957
                                  total: 3.92s
                                                   remaining: 4.96s
441:
        learn: 8.1861648
                                  total: 3.92s
                                                   remaining: 4.95s
442:
        learn: 8.1847581
                                  total: 3.92s
                                                   remaining: 4.93s
443:
        learn: 8.1763488
                                  total: 3.92s
                                                   remaining: 4.91s
444:
        learn: 8.1709763
                                  total: 3.92s
                                                   remaining: 4.89s
445:
        learn: 8.1633515
                                  total: 3.92s
                                                   remaining: 4.87s
446:
        learn: 8.1621726
                                  total: 3.92s
                                                   remaining: 4.86s
447:
        learn: 8.1533782
                                                   remaining: 4.84s
                                  total: 3.92s
448:
        learn: 8.1470955
                                  total: 3.93s
                                                   remaining: 4.82s
449:
        learn: 8.1458286
                                  total: 3.93s
                                                   remaining: 4.8s
450:
        learn: 8.1388954
                                  total: 3.93s
                                                   remaining: 4.78s
451:
        learn: 8.1314806
                                  total: 3.93s
                                                   remaining: 4.76s
        learn: 8.1244901
452:
                                  total: 4.01s
                                                   remaining: 4.85s
```

```
453:
        learn: 8.1182027
                                  total: 4.01s
                                                   remaining: 4.83s
454:
        learn: 8.1171079
                                  total: 4.01s
                                                   remaining: 4.81s
455:
        learn: 8.1161350
                                  total: 4.02s
                                                   remaining: 4.79s
456:
        learn: 8.1139109
                                  total: 4.02s
                                                   remaining: 4.77s
457:
        learn: 8.1076351
                                  total: 4.02s
                                                   remaining: 4.76s
        learn: 8.0964632
458:
                                  total: 4.02s
                                                   remaining: 4.74s
459:
        learn: 8.0845725
                                  total: 4.02s
                                                   remaining: 4.72s
460:
        learn: 8.0758314
                                  total: 4.02s
                                                   remaining: 4.7s
461:
        learn: 8.0744822
                                  total: 4.02s
                                                   remaining: 4.69s
462:
        learn: 8.0688749
                                  total: 4.03s
                                                   remaining: 4.67s
463:
        learn: 8.0619633
                                  total: 4.11s
                                                   remaining: 4.75s
464:
        learn: 8.0561013
                                                   remaining: 4.73s
                                  total: 4.11s
465:
        learn: 8.0534187
                                  total: 4.11s
                                                   remaining: 4.71s
        learn: 8.0480722
466:
                                  total: 4.11s
                                                   remaining: 4.69s
467:
        learn: 8.0461023
                                  total: 4.11s
                                                   remaining: 4.68s
468:
        learn: 8.0381233
                                  total: 4.12s
                                                   remaining: 4.66s
469:
        learn: 8.0293436
                                  total: 4.12s
                                                   remaining: 4.64s
470:
        learn: 8.0169877
                                  total: 4.12s
                                                   remaining: 4.62s
471:
        learn: 8.0097257
                                  total: 4.12s
                                                   remaining: 4.61s
472:
        learn: 8.0084849
                                  total: 4.12s
                                                   remaining: 4.59s
473:
        learn: 8.0038894
                                  total: 4.12s
                                                   remaining: 4.57s
                                  total: 4.12s
474:
        learn: 8.0020311
                                                   remaining: 4.55s
475:
        learn: 7.9948809
                                  total: 4.21s
                                                   remaining: 4.63s
476:
        learn: 7.9877680
                                  total: 4.21s
                                                   remaining: 4.61s
477:
        learn: 7.9825240
                                  total: 4.21s
                                                   remaining: 4.59s
478:
        learn: 7.9774512
                                  total: 4.21s
                                                   remaining: 4.58s
479:
        learn: 7.9659597
                                  total: 4.21s
                                                   remaining: 4.56s
                                                   remaining: 4.54s
480:
        learn: 7.9600753
                                  total: 4.21s
481:
        learn: 7.9552571
                                  total: 4.21s
                                                   remaining: 4.53s
482:
                                  total: 4.21s
        learn: 7.9543733
                                                   remaining: 4.51s
483:
        learn: 7.9504513
                                  total: 4.22s
                                                   remaining: 4.5s
        learn: 7.9445464
484:
                                  total: 4.22s
                                                   remaining: 4.49s
485:
        learn: 7.9433023
                                  total: 4.23s
                                                   remaining: 4.47s
486:
        learn: 7.9396612
                                  total: 4.3s
                                                   remaining: 4.53s
487:
        learn: 7.9360364
                                  total: 4.3s
                                                   remaining: 4.51s
488:
        learn: 7.9274989
                                  total: 4.3s
                                                   remaining: 4.49s
489:
        learn: 7.9206708
                                  total: 4.3s
                                                   remaining: 4.48s
490:
        learn: 7.9116084
                                  total: 4.3s
                                                   remaining: 4.46s
491:
        learn: 7.9069785
                                  total: 4.3s
                                                   remaining: 4.44s
492:
        learn: 7.9051612
                                  total: 4.3s
                                                   remaining: 4.43s
493:
        learn: 7.8957970
                                  total: 4.31s
                                                   remaining: 4.41s
494:
        learn: 7.8949407
                                  total: 4.31s
                                                   remaining: 4.39s
        learn: 7.8939499
495:
                                  total: 4.31s
                                                   remaining: 4.38s
496:
        learn: 7.8856919
                                  total: 4.31s
                                                   remaining: 4.36s
497:
        learn: 7.8742318
                                  total: 4.39s
                                                   remaining: 4.43s
498:
        learn: 7.8692964
                                  total: 4.39s
                                                   remaining: 4.41s
499:
        learn: 7.8591372
                                  total: 4.39s
                                                   remaining: 4.39s
                                                   remaining: 4.38s
500:
        learn: 7.8538958
                                  total: 4.4s
501:
        learn: 7.8411909
                                  total: 4.4s
                                                   remaining: 4.36s
502:
        learn: 7.8323275
                                  total: 4.4s
                                                   remaining: 4.35s
503:
        learn: 7.8226674
                                  total: 4.4s
                                                   remaining: 4.33s
504:
        learn: 7.8188750
                                  total: 4.4s
                                                   remaining: 4.31s
505:
        learn: 7.8057529
                                                   remaining: 4.3s
                                  total: 4.4s
506:
        learn: 7.8004233
                                  total: 4.41s
                                                   remaining: 4.28s
507:
        learn: 7.7901011
                                  total: 4.49s
                                                   remaining: 4.35s
508:
        learn: 7.7846453
                                  total: 4.49s
                                                   remaining: 4.33s
509:
        learn: 7.7791835
                                  total: 4.49s
                                                   remaining: 4.31s
510:
        learn: 7.7732614
                                  total: 4.49s
                                                   remaining: 4.3s
511:
        learn: 7.7666500
                                  total: 4.5s
                                                   remaining: 4.28s
512:
        learn: 7.7608434
                                  total: 4.5s
                                                   remaining: 4.27s
513:
        learn: 7.7531301
                                  total: 4.5s
                                                   remaining: 4.25s
```

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514:
        learn: 7.7455217
                                  total: 4.5s
                                                   remaining: 4.24s
515:
        learn: 7.7445360
                                  total: 4.5s
                                                   remaining: 4.22s
        learn: 7.7389208
516:
                                  total: 4.58s
                                                   remaining: 4.28s
517:
        learn: 7.7318801
                                  total: 4.58s
                                                   remaining: 4.27s
518:
        learn: 7.7307980
                                  total: 4.59s
                                                   remaining: 4.25s
        learn: 7.7246024
519:
                                  total: 4.59s
                                                   remaining: 4.23s
520:
        learn: 7.7236564
                                  total: 4.59s
                                                   remaining: 4.22s
521:
        learn: 7.7177940
                                  total: 4.59s
                                                   remaining: 4.2s
522:
        learn: 7.7071993
                                  total: 4.59s
                                                   remaining: 4.19s
523:
        learn: 7.7062612
                                  total: 4.59s
                                                   remaining: 4.17s
                                  total: 4.59s
524:
        learn: 7.7032652
                                                   remaining: 4.16s
525:
        learn: 7.6951745
                                  total: 4.59s
                                                   remaining: 4.14s
526:
        learn: 7.6942666
                                  total: 4.59s
                                                   remaining: 4.12s
527:
        learn: 7.6860724
                                  total: 4.6s
                                                   remaining: 4.11s
528:
        learn: 7.6811834
                                  total: 4.68s
                                                   remaining: 4.17s
529:
        learn: 7.6669943
                                  total: 4.68s
                                                   remaining: 4.15s
                                                   remaining: 4.13s
530:
        learn: 7.6661061
                                  total: 4.68s
531:
        learn: 7.6589224
                                  total: 4.68s
                                                   remaining: 4.12s
532:
        learn: 7.6558424
                                  total: 4.68s
                                                   remaining: 4.1s
533:
        learn: 7.6463251
                                  total: 4.68s
                                                   remaining: 4.09s
534:
        learn: 7.6409537
                                  total: 4.69s
                                                   remaining: 4.07s
535:
        learn: 7.6401768
                                  total: 4.69s
                                                   remaining: 4.06s
536:
        learn: 7.6350931
                                  total: 4.69s
                                                   remaining: 4.04s
537:
        learn: 7.6288644
                                  total: 4.69s
                                                   remaining: 4.03s
        learn: 7.6228982
538:
                                  total: 4.69s
                                                   remaining: 4.01s
539:
        learn: 7.6107036
                                  total: 4.77s
                                                   remaining: 4.07s
540:
        learn: 7.6098172
                                  total: 4.78s
                                                   remaining: 4.05s
541:
        learn: 7.5985030
                                  total: 4.78s
                                                   remaining: 4.04s
542:
        learn: 7.5899805
                                  total: 4.78s
                                                   remaining: 4.02s
543:
                                  total: 4.78s
        learn: 7.5891201
                                                   remaining: 4s
544:
        learn: 7.5880563
                                  total: 4.78s
                                                   remaining: 3.99s
        learn: 7.5872417
                                  total: 4.78s
545:
                                                   remaining: 3.98s
546:
        learn: 7.5829906
                                  total: 4.78s
                                                   remaining: 3.96s
547:
                                  total: 4.78s
                                                   remaining: 3.94s
        learn: 7.5737700
548:
        learn: 7.5642503
                                  total: 4.78s
                                                   remaining: 3.93s
                                  total: 4.79s
549:
        learn: 7.5586551
                                                   remaining: 3.92s
550:
        learn: 7.5538980
                                  total: 4.79s
                                                   remaining: 3.9s
551:
        learn: 7.5501255
                                  total: 4.87s
                                                   remaining: 3.95s
552:
        learn: 7.5447416
                                  total: 4.87s
                                                   remaining: 3.94s
553:
        learn: 7.5439521
                                  total: 4.87s
                                                   remaining: 3.92s
554:
        learn: 7.5332343
                                  total: 4.87s
                                                   remaining: 3.91s
555:
        learn: 7.5324169
                                  total: 4.88s
                                                   remaining: 3.89s
556:
        learn: 7.5315885
                                  total: 4.88s
                                                   remaining: 3.88s
        learn: 7.5249483
557:
                                  total: 4.88s
                                                   remaining: 3.86s
558:
        learn: 7.5198172
                                  total: 4.88s
                                                   remaining: 3.85s
559:
        learn: 7.5122410
                                  total: 4.89s
                                                   remaining: 3.84s
560:
        learn: 7.5076922
                                  total: 4.96s
                                                   remaining: 3.88s
                                                   remaining: 3.87s
561:
        learn: 7.5028825
                                  total: 4.97s
562:
        learn: 7.5007356
                                  total: 4.97s
                                                   remaining: 3.85s
563:
        learn: 7.4999644
                                  total: 4.97s
                                                   remaining: 3.84s
564:
        learn: 7.4926004
                                  total: 4.97s
                                                   remaining: 3.83s
565:
        learn: 7.4889846
                                  total: 4.97s
                                                   remaining: 3.81s
566:
        learn: 7.4840823
                                  total: 4.97s
                                                   remaining: 3.8s
567:
        learn: 7.4733939
                                  total: 4.97s
                                                   remaining: 3.78s
        learn: 7.4647642
568:
                                  total: 4.97s
                                                   remaining: 3.77s
569:
        learn: 7.4583541
                                  total: 4.97s
                                                   remaining: 3.75s
570:
        learn: 7.4575255
                                  total: 4.98s
                                                   remaining: 3.74s
571:
        learn: 7.4507047
                                  total: 5.06s
                                                   remaining: 3.79s
572:
        learn: 7.4478713
                                  total: 5.06s
                                                   remaining: 3.77s
573:
        learn: 7.4409897
                                  total: 5.06s
                                                   remaining: 3.76s
574:
        learn: 7.4345311
                                  total: 5.06s
                                                   remaining: 3.74s
```

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575:
        learn: 7.4270043
                                  total: 5.07s
                                                   remaining: 3.73s
576:
        learn: 7.4205169
                                  total: 5.07s
                                                   remaining: 3.71s
        learn: 7.4138987
577:
                                  total: 5.07s
                                                   remaining: 3.7s
578:
        learn: 7.4082871
                                  total: 5.07s
                                                   remaining: 3.69s
579:
        learn: 7.3996663
                                  total: 5.07s
                                                   remaining: 3.67s
        learn: 7.3952397
580:
                                  total: 5.07s
                                                   remaining: 3.66s
581:
        learn: 7.3887366
                                  total: 5.07s
                                                   remaining: 3.64s
582:
        learn: 7.3878555
                                                   remaining: 3.69s
                                  total: 5.16s
583:
        learn: 7.3844591
                                  total: 5.16s
                                                   remaining: 3.67s
584:
        learn: 7.3808869
                                  total: 5.16s
                                                   remaining: 3.66s
585:
        learn: 7.3740703
                                  total: 5.16s
                                                   remaining: 3.65s
586:
        learn: 7.3734979
                                                   remaining: 3.63s
                                  total: 5.16s
587:
        learn: 7.3728099
                                  total: 5.16s
                                                   remaining: 3.62s
        learn: 7.3647817
                                  total: 5.16s
588:
                                                   remaining: 3.6s
589:
        learn: 7.3621631
                                  total: 5.17s
                                                   remaining: 3.59s
590:
        learn: 7.3614416
                                  total: 5.17s
                                                   remaining: 3.58s
591:
        learn: 7.3607599
                                  total: 5.17s
                                                   remaining: 3.56s
592:
        learn: 7.3600643
                                  total: 5.17s
                                                   remaining: 3.55s
593:
        learn: 7.3540242
                                  total: 5.17s
                                                   remaining: 3.53s
594:
        learn: 7.3459675
                                                   remaining: 3.57s
                                  total: 5.25s
        learn: 7.3416995
                                  total: 5.25s
595:
                                                   remaining: 3.56s
        learn: 7.3388280
596:
                                  total: 5.25s
                                                   remaining: 3.55s
597:
        learn: 7.3381536
                                  total: 5.25s
                                                   remaining: 3.53s
598:
        learn: 7.3333241
                                  total: 5.26s
                                                   remaining: 3.52s
        learn: 7.3269808
599:
                                  total: 5.26s
                                                   remaining: 3.5s
600:
        learn: 7.3188363
                                  total: 5.26s
                                                   remaining: 3.49s
601:
        learn: 7.3125883
                                  total: 5.26s
                                                   remaining: 3.48s
602:
        learn: 7.3046971
                                  total: 5.26s
                                                   remaining: 3.46s
603:
        learn: 7.3004605
                                  total: 5.26s
                                                   remaining: 3.45s
604:
        learn: 7.2963295
                                  total: 5.34s
                                                   remaining: 3.49s
605:
        learn: 7.2908722
                                  total: 5.35s
                                                   remaining: 3.48s
        learn: 7.2861721
606:
                                  total: 5.35s
                                                   remaining: 3.46s
        learn: 7.2803811
                                  total: 5.35s
607:
                                                   remaining: 3.45s
608:
        learn: 7.2700855
                                  total: 5.35s
                                                   remaining: 3.44s
        learn: 7.2653747
609:
                                  total: 5.35s
                                                   remaining: 3.42s
                                                   remaining: 3.41s
610:
        learn: 7.2529813
                                  total: 5.35s
611:
        learn: 7.2455041
                                  total: 5.35s
                                                   remaining: 3.39s
612:
        learn: 7.2444473
                                  total: 5.36s
                                                   remaining: 3.38s
613:
        learn: 7.2389527
                                  total: 5.36s
                                                   remaining: 3.37s
614:
        learn: 7.2363797
                                  total: 5.36s
                                                   remaining: 3.35s
615:
        learn: 7.2309078
                                                   remaining: 3.34s
                                  total: 5.37s
        learn: 7.2237713
616:
                                  total: 5.44s
                                                   remaining: 3.38s
        learn: 7.2184412
                                  total: 5.44s
617:
                                                   remaining: 3.36s
618:
        learn: 7.2175086
                                  total: 5.44s
                                                   remaining: 3.35s
619:
        learn: 7.2128036
                                                   remaining: 3.34s
                                  total: 5.44s
620:
        learn: 7.2060402
                                  total: 5.45s
                                                   remaining: 3.32s
621:
        learn: 7.2014979
                                  total: 5.45s
                                                   remaining: 3.31s
622:
        learn: 7.2008556
                                  total: 5.45s
                                                   remaining: 3.3s
623:
        learn: 7.1968127
                                  total: 5.45s
                                                   remaining: 3.28s
624:
        learn: 7.1906643
                                  total: 5.45s
                                                   remaining: 3.27s
625:
        learn: 7.1825535
                                  total: 5.45s
                                                   remaining: 3.26s
626:
        learn: 7.1752638
                                  total: 5.54s
                                                   remaining: 3.29s
627:
        learn: 7.1657005
                                  total: 5.54s
                                                   remaining: 3.28s
628:
        learn: 7.1651920
                                  total: 5.54s
                                                   remaining: 3.27s
        learn: 7.1610999
629:
                                  total: 5.54s
                                                   remaining: 3.25s
630:
        learn: 7.1557755
                                                   remaining: 3.24s
                                  total: 5.54s
631:
        learn: 7.1468851
                                  total: 5.54s
                                                   remaining: 3.23s
632:
        learn: 7.1366619
                                  total: 5.54s
                                                   remaining: 3.21s
633:
        learn: 7.1272745
                                  total: 5.54s
                                                   remaining: 3.2s
634:
        learn: 7.1214612
                                  total: 5.54s
                                                   remaining: 3.19s
        learn: 7.1146383
635:
                                  total: 5.55s
                                                   remaining: 3.17s
```

```
learn: 7.1106642
636:
                                  total: 5.55s
                                                   remaining: 3.16s
637:
        learn: 7.1040293
                                  total: 5.63s
                                                   remaining: 3.2s
        learn: 7.1001920
638:
                                  total: 5.63s
                                                   remaining: 3.18s
639:
        learn: 7.0966290
                                  total: 5.63s
                                                   remaining: 3.17s
640:
        learn: 7.0911212
                                  total: 5.64s
                                                   remaining: 3.16s
        learn: 7.0836853
641:
                                  total: 5.64s
                                                   remaining: 3.14s
642:
        learn: 7.0830040
                                  total: 5.64s
                                                   remaining: 3.13s
643:
        learn: 7.0781239
                                                   remaining: 3.12s
                                  total: 5.64s
644:
        learn: 7.0736324
                                  total: 5.64s
                                                   remaining: 3.1s
645:
        learn: 7.0646980
                                  total: 5.64s
                                                   remaining: 3.09s
646:
        learn: 7.0615179
                                  total: 5.64s
                                                   remaining: 3.08s
647:
        learn: 7.0549645
                                                   remaining: 3.07s
                                  total: 5.64s
648:
        learn: 7.0543138
                                  total: 5.73s
                                                   remaining: 3.1s
        learn: 7.0504443
                                  total: 5.73s
649:
                                                   remaining: 3.08s
650:
        learn: 7.0487874
                                  total: 5.73s
                                                   remaining: 3.07s
651:
        learn: 7.0451602
                                  total: 5.73s
                                                   remaining: 3.06s
652:
        learn: 7.0384533
                                  total: 5.73s
                                                   remaining: 3.04s
653:
        learn: 7.0291954
                                  total: 5.73s
                                                   remaining: 3.03s
654:
        learn: 7.0184902
                                  total: 5.73s
                                                   remaining: 3.02s
655:
        learn: 7.0172451
                                  total: 5.73s
                                                   remaining: 3.01s
        learn: 7.0125313
                                  total: 5.74s
656:
                                                   remaining: 2.99s
        learn: 7.0084064
657:
                                  total: 5.74s
                                                   remaining: 2.98s
658:
        learn: 6.9997163
                                  total: 5.74s
                                                   remaining: 2.97s
659:
        learn: 6.9948796
                                  total: 5.82s
                                                   remaining: 3s
                                                   remaining: 2.99s
660:
        learn: 6.9942452
                                  total: 5.82s
661:
        learn: 6.9864674
                                  total: 5.82s
                                                   remaining: 2.97s
662:
        learn: 6.9810023
                                  total: 5.83s
                                                   remaining: 2.96s
663:
        learn: 6.9761008
                                  total: 5.83s
                                                   remaining: 2.95s
664:
        learn: 6.9715968
                                  total: 5.83s
                                                   remaining: 2.94s
        learn: 6.9634141
665:
                                  total: 5.83s
                                                   remaining: 2.92s
666:
        learn: 6.9627701
                                  total: 5.83s
                                                   remaining: 2.91s
667:
        learn: 6.9563094
                                  total: 5.83s
                                                   remaining: 2.9s
668:
        learn: 6.9517282
                                  total: 5.83s
                                                   remaining: 2.88s
669:
        learn: 6.9474411
                                  total: 5.92s
                                                   remaining: 2.91s
        learn: 6.9381374
670:
                                  total: 5.92s
                                                   remaining: 2.9s
                                                   remaining: 2.89s
671:
        learn: 6.9321524
                                  total: 5.92s
672:
        learn: 6.9251289
                                  total: 5.92s
                                                   remaining: 2.88s
673:
        learn: 6.9217285
                                  total: 5.92s
                                                   remaining: 2.86s
674:
        learn: 6.9150434
                                  total: 5.92s
                                                   remaining: 2.85s
675:
        learn: 6.9075130
                                  total: 5.92s
                                                   remaining: 2.84s
        learn: 6.9069617
                                  total: 5.92s
                                                   remaining: 2.83s
676:
        learn: 6.9009400
677:
                                  total: 5.93s
                                                   remaining: 2.81s
678:
        learn: 6.8922133
                                  total: 5.93s
                                                   remaining: 2.8s
679:
        learn: 6.8890060
                                  total: 5.93s
                                                   remaining: 2.79s
        learn: 6.8884046
                                                   remaining: 2.78s
680:
                                  total: 5.93s
681:
        learn: 6.8823312
                                  total: 6.01s
                                                   remaining: 2.8s
        learn: 6.8756927
682:
                                  total: 6.01s
                                                   remaining: 2.79s
                                                   remaining: 2.78s
683:
        learn: 6.8691008
                                  total: 6.01s
684:
        learn: 6.8645742
                                  total: 6.02s
                                                   remaining: 2.77s
685:
        learn: 6.8598508
                                  total: 6.02s
                                                   remaining: 2.75s
686:
        learn: 6.8592915
                                  total: 6.02s
                                                   remaining: 2.74s
687:
        learn: 6.8536412
                                  total: 6.02s
                                                   remaining: 2.73s
688:
        learn: 6.8474723
                                  total: 6.02s
                                                   remaining: 2.72s
689:
        learn: 6.8432800
                                  total: 6.02s
                                                   remaining: 2.71s
690:
        learn: 6.8387141
                                  total: 6.03s
                                                   remaining: 2.69s
691:
        learn: 6.8346636
                                                   remaining: 2.72s
                                  total: 6.11s
692:
        learn: 6.8252712
                                  total: 6.11s
                                                   remaining: 2.71s
693:
        learn: 6.8246829
                                  total: 6.11s
                                                   remaining: 2.69s
                                                   remaining: 2.68s
694:
        learn: 6.8198449
                                  total: 6.11s
695:
        learn: 6.8127329
                                  total: 6.11s
                                                   remaining: 2.67s
696:
        learn: 6.8054040
                                  total: 6.11s
                                                   remaining: 2.66s
```

```
697:
        learn: 6.8025449
                                  total: 6.12s
                                                   remaining: 2.65s
698:
        learn: 6.7993004
                                  total: 6.12s
                                                   remaining: 2.63s
        learn: 6.7956418
699:
                                  total: 6.12s
                                                   remaining: 2.62s
700:
        learn: 6.7925635
                                  total: 6.12s
                                                   remaining: 2.61s
701:
        learn: 6.7898923
                                  total: 6.2s
                                                   remaining: 2.63s
        learn: 6.7864236
702:
                                  total: 6.21s
                                                   remaining: 2.62s
703:
        learn: 6.7809866
                                  total: 6.21s
                                                   remaining: 2.61s
704:
        learn: 6.7770671
                                  total: 6.21s
                                                   remaining: 2.6s
705:
        learn: 6.7717364
                                  total: 6.21s
                                                   remaining: 2.58s
706:
        learn: 6.7671655
                                  total: 6.21s
                                                   remaining: 2.57s
        learn: 6.7666320
707:
                                  total: 6.21s
                                                   remaining: 2.56s
708:
        learn: 6.7661913
                                  total: 6.21s
                                                   remaining: 2.55s
709:
        learn: 6.7656890
                                  total: 6.21s
                                                   remaining: 2.54s
710:
        learn: 6.7596381
                                  total: 6.22s
                                                   remaining: 2.53s
711:
        learn: 6.7536142
                                  total: 6.29s
                                                   remaining: 2.54s
712:
        learn: 6.7494547
                                  total: 6.29s
                                                   remaining: 2.53s
713:
        learn: 6.7488694
                                  total: 6.29s
                                                   remaining: 2.52s
714:
        learn: 6.7483874
                                  total: 6.3s
                                                   remaining: 2.51s
715:
        learn: 6.7478798
                                  total: 6.3s
                                                   remaining: 2.5s
716:
        learn: 6.7474461
                                  total: 6.3s
                                                   remaining: 2.49s
717:
        learn: 6.7432122
                                  total: 6.3s
                                                   remaining: 2.47s
718:
        learn: 6.7377519
                                  total: 6.3s
                                                   remaining: 2.46s
719:
        learn: 6.7372968
                                  total: 6.3s
                                                   remaining: 2.45s
720:
        learn: 6.7321517
                                  total: 6.3s
                                                   remaining: 2.44s
721:
                                                   remaining: 2.43s
        learn: 6.7270502
                                  total: 6.3s
722:
        learn: 6.7236160
                                  total: 6.3s
                                                   remaining: 2.42s
723:
        learn: 6.7183000
                                  total: 6.39s
                                                   remaining: 2.44s
724:
        learn: 6.7142556
                                  total: 6.39s
                                                   remaining: 2.42s
725:
        learn: 6.7110614
                                  total: 6.39s
                                                   remaining: 2.41s
726:
        learn: 6.7106680
                                  total: 6.39s
                                                   remaining: 2.4s
727:
        learn: 6.7067980
                                  total: 6.39s
                                                   remaining: 2.39s
728:
        learn: 6.7035350
                                  total: 6.39s
                                                   remaining: 2.38s
                                                   remaining: 2.37s
729:
        learn: 6.6981227
                                  total: 6.39s
730:
        learn: 6.6934922
                                  total: 6.4s
                                                   remaining: 2.35s
731:
        learn: 6.6901372
                                  total: 6.4s
                                                   remaining: 2.34s
                                                   remaining: 2.36s
732:
        learn: 6.6897263
                                  total: 6.48s
733:
        learn: 6.6845373
                                  total: 6.49s
                                                   remaining: 2.35s
734:
        learn: 6.6778918
                                  total: 6.49s
                                                   remaining: 2.34s
735:
        learn: 6.6698960
                                  total: 6.49s
                                                   remaining: 2.33s
736:
        learn: 6.6695129
                                  total: 6.49s
                                                   remaining: 2.31s
737:
        learn: 6.6657621
                                  total: 6.49s
                                                   remaining: 2.3s
738:
        learn: 6.6615098
                                  total: 6.49s
                                                   remaining: 2.29s
        learn: 6.6547954
739:
                                  total: 6.49s
                                                   remaining: 2.28s
740:
        learn: 6.6495178
                                  total: 6.49s
                                                   remaining: 2.27s
741:
        learn: 6.6436809
                                                   remaining: 2.26s
                                  total: 6.49s
742:
        learn: 6.6402684
                                  total: 6.5s
                                                   remaining: 2.25s
743:
        learn: 6.6343052
                                  total: 6.5s
                                                   remaining: 2.23s
                                                   remaining: 2.25s
744:
        learn: 6.6294933
                                  total: 6.58s
745:
        learn: 6.6230192
                                  total: 6.58s
                                                   remaining: 2.24s
        learn: 6.6136154
746:
                                  total: 6.59s
                                                   remaining: 2.23s
747:
        learn: 6.6080326
                                  total: 6.59s
                                                   remaining: 2.22s
748:
        learn: 6.6027558
                                  total: 6.59s
                                                   remaining: 2.21s
749:
        learn: 6.5993538
                                  total: 6.59s
                                                   remaining: 2.2s
750:
        learn: 6.5936371
                                  total: 6.59s
                                                   remaining: 2.19s
751:
        learn: 6.5916929
                                  total: 6.59s
                                                   remaining: 2.17s
752:
        learn: 6.5888491
                                                   remaining: 2.16s
                                  total: 6.6s
753:
        learn: 6.5821967
                                  total: 6.6s
                                                   remaining: 2.15s
754:
        learn: 6.5817459
                                  total: 6.67s
                                                   remaining: 2.17s
755:
        learn: 6.5812437
                                  total: 6.67s
                                                   remaining: 2.15s
756:
        learn: 6.5750728
                                  total: 6.67s
                                                   remaining: 2.14s
        learn: 6.5703589
757:
                                  total: 6.68s
                                                   remaining: 2.13s
```

```
learn: 6.5683648
758:
                                  total: 6.68s
                                                   remaining: 2.12s
759:
        learn: 6.5639936
                                  total: 6.68s
                                                   remaining: 2.11s
760:
        learn: 6.5587060
                                  total: 6.68s
                                                   remaining: 2.1s
761:
        learn: 6.5534448
                                  total: 6.68s
                                                   remaining: 2.09s
762:
        learn: 6.5472303
                                  total: 6.68s
                                                   remaining: 2.08s
                                  total: 6.68s
        learn: 6.5410800
763:
                                                   remaining: 2.06s
764:
        learn: 6.5371825
                                  total: 6.68s
                                                   remaining: 2.05s
765:
        learn: 6.5325383
                                  total: 6.76s
                                                   remaining: 2.07s
766:
        learn: 6.5275655
                                  total: 6.77s
                                                   remaining: 2.06s
767:
        learn: 6.5179478
                                  total: 6.77s
                                                   remaining: 2.04s
768:
        learn: 6.5128784
                                  total: 6.77s
                                                   remaining: 2.03s
769:
        learn: 6.5089611
                                                   remaining: 2.02s
                                  total: 6.77s
770:
        learn: 6.5056605
                                  total: 6.77s
                                                   remaining: 2.01s
771:
        learn: 6.5020036
                                  total: 6.78s
                                                   remaining: 2s
772:
        learn: 6.4986696
                                  total: 6.78s
                                                   remaining: 1.99s
773:
        learn: 6.4889688
                                  total: 6.78s
                                                   remaining: 1.98s
774:
        learn: 6.4841875
                                  total: 6.78s
                                                   remaining: 1.97s
775:
        learn: 6.4837723
                                  total: 6.78s
                                                   remaining: 1.96s
776:
        learn: 6.4787764
                                  total: 6.78s
                                                   remaining: 1.95s
777:
        learn: 6.4758437
                                  total: 6.86s
                                                   remaining: 1.96s
778:
        learn: 6.4695864
                                  total: 6.86s
                                                   remaining: 1.95s
779:
        learn: 6.4638408
                                  total: 6.86s
                                                   remaining: 1.94s
780:
        learn: 6.4581409
                                  total: 6.86s
                                                   remaining: 1.92s
781:
        learn: 6.4539941
                                  total: 6.86s
                                                   remaining: 1.91s
782:
        learn: 6.4512080
                                  total: 6.87s
                                                   remaining: 1.9s
783:
        learn: 6.4507406
                                  total: 6.87s
                                                   remaining: 1.89s
784:
        learn: 6.4456913
                                  total: 6.87s
                                                   remaining: 1.88s
785:
        learn: 6.4414122
                                  total: 6.87s
                                                   remaining: 1.87s
786:
        learn: 6.4396522
                                  total: 6.87s
                                                   remaining: 1.86s
787:
        learn: 6.4336699
                                  total: 6.95s
                                                   remaining: 1.87s
788:
        learn: 6.4296704
                                  total: 6.96s
                                                   remaining: 1.86s
789:
        learn: 6.4231124
                                  total: 6.96s
                                                   remaining: 1.85s
790:
        learn: 6.4183726
                                  total: 6.96s
                                                   remaining: 1.84s
791:
        learn: 6.4147194
                                  total: 6.96s
                                                   remaining: 1.83s
792:
        learn: 6.4091734
                                  total: 6.96s
                                                   remaining: 1.82s
793:
        learn: 6.4065229
                                  total: 6.96s
                                                   remaining: 1.81s
794:
        learn: 6.4030947
                                  total: 6.96s
                                                   remaining: 1.79s
795:
        learn: 6.3978727
                                  total: 6.96s
                                                   remaining: 1.78s
796:
        learn: 6.3952565
                                  total: 6.96s
                                                   remaining: 1.77s
797:
        learn: 6.3934359
                                  total: 6.96s
                                                   remaining: 1.76s
798:
        learn: 6.3860951
                                                   remaining: 1.77s
                                  total: 7.05s
799:
        learn: 6.3771939
                                  total: 7.05s
                                                   remaining: 1.76s
        learn: 6.3722231
                                  total: 7.05s
800:
                                                   remaining: 1.75s
        learn: 6.3678524
801:
                                  total: 7.05s
                                                   remaining: 1.74s
802:
        learn: 6.3649329
                                                   remaining: 1.73s
                                  total: 7.06s
803:
        learn: 6.3598058
                                  total: 7.06s
                                                   remaining: 1.72s
804:
        learn: 6.3544548
                                  total: 7.06s
                                                   remaining: 1.71s
                                                   remaining: 1.7s
805:
        learn: 6.3499948
                                  total: 7.06s
806:
        learn: 6.3437306
                                  total: 7.06s
                                                   remaining: 1.69s
807:
        learn: 6.3433121
                                  total: 7.06s
                                                   remaining: 1.68s
808:
        learn: 6.3376008
                                  total: 7.06s
                                                   remaining: 1.67s
809:
        learn: 6.3335777
                                  total: 7.14s
                                                   remaining: 1.68s
810:
        learn: 6.3307202
                                  total: 7.15s
                                                   remaining: 1.67s
811:
        learn: 6.3252005
                                  total: 7.15s
                                                   remaining: 1.65s
812:
        learn: 6.3197462
                                  total: 7.15s
                                                   remaining: 1.64s
813:
        learn: 6.3162602
                                                   remaining: 1.63s
                                  total: 7.15s
814:
        learn: 6.3159449
                                  total: 7.15s
                                                   remaining: 1.62s
815:
        learn: 6.3106145
                                  total: 7.15s
                                                   remaining: 1.61s
816:
        learn: 6.3102181
                                  total: 7.15s
                                                   remaining: 1.6s
817:
        learn: 6.3084672
                                  total: 7.15s
                                                   remaining: 1.59s
        learn: 6.3074085
818:
                                  total: 7.16s
                                                   remaining: 1.58s
```

```
819:
        learn: 6.3031136
                                  total: 7.16s
                                                   remaining: 1.57s
820:
        learn: 6.2955883
                                  total: 7.24s
                                                   remaining: 1.58s
821:
                                  total: 7.24s
        learn: 6.2925984
                                                   remaining: 1.57s
822:
        learn: 6.2851372
                                  total: 7.24s
                                                   remaining: 1.56s
823:
        learn: 6.2847466
                                  total: 7.24s
                                                   remaining: 1.55s
824:
        learn: 6.2804701
                                  total: 7.25s
                                                   remaining: 1.54s
825:
        learn: 6.2752627
                                  total: 7.25s
                                                   remaining: 1.53s
826:
        learn: 6.2687749
                                  total: 7.25s
                                                   remaining: 1.52s
827:
        learn: 6.2641244
                                  total: 7.25s
                                                   remaining: 1.5s
828:
        learn: 6.2579675
                                  total: 7.25s
                                                   remaining: 1.5s
829:
        learn: 6.2530897
                                  total: 7.25s
                                                   remaining: 1.49s
830:
        learn: 6.2505120
                                                   remaining: 1.48s
                                  total: 7.25s
831:
        learn: 6.2501295
                                  total: 7.34s
                                                   remaining: 1.48s
        learn: 6.2433770
                                  total: 7.34s
832:
                                                   remaining: 1.47s
833:
        learn: 6.2406991
                                  total: 7.34s
                                                   remaining: 1.46s
834:
        learn: 6.2347989
                                  total: 7.34s
                                                   remaining: 1.45s
        learn: 6.2319919
835:
                                  total: 7.34s
                                                   remaining: 1.44s
836:
        learn: 6.2283904
                                  total: 7.34s
                                                   remaining: 1.43s
837:
        learn: 6.2246875
                                  total: 7.34s
                                                   remaining: 1.42s
838:
        learn: 6.2201257
                                  total: 7.34s
                                                   remaining: 1.41s
839:
        learn: 6.2161194
                                  total: 7.35s
                                                   remaining: 1.4s
840:
        learn: 6.2132353
                                  total: 7.35s
                                                   remaining: 1.39s
841:
        learn: 6.2082356
                                  total: 7.35s
                                                   remaining: 1.38s
842:
        learn: 6.2042502
                                  total: 7.43s
                                                   remaining: 1.38s
                                  total: 7.43s
843:
        learn: 6.2016750
                                                   remaining: 1.37s
844:
        learn: 6.1978542
                                  total: 7.43s
                                                   remaining: 1.36s
845:
        learn: 6.1962172
                                  total: 7.44s
                                                   remaining: 1.35s
846:
        learn: 6.1926171
                                  total: 7.44s
                                                   remaining: 1.34s
                                  total: 7.44s
847:
        learn: 6.1922525
                                                   remaining: 1.33s
848:
        learn: 6.1840851
                                  total: 7.44s
                                                   remaining: 1.32s
849:
        learn: 6.1749585
                                  total: 7.44s
                                                   remaining: 1.31s
850:
        learn: 6.1697397
                                  total: 7.44s
                                                   remaining: 1.3s
851:
        learn: 6.1660961
                                  total: 7.44s
                                                   remaining: 1.29s
852:
        learn: 6.1638187
                                  total: 7.53s
                                                   remaining: 1.3s
853:
        learn: 6.1585723
                                  total: 7.53s
                                                   remaining: 1.29s
                                  total: 7.53s
854:
        learn: 6.1540487
                                                   remaining: 1.28s
855:
        learn: 6.1487508
                                  total: 7.53s
                                                   remaining: 1.27s
856:
        learn: 6.1432124
                                  total: 7.53s
                                                   remaining: 1.26s
857:
        learn: 6.1390027
                                  total: 7.53s
                                                   remaining: 1.25s
858:
        learn: 6.1328385
                                  total: 7.54s
                                                   remaining: 1.24s
859:
        learn: 6.1270590
                                  total: 7.54s
                                                   remaining: 1.23s
        learn: 6.1188492
860:
                                  total: 7.54s
                                                   remaining: 1.22s
                                  total: 7.54s
861:
        learn: 6.1147730
                                                   remaining: 1.21s
862:
        learn: 6.1144750
                                  total: 7.54s
                                                   remaining: 1.2s
        learn: 6.1118778
                                                   remaining: 1.2s
863:
                                  total: 7.62s
864:
        learn: 6.1067009
                                  total: 7.63s
                                                   remaining: 1.19s
865:
        learn: 6.0979768
                                  total: 7.63s
                                                   remaining: 1.18s
                                                   remaining: 1.17s
866:
        learn: 6.0976891
                                  total: 7.63s
867:
        learn: 6.0957891
                                  total: 7.63s
                                                   remaining: 1.16s
        learn: 6.0890428
868:
                                  total: 7.63s
                                                   remaining: 1.15s
869:
        learn: 6.0839628
                                  total: 7.63s
                                                   remaining: 1.14s
870:
        learn: 6.0803555
                                  total: 7.63s
                                                   remaining: 1.13s
871:
        learn: 6.0729315
                                  total: 7.63s
                                                   remaining: 1.12s
        learn: 6.0726396
872:
                                  total: 7.63s
                                                   remaining: 1.11s
873:
        learn: 6.0690786
                                  total: 7.63s
                                                   remaining: 1.1s
874:
        learn: 6.0624184
                                                   remaining: 1.09s
                                  total: 7.64s
875:
        learn: 6.0554417
                                  total: 7.72s
                                                   remaining: 1.09s
876:
        learn: 6.0515144
                                  total: 7.72s
                                                   remaining: 1.08s
877:
        learn: 6.0479359
                                  total: 7.72s
                                                   remaining: 1.07s
878:
        learn: 6.0441706
                                  total: 7.72s
                                                   remaining: 1.06s
        learn: 6.0438883
879:
                                  total: 7.73s
                                                   remaining: 1.05s
```

```
880:
        learn: 6.0390893
                                  total: 7.73s
                                                   remaining: 1.04s
881:
        learn: 6.0346400
                                  total: 7.73s
                                                   remaining: 1.03s
                                  total: 7.73s
882:
        learn: 6.0297794
                                                   remaining: 1.02s
883:
        learn: 6.0268531
                                  total: 7.73s
                                                   remaining: 1.01s
884:
        learn: 6.0207973
                                  total: 7.73s
                                                   remaining: 1s
                                  total: 7.73s
885:
        learn: 6.0145681
                                                   remaining: 995ms
886:
        learn: 6.0095890
                                  total: 7.82s
                                                   remaining: 996ms
887:
        learn: 6.0061098
                                  total: 7.82s
                                                   remaining: 986ms
888:
        learn: 6.0027271
                                  total: 7.82s
                                                   remaining: 976ms
        learn: 6.0024848
                                  total: 7.82s
889:
                                                   remaining: 966ms
                                  total: 7.82s
890:
        learn: 5.9994216
                                                   remaining: 957ms
891:
        learn: 5.9960943
                                                   remaining: 947ms
                                  total: 7.82s
892:
        learn: 5.9910331
                                  total: 7.82s
                                                   remaining: 937ms
                                  total: 7.82s
893:
        learn: 5.9864680
                                                   remaining: 928ms
894:
        learn: 5.9851886
                                  total: 7.82s
                                                   remaining: 918ms
895:
        learn: 5.9825440
                                  total: 7.83s
                                                   remaining: 908ms
                                                   remaining: 899ms
896.
        learn: 5.9774430
                                  total: 7.83s
897:
        learn: 5.9698976
                                  total: 7.91s
                                                   remaining: 899ms
898:
        learn: 5.9654303
                                  total: 7.91s
                                                   remaining: 889ms
899:
        learn: 5.9608606
                                  total: 7.91s
                                                   remaining: 879ms
        learn: 5.9569340
                                  total: 7.91s
900:
                                                   remaining: 870ms
901:
        learn: 5.9544047
                                  total: 7.92s
                                                   remaining: 860ms
902:
        learn: 5.9489415
                                  total: 7.92s
                                                   remaining: 850ms
903:
        learn: 5.9451513
                                  total: 7.92s
                                                   remaining: 841ms
                                  total: 7.92s
904:
        learn: 5.9417570
                                                   remaining: 831ms
905:
        learn: 5.9414916
                                  total: 7.92s
                                                   remaining: 822ms
906:
        learn: 5.9350090
                                  total: 7.92s
                                                   remaining: 812ms
907:
        learn: 5.9319165
                                  total: 7.93s
                                                   remaining: 803ms
908:
        learn: 5.9267406
                                  total: 8.01s
                                                   remaining: 802ms
909:
        learn: 5.9188835
                                  total: 8.01s
                                                   remaining: 792ms
910:
        learn: 5.9140620
                                  total: 8.01s
                                                   remaining: 782ms
911:
        learn: 5.9082336
                                  total: 8.01s
                                                   remaining: 773ms
                                                   remaining: 763ms
912:
        learn: 5.9006266
                                  total: 8.01s
913:
                                                   remaining: 754ms
        learn: 5.9003071
                                  total: 8.01s
        learn: 5.8964166
914:
                                  total: 8.01s
                                                   remaining: 744ms
915:
        learn: 5.8885492
                                  total: 8.01s
                                                   remaining: 735ms
916:
        learn: 5.8849293
                                  total: 8.02s
                                                   remaining: 726ms
917:
        learn: 5.8783786
                                  total: 8.02s
                                                   remaining: 716ms
918:
        learn: 5.8718748
                                  total: 8.02s
                                                   remaining: 707ms
919:
        learn: 5.8671270
                                  total: 8.1s
                                                   remaining: 705ms
920:
        learn: 5.8642614
                                                   remaining: 695ms
                                  total: 8.1s
921:
        learn: 5.8594440
                                                   remaining: 686ms
                                  total: 8.11s
922:
        learn: 5.8567973
                                  total: 8.11s
                                                   remaining: 676ms
        learn: 5.8527921
923:
                                  total: 8.11s
                                                   remaining: 667ms
924:
        learn: 5.8497257
                                                   remaining: 658ms
                                  total: 8.11s
925:
        learn: 5.8494966
                                  total: 8.11s
                                                   remaining: 648ms
926:
        learn: 5.8420177
                                  total: 8.11s
                                                   remaining: 639ms
                                                   remaining: 630ms
927:
        learn: 5.8395430
                                  total: 8.11s
928:
        learn: 5.8370117
                                  total: 8.2s
                                                   remaining: 627ms
                                  total: 8.2s
929:
        learn: 5.8321467
                                                   remaining: 617ms
930:
        learn: 5.8261281
                                  total: 8.2s
                                                   remaining: 608ms
931:
        learn: 5.8209527
                                  total: 8.2s
                                                   remaining: 598ms
932:
        learn: 5.8164053
                                  total: 8.2s
                                                   remaining: 589ms
                                  total: 8.2s
933:
        learn: 5.8146573
                                                   remaining: 580ms
934:
        learn: 5.8127261
                                  total: 8.21s
                                                   remaining: 570ms
935:
        learn: 5.8101706
                                  total: 8.21s
                                                   remaining: 561ms
936:
        learn: 5.8099233
                                  total: 8.21s
                                                   remaining: 552ms
937:
        learn: 5.8040874
                                  total: 8.21s
                                                   remaining: 543ms
938:
        learn: 5.8010493
                                  total: 8.21s
                                                   remaining: 533ms
939:
        learn: 5.7985063
                                  total: 8.29s
                                                   remaining: 529ms
940:
        learn: 5.7969046
                                  total: 8.29s
                                                   remaining: 520ms
```

```
941:
        learn: 5.7883360
                                  total: 8.29s
                                                   remaining: 510ms
942:
        learn: 5.7858153
                                  total: 8.29s
                                                   remaining: 501ms
943:
        learn: 5.7846323
                                  total: 8.29s
                                                   remaining: 492ms
944:
        learn: 5.7822730
                                  total: 8.29s
                                                   remaining: 483ms
945:
        learn: 5.7769083
                                  total: 8.29s
                                                   remaining: 474ms
        learn: 5.7718581
946:
                                  total: 8.3s
                                                   remaining: 464ms
947:
        learn: 5.7682709
                                  total: 8.3s
                                                   remaining: 455ms
948:
        learn: 5.7648513
                                  total: 8.3s
                                                   remaining: 446ms
949:
        learn: 5.7597977
                                  total: 8.3s
                                                   remaining: 437ms
950:
        learn: 5.7546988
                                  total: 8.38s
                                                   remaining: 432ms
        learn: 5.7526611
951:
                                  total: 8.38s
                                                   remaining: 423ms
952:
        learn: 5.7514451
                                                   remaining: 414ms
                                  total: 8.39s
953:
        learn: 5.7450802
                                  total: 8.39s
                                                   remaining: 404ms
954:
                                  total: 8.39s
                                                   remaining: 395ms
        learn: 5.7392125
955:
        learn: 5.7333416
                                  total: 8.39s
                                                   remaining: 386ms
956:
        learn: 5.7281384
                                  total: 8.39s
                                                   remaining: 377ms
957:
        learn: 5.7241157
                                  total: 8.39s
                                                   remaining: 368ms
958:
        learn: 5.7188187
                                  total: 8.39s
                                                   remaining: 359ms
959:
        learn: 5.7151010
                                  total: 8.4s
                                                   remaining: 350ms
960:
        learn: 5.7101723
                                  total: 8.4s
                                                   remaining: 341ms
961:
        learn: 5.7078590
                                  total: 8.48s
                                                   remaining: 335ms
962:
        learn: 5.7076511
                                  total: 8.48s
                                                   remaining: 326ms
963:
        learn: 5.7038632
                                  total: 8.48s
                                                   remaining: 317ms
964:
        learn: 5.6999028
                                  total: 8.48s
                                                   remaining: 308ms
                                                   remaining: 299ms
965:
        learn: 5.6996743
                                  total: 8.48s
966:
        learn: 5.6976456
                                  total: 8.48s
                                                   remaining: 290ms
967:
        learn: 5.6949701
                                  total: 8.49s
                                                   remaining: 281ms
968:
        learn: 5.6912612
                                  total: 8.49s
                                                   remaining: 272ms
969:
        learn: 5.6884241
                                  total: 8.49s
                                                   remaining: 263ms
970:
        learn: 5.6835502
                                  total: 8.49s
                                                   remaining: 254ms
971:
        learn: 5.6833271
                                  total: 8.49s
                                                   remaining: 245ms
        learn: 5.6794138
972:
                                  total: 8.57s
                                                   remaining: 238ms
973:
        learn: 5.6736206
                                  total: 8.57s
                                                   remaining: 229ms
974:
        learn: 5.6682668
                                  total: 8.58s
                                                   remaining: 220ms
975:
        learn: 5.6603110
                                  total: 8.58s
                                                   remaining: 211ms
                                                   remaining: 202ms
976:
        learn: 5.6550583
                                  total: 8.58s
977:
        learn: 5.6510746
                                  total: 8.58s
                                                   remaining: 193ms
978:
        learn: 5.6508467
                                  total: 8.58s
                                                   remaining: 184ms
979:
        learn: 5.6473894
                                  total: 8.58s
                                                   remaining: 175ms
980:
        learn: 5.6426242
                                  total: 8.58s
                                                   remaining: 166ms
981:
        learn: 5.6385868
                                  total: 8.59s
                                                   remaining: 157ms
982:
        learn: 5.6354547
                                  total: 8.59s
                                                   remaining: 148ms
        learn: 5.6313994
983:
                                  total: 8.59s
                                                   remaining: 140ms
        learn: 5.6282897
984:
                                  total: 8.67s
                                                   remaining: 132ms
985:
        learn: 5.6255878
                                                   remaining: 123ms
                                  total: 8.67s
986:
        learn: 5.6245979
                                  total: 8.67s
                                                   remaining: 114ms
987:
        learn: 5.6203210
                                  total: 8.67s
                                                   remaining: 105ms
                                                   remaining: 96.5ms
988:
        learn: 5.6164998
                                  total: 8.67s
989:
        learn: 5.6122545
                                  total: 8.68s
                                                   remaining: 87.6ms
990:
        learn: 5.6091788
                                  total: 8.68s
                                                   remaining: 78.8ms
991:
        learn: 5.6059025
                                  total: 8.68s
                                                   remaining: 70ms
992:
        learn: 5.5997845
                                  total: 8.68s
                                                   remaining: 61.2ms
993:
        learn: 5.5995680
                                  total: 8.68s
                                                   remaining: 52.4ms
994:
        learn: 5.5951226
                                  total: 8.68s
                                                   remaining: 43.6ms
995:
        learn: 5.5895183
                                  total: 8.68s
                                                   remaining: 34.9ms
996:
        learn: 5.5843734
                                                   remaining: 26.4ms
                                  total: 8.77s
997:
        learn: 5.5784213
                                  total: 8.77s
                                                   remaining: 17.6ms
998:
        learn: 5.5781633
                                  total: 8.77s
                                                   remaining: 8.78ms
999:
        learn: 5.5753078
                                  total: 8.77s
                                                   remaining: Ous
0:
        learn: 20.3957101
                                  total: 1.35ms
                                                   remaining: 1.35s
        learn: 20.3292879
                                  total: 2.75ms
                                                   remaining: 1.37s
```

```
2:
        learn: 20.2638318
                                  total: 3.89ms
                                                   remaining: 1.29s
3:
        learn: 20.2077584
                                  total: 5.08ms
                                                   remaining: 1.26s
4:
        learn: 20.1429093
                                  total: 6.22ms
                                                   remaining: 1.24s
5:
        learn: 20.0813443
                                  total: 7.44ms
                                                   remaining: 1.23s
6:
        learn: 20.0148335
                                  total: 8.58ms
                                                   remaining: 1.22s
                                  total: 9.72ms
7:
        learn: 19.9433616
                                                   remaining: 1.21s
8:
        learn: 19.8837531
                                  total: 10.9ms
                                                   remaining: 1.2s
9:
        learn: 19.8240827
                                                   remaining: 1.19s
                                  total: 12ms
        learn: 19.7498563
                                  total: 13.2ms
                                                   remaining: 1.19s
10:
        learn: 19.6824099
                                  total: 49.2ms
11:
                                                   remaining: 4.05s
        learn: 19.6207937
                                  total: 50.4ms
12:
                                                   remaining: 3.83s
13:
        learn: 19.5597987
                                  total: 51.6ms
                                                   remaining: 3.63s
14:
        learn: 19.4998509
                                  total: 52.9ms
                                                   remaining: 3.48s
        learn: 19.4430231
                                  total: 54.3ms
15:
                                                   remaining: 3.34s
16:
        learn: 19.3886888
                                  total: 55.5ms
                                                   remaining: 3.21s
17:
        learn: 19.3333560
                                  total: 56.5ms
                                                   remaining: 3.08s
18:
        learn: 19.2758990
                                  total: 57.6ms
                                                   remaining: 2.97s
        learn: 19.2181585
19:
                                  total: 58.7ms
                                                   remaining: 2.87s
20:
        learn: 19.1597843
                                  total: 59.7ms
                                                   remaining: 2.79s
21:
        learn: 19.1070001
                                  total: 60.8ms
                                                   remaining: 2.7s
                                  total: 145ms
22:
        learn: 19.0617006
                                                   remaining: 6.15s
23:
        learn: 19.0045141
                                  total: 146ms
                                                   remaining: 5.94s
24:
        learn: 18.9485164
                                  total: 147ms
                                                   remaining: 5.74s
        learn: 18.9085788
25:
                                  total: 148ms
                                                   remaining: 5.56s
                                  total: 149ms
        learn: 18.8583358
26:
                                                   remaining: 5.39s
27:
        learn: 18.8067826
                                  total: 151ms
                                                   remaining: 5.23s
28:
        learn: 18.7583863
                                  total: 152ms
                                                   remaining: 5.08s
29:
        learn: 18.7110443
                                  total: 153ms
                                                   remaining: 4.94s
        learn: 18.6647188
                                  total: 154ms
30:
                                                   remaining: 4.81s
        learn: 18.5556441
31:
                                  total: 155ms
                                                   remaining: 4.68s
32:
        learn: 18.5079665
                                  total: 242ms
                                                   remaining: 7.08s
        learn: 18.4624197
                                  total: 243ms
33:
                                                   remaining: 6.91s
34:
        learn: 18.4159962
                                  total: 244ms
                                                   remaining: 6.74s
                                                   remaining: 6.57s
35:
        learn: 18.3696178
                                  total: 246ms
        learn: 18.3262173
                                  total: 247ms
36:
                                                   remaining: 6.42s
                                  total: 248ms
37:
        learn: 18.2801274
                                                   remaining: 6.27s
38:
        learn: 18.2317742
                                  total: 249ms
                                                   remaining: 6.13s
        learn: 18.1881974
39:
                                  total: 250ms
                                                   remaining: 6s
40:
        learn: 18.1465900
                                  total: 251ms
                                                   remaining: 5.87s
41:
        learn: 18.0994079
                                  total: 252ms
                                                   remaining: 5.75s
42:
        learn: 18.0559055
                                  total: 253ms
                                                   remaining: 5.64s
43:
        learn: 17.9512975
                                  total: 337ms
                                                   remaining: 7.32s
44:
        learn: 17.9071694
                                  total: 338ms
                                                   remaining: 7.17s
        learn: 17.8679543
45:
                                  total: 339ms
                                                   remaining: 7.03s
46:
        learn: 17.8293505
                                                   remaining: 6.9s
                                  total: 340ms
47:
        learn: 17.7886912
                                  total: 341ms
                                                   remaining: 6.77s
48:
        learn: 17.7506885
                                  total: 342ms
                                                   remaining: 6.65s
49:
        learn: 17.7095253
                                  total: 344ms
                                                   remaining: 6.54s
50:
        learn: 17.6162989
                                  total: 346ms
                                                   remaining: 6.43s
51:
        learn: 17.5777835
                                  total: 347ms
                                                   remaining: 6.32s
52:
        learn: 17.5365520
                                  total: 348ms
                                                   remaining: 6.21s
53:
        learn: 17.4983445
                                  total: 349ms
                                                   remaining: 6.11s
54:
        learn: 17.3945822
                                  total: 433ms
                                                   remaining: 7.44s
        learn: 17.2968197
55:
                                  total: 435ms
                                                   remaining: 7.33s
        learn: 17.2625010
                                  total: 437ms
56:
                                                   remaining: 7.23s
57:
        learn: 17.2282223
                                  total: 439ms
                                                   remaining: 7.13s
58:
        learn: 17.1937656
                                  total: 440ms
                                                   remaining: 7.02s
59:
        learn: 17.1592037
                                  total: 442ms
                                                   remaining: 6.93s
60:
        learn: 17.1257603
                                  total: 444ms
                                                   remaining: 6.84s
61:
        learn: 16.9852937
                                  total: 451ms
                                                   remaining: 6.82s
        learn: 16.8973278
62:
                                  total: 530ms
                                                   remaining: 7.88s
```

```
63:
        learn: 16.8651379
                                  total: 531ms
                                                   remaining: 7.76s
64:
        learn: 16.8321619
                                  total: 532ms
                                                   remaining: 7.66s
                                  total: 533ms
                                                   remaining: 7.55s
65:
        learn: 16.7420759
66:
        learn: 16.7110084
                                  total: 534ms
                                                   remaining: 7.44s
67:
        learn: 16.6801252
                                  total: 536ms
                                                   remaining: 7.34s
        learn: 16.5748302
                                  total: 537ms
68:
                                                   remaining: 7.24s
69:
        learn: 16.5450428
                                  total: 538ms
                                                   remaining: 7.14s
70:
        learn: 16.5040155
                                                   remaining: 7.05s
                                  total: 539ms
        learn: 16.3968409
                                  total: 540ms
                                                   remaining: 6.96s
71:
72:
        learn: 16.3115968
                                  total: 626ms
                                                   remaining: 7.95s
73:
        learn: 16.2777523
                                  total: 627ms
                                                   remaining: 7.85s
74:
        learn: 16.2500027
                                                   remaining: 7.75s
                                  total: 628ms
75:
        learn: 16.2202868
                                  total: 631ms
                                                   remaining: 7.67s
76:
        learn: 16.1209475
                                  total: 633ms
                                                   remaining: 7.58s
77:
        learn: 16.0923917
                                  total: 634ms
                                                   remaining: 7.49s
78:
        learn: 16.0373940
                                  total: 635ms
                                                   remaining: 7.4s
79:
        learn: 15.9295717
                                  total: 636ms
                                                   remaining: 7.32s
80:
        learn: 15.9025004
                                  total: 637ms
                                                   remaining: 7.23s
81:
        learn: 15.8768567
                                  total: 638ms
                                                   remaining: 7.15s
        learn: 15.8434094
                                  total: 721ms
                                                   remaining: 7.97s
82:
        learn: 15.8172175
                                  total: 723ms
83:
                                                   remaining: 7.88s
        learn: 15.7918560
84:
                                  total: 724ms
                                                   remaining: 7.79s
85:
        learn: 15.7668305
                                                   remaining: 7.71s
                                  total: 725ms
86:
        learn: 15.7414848
                                  total: 726ms
                                                   remaining: 7.62s
                                  total: 727ms
87:
        learn: 15.7135293
                                                   remaining: 7.54s
88:
        learn: 15.6829552
                                  total: 728ms
                                                   remaining: 7.46s
89:
        learn: 15.6572900
                                  total: 729ms
                                                   remaining: 7.38s
90:
        learn: 15.6346265
                                  total: 731ms
                                                   remaining: 7.3s
91:
        learn: 15.5426725
                                  total: 732ms
                                                   remaining: 7.22s
92:
        learn: 15.5199284
                                  total: 733ms
                                                   remaining: 7.15s
93:
        learn: 15.4968521
                                  total: 734ms
                                                   remaining: 7.07s
        learn: 15.4148799
                                  total: 818ms
94:
                                                   remaining: 7.79s
                                                   remaining: 7.72s
95:
        learn: 15.3560770
                                  total: 819ms
96:
        learn: 15.2671498
                                  total: 821ms
                                                   remaining: 7.64s
97:
        learn: 15.2030641
                                  total: 822ms
                                                   remaining: 7.57s
                                                   remaining: 7.5s
98:
        learn: 15.1765876
                                  total: 824ms
99:
        learn: 15.1086156
                                  total: 825ms
                                                   remaining: 7.42s
100:
        learn: 15.0406675
                                  total: 826ms
                                                   remaining: 7.35s
        learn: 15.0162828
                                  total: 827ms
101:
                                                   remaining: 7.28s
102:
        learn: 14.9637857
                                  total: 828ms
                                                   remaining: 7.21s
        learn: 14.9084100
                                                   remaining: 7.14s
103:
                                  total: 829ms
        learn: 14.8538413
                                  total: 913ms
104:
                                                   remaining: 7.79s
        learn: 14.7740414
                                  total: 915ms
105:
                                                   remaining: 7.71s
        learn: 14.7550565
106:
                                  total: 916ms
                                                   remaining: 7.64s
        learn: 14.6930671
                                                   remaining: 7.57s
107:
                                  total: 917ms
108:
        learn: 14.6168562
                                  total: 918ms
                                                   remaining: 7.5s
        learn: 14.5972374
                                  total: 919ms
109:
                                                   remaining: 7.44s
                                                   remaining: 7.37s
110:
        learn: 14.5776895
                                  total: 920ms
111:
        learn: 14.4929352
                                  total: 921ms
                                                   remaining: 7.3s
112:
        learn: 14.4747128
                                  total: 922ms
                                                   remaining: 7.24s
113:
        learn: 14.4572525
                                  total: 924ms
                                                   remaining: 7.18s
114:
        learn: 14.4297042
                                  total: 925ms
                                                   remaining: 7.12s
115:
        learn: 14.4106833
                                                   remaining: 7.69s
                                  total: 1.01s
116:
        learn: 14.3930651
                                  total: 1.01s
                                                   remaining: 7.62s
        learn: 14.3705345
117:
                                  total: 1.01s
                                                   remaining: 7.56s
        learn: 14.3503400
                                                   remaining: 7.49s
118:
                                  total: 1.01s
119:
        learn: 14.3113741
                                  total: 1.01s
                                                   remaining: 7.43s
120:
        learn: 14.2527551
                                  total: 1.02s
                                                   remaining: 7.39s
121:
        learn: 14.1801756
                                  total: 1.02s
                                                   remaining: 7.33s
122:
        learn: 14.1616954
                                  total: 1.02s
                                                   remaining: 7.27s
        learn: 14.1138216
123:
                                  total: 1.02s
                                                   remaining: 7.21s
```

```
learn: 14.0652396
124:
                                  total: 1.02s
                                                   remaining: 7.15s
125:
        learn: 14.0489772
                                  total: 1.02s
                                                   remaining: 7.1s
126:
        learn: 14.0293684
                                  total: 1.1s
                                                   remaining: 7.59s
127:
        learn: 13.9958876
                                  total: 1.1s
                                                   remaining: 7.53s
128:
        learn: 13.9468942
                                  total: 1.11s
                                                   remaining: 7.47s
        learn: 13.8836616
129:
                                  total: 1.11s
                                                   remaining: 7.41s
130:
        learn: 13.8348332
                                  total: 1.11s
                                                   remaining: 7.35s
        learn: 13.7766591
                                                   remaining: 7.3s
131:
                                  total: 1.11s
        learn: 13.7373027
                                                   remaining: 7.24s
132:
                                  total: 1.11s
        learn: 13.7204051
                                  total: 1.11s
133:
                                                   remaining: 7.19s
134:
        learn: 13.6859216
                                  total: 1.11s
                                                   remaining: 7.13s
                                                   remaining: 7.08s
135:
        learn: 13.6707658
                                  total: 1.11s
136:
        learn: 13.6540684
                                  total: 1.11s
                                                   remaining: 7.03s
137:
        learn: 13.6364740
                                  total: 1.2s
                                                   remaining: 7.49s
138:
        learn: 13.6212147
                                  total: 1.2s
                                                   remaining: 7.44s
139:
        learn: 13.5937871
                                  total: 1.2s
                                                   remaining: 7.38s
140:
        learn: 13.5636207
                                  total: 1.2s
                                                   remaining: 7.33s
141:
        learn: 13.5499048
                                  total: 1.2s
                                                   remaining: 7.28s
142:
        learn: 13.4848517
                                  total: 1.21s
                                                   remaining: 7.23s
143:
        learn: 13.4720273
                                                   remaining: 7.18s
                                  total: 1.21s
144:
        learn: 13.4091862
                                  total: 1.21s
                                                   remaining: 7.13s
145:
        learn: 13.3932618
                                  total: 1.21s
                                                   remaining: 7.08s
146:
        learn: 13.3396693
                                  total: 1.21s
                                                   remaining: 7.03s
147:
        learn: 13.3222705
                                  total: 1.21s
                                                   remaining: 6.98s
148:
        learn: 13.2753503
                                  total: 1.29s
                                                   remaining: 7.39s
149:
        learn: 13.2602931
                                  total: 1.3s
                                                   remaining: 7.34s
150:
        learn: 13.2489596
                                  total: 1.3s
                                                   remaining: 7.29s
151:
        learn: 13.2148195
                                  total: 1.3s
                                                   remaining: 7.24s
152:
        learn: 13.2031664
                                  total: 1.3s
                                                   remaining: 7.19s
        learn: 13.1890100
153:
                                  total: 1.3s
                                                   remaining: 7.14s
154:
        learn: 13.1634721
                                  total: 1.3s
                                                   remaining: 7.09s
        learn: 13.1509967
                                  total: 1.3s
155:
                                                   remaining: 7.05s
        learn: 13.1022346
156:
                                  total: 1.3s
                                                   remaining: 7s
157:
        learn: 13.0904618
                                  total: 1.3s
                                                   remaining: 6.95s
        learn: 13.0518977
158:
                                  total: 1.31s
                                                   remaining: 6.91s
                                                   remaining: 6.86s
159:
        learn: 13.0177001
                                  total: 1.31s
160:
        learn: 13.0061446
                                  total: 1.39s
                                                   remaining: 7.25s
161:
        learn: 12.9933313
                                  total: 1.39s
                                                   remaining: 7.21s
162:
        learn: 12.9815106
                                  total: 1.39s
                                                   remaining: 7.16s
163:
        learn: 12.9615807
                                  total: 1.4s
                                                   remaining: 7.12s
164:
        learn: 12.9519529
                                                   remaining: 7.08s
                                  total: 1.4s
        learn: 12.9222706
                                                   remaining: 7.04s
165:
                                  total: 1.4s
        learn: 12.9093085
166:
                                  total: 1.4s
                                                   remaining: 7s
        learn: 12.8977130
167:
                                  total: 1.49s
                                                   remaining: 7.36s
        learn: 12.8817785
                                                   remaining: 7.32s
168:
                                  total: 1.49s
169:
        learn: 12.8656173
                                  total: 1.49s
                                                   remaining: 7.28s
        learn: 12.8528063
170:
                                  total: 1.49s
                                                   remaining: 7.23s
                                  total: 1.49s
                                                   remaining: 7.18s
        learn: 12.8401895
171:
172:
        learn: 12.8287889
                                  total: 1.49s
                                                   remaining: 7.14s
173:
        learn: 12.8118682
                                  total: 1.49s
                                                   remaining: 7.09s
174:
        learn: 12.7816676
                                  total: 1.5s
                                                   remaining: 7.05s
175:
        learn: 12.7433557
                                                   remaining: 7.01s
                                  total: 1.5s
176:
        learn: 12.7055895
                                                   remaining: 6.96s
                                  total: 1.5s
177:
        learn: 12.6657729
                                  total: 1.5s
                                                   remaining: 6.92s
        learn: 12.6416065
178:
                                  total: 1.5s
                                                   remaining: 6.88s
179:
        learn: 12.5932152
                                                   remaining: 7.21s
                                  total: 1.58s
180:
        learn: 12.5487075
                                  total: 1.58s
                                                   remaining: 7.17s
        learn: 12.5362422
                                                   remaining: 7.13s
181:
                                  total: 1.58s
182:
        learn: 12.5266984
                                  total: 1.59s
                                                   remaining: 7.08s
183:
        learn: 12.5157782
                                  total: 1.59s
                                                   remaining: 7.04s
        learn: 12.5076845
184:
                                  total: 1.59s
                                                   remaining: 7s
```

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185:
        learn: 12.4767590
                                  total: 1.59s
                                                   remaining: 6.96s
186:
        learn: 12.4624101
                                  total: 1.59s
                                                   remaining: 6.92s
187:
        learn: 12.4534570
                                  total: 1.59s
                                                   remaining: 6.88s
188:
        learn: 12.4216077
                                  total: 1.59s
                                                   remaining: 6.84s
189:
        learn: 12.3910480
                                  total: 1.68s
                                                   remaining: 7.16s
        learn: 12.3824685
190:
                                  total: 1.68s
                                                   remaining: 7.12s
191:
        learn: 12.3740536
                                  total: 1.68s
                                                   remaining: 7.08s
192:
        learn: 12.3669534
                                                   remaining: 7.04s
                                  total: 1.68s
        learn: 12.3345088
                                  total: 1.68s
                                                   remaining: 7s
193:
        learn: 12.3000374
                                  total: 1.68s
194:
                                                   remaining: 6.96s
195:
        learn: 12.2902807
                                  total: 1.69s
                                                   remaining: 6.92s
        learn: 12.2810774
                                                   remaining: 6.88s
196:
                                  total: 1.69s
197:
        learn: 12.2716833
                                  total: 1.69s
                                                   remaining: 6.84s
        learn: 12.2378542
                                  total: 1.69s
198:
                                                   remaining: 6.81s
199:
        learn: 12.2279758
                                  total: 1.77s
                                                   remaining: 7.09s
200:
        learn: 12.2199731
                                  total: 1.77s
                                                   remaining: 7.06s
201:
        learn: 12.2112808
                                  total: 1.78s
                                                   remaining: 7.02s
202:
        learn: 12.1942706
                                  total: 1.78s
                                                   remaining: 6.98s
203:
        learn: 12.1821789
                                  total: 1.78s
                                                   remaining: 6.95s
204:
        learn: 12.1727522
                                  total: 1.78s
                                                   remaining: 6.91s
205:
        learn: 12.1661234
                                  total: 1.78s
                                                   remaining: 6.87s
        learn: 12.1413380
206:
                                  total: 1.78s
                                                   remaining: 6.83s
207:
        learn: 12.1105011
                                  total: 1.78s
                                                   remaining: 6.79s
208:
        learn: 12.0845286
                                  total: 1.78s
                                                   remaining: 6.76s
209:
        learn: 12.0565168
                                  total: 1.79s
                                                   remaining: 6.72s
210:
        learn: 12.0294118
                                  total: 1.87s
                                                   remaining: 6.99s
211:
        learn: 12.0238541
                                  total: 1.87s
                                                   remaining: 6.96s
212:
        learn: 12.0063323
                                  total: 1.87s
                                                   remaining: 6.92s
213:
        learn: 11.9734797
                                  total: 1.87s
                                                   remaining: 6.88s
        learn: 11.9572763
214:
                                  total: 1.88s
                                                   remaining: 6.85s
215:
        learn: 11.9505865
                                  total: 1.88s
                                                   remaining: 6.82s
216:
        learn: 11.9439589
                                  total: 1.88s
                                                   remaining: 6.78s
217:
        learn: 11.9214304
                                  total: 1.88s
                                                   remaining: 6.75s
        learn: 11.9144432
218:
                                  total: 1.88s
                                                   remaining: 6.71s
219:
        learn: 11.8944100
                                  total: 1.88s
                                                   remaining: 6.67s
220:
        learn: 11.8758221
                                  total: 1.88s
                                                   remaining: 6.64s
221:
        learn: 11.8700698
                                  total: 1.96s
                                                   remaining: 6.88s
222:
        learn: 11.8640773
                                  total: 1.97s
                                                   remaining: 6.85s
223:
        learn: 11.8584413
                                  total: 1.97s
                                                   remaining: 6.82s
224:
        learn: 11.8522883
                                  total: 1.97s
                                                   remaining: 6.78s
225:
        learn: 11.8449180
                                  total: 1.97s
                                                   remaining: 6.75s
226:
        learn: 11.8280402
                                  total: 1.97s
                                                   remaining: 6.71s
        learn: 11.8205570
227:
                                  total: 1.97s
                                                   remaining: 6.68s
        learn: 11.7944329
228:
                                  total: 1.97s
                                                   remaining: 6.65s
229:
        learn: 11.7881118
                                                   remaining: 6.61s
                                  total: 1.98s
230:
        learn: 11.7687855
                                  total: 1.98s
                                                   remaining: 6.58s
231:
        learn: 11.7382568
                                  total: 1.98s
                                                   remaining: 6.54s
                                                   remaining: 6.78s
232:
        learn: 11.7327807
                                  total: 2.06s
233:
        learn: 11.7018768
                                  total: 2.06s
                                                   remaining: 6.75s
234:
        learn: 11.6910622
                                  total: 2.06s
                                                   remaining: 6.71s
235:
        learn: 11.6793154
                                  total: 2.06s
                                                   remaining: 6.68s
236:
        learn: 11.6740628
                                  total: 2.06s
                                                   remaining: 6.65s
237:
        learn: 11.6507104
                                                   remaining: 6.62s
                                  total: 2.07s
238:
        learn: 11.6407562
                                  total: 2.07s
                                                   remaining: 6.58s
        learn: 11.6351431
239:
                                  total: 2.07s
                                                   remaining: 6.55s
240:
        learn: 11.6219954
                                                   remaining: 6.52s
                                  total: 2.07s
241:
        learn: 11.6136930
                                  total: 2.07s
                                                   remaining: 6.49s
242:
        learn: 11.5985820
                                  total: 2.07s
                                                   remaining: 6.46s
243:
        learn: 11.5588078
                                  total: 2.15s
                                                   remaining: 6.68s
244:
        learn: 11.5343480
                                  total: 2.16s
                                                   remaining: 6.65s
245:
        learn: 11.5260904
                                  total: 2.16s
                                                   remaining: 6.61s
```

```
learn: 11.5068810
246:
                                  total: 2.16s
                                                   remaining: 6.58s
247:
        learn: 11.5010491
                                  total: 2.16s
                                                   remaining: 6.55s
                                  total: 2.16s
248:
        learn: 11.4880287
                                                   remaining: 6.52s
249:
        learn: 11.4769514
                                  total: 2.16s
                                                   remaining: 6.49s
250:
        learn: 11.4696014
                                  total: 2.16s
                                                   remaining: 6.46s
        learn: 11.4501505
251:
                                  total: 2.16s
                                                   remaining: 6.42s
252:
        learn: 11.4446101
                                  total: 2.17s
                                                   remaining: 6.39s
253:
        learn: 11.4405159
                                                   remaining: 6.36s
                                  total: 2.17s
254:
        learn: 11.4237915
                                  total: 2.25s
                                                   remaining: 6.58s
255:
        learn: 11.3860164
                                  total: 2.25s
                                                   remaining: 6.55s
256:
        learn: 11.3718349
                                  total: 2.25s
                                                   remaining: 6.51s
257:
        learn: 11.3487005
                                                   remaining: 6.49s
                                  total: 2.25s
258:
        learn: 11.3427875
                                  total: 2.26s
                                                   remaining: 6.45s
        learn: 11.3159543
                                  total: 2.26s
259:
                                                   remaining: 6.43s
260:
        learn: 11.3115029
                                  total: 2.26s
                                                   remaining: 6.4s
261:
        learn: 11.3062178
                                  total: 2.26s
                                                   remaining: 6.37s
262:
        learn: 11.3020651
                                  total: 2.26s
                                                   remaining: 6.34s
263:
        learn: 11.2975671
                                  total: 2.35s
                                                   remaining: 6.54s
                                  total: 2.35s
264:
        learn: 11.2758344
                                                   remaining: 6.51s
265:
        learn: 11.2531884
                                  total: 2.35s
                                                   remaining: 6.48s
        learn: 11.2487941
                                  total: 2.35s
266:
                                                   remaining: 6.45s
267:
        learn: 11.2434412
                                  total: 2.35s
                                                   remaining: 6.42s
268:
        learn: 11.2391698
                                  total: 2.35s
                                                   remaining: 6.39s
269:
        learn: 11.2339469
                                  total: 2.35s
                                                   remaining: 6.36s
270:
        learn: 11.2165842
                                  total: 2.35s
                                                   remaining: 6.33s
271:
        learn: 11.1974640
                                  total: 2.36s
                                                   remaining: 6.31s
272:
        learn: 11.1902184
                                  total: 2.36s
                                                   remaining: 6.28s
                                                   remaining: 6.47s
273:
        learn: 11.1798802
                                  total: 2.44s
274:
        learn: 11.1734379
                                  total: 2.44s
                                                   remaining: 6.44s
275:
        learn: 11.1517025
                                  total: 2.44s
                                                   remaining: 6.41s
276:
        learn: 11.1312482
                                  total: 2.45s
                                                   remaining: 6.38s
                                  total: 2.45s
277:
        learn: 11.1279875
                                                   remaining: 6.36s
278:
        learn: 11.1064433
                                  total: 2.45s
                                                   remaining: 6.33s
        learn: 11.0954641
279:
                                  total: 2.45s
                                                   remaining: 6.3s
        learn: 11.0917639
280:
                                  total: 2.45s
                                                   remaining: 6.27s
281:
        learn: 11.0849206
                                  total: 2.45s
                                                   remaining: 6.25s
282:
        learn: 11.0821247
                                  total: 2.45s
                                                   remaining: 6.22s
283:
        learn: 11.0788284
                                  total: 2.54s
                                                   remaining: 6.4s
284:
        learn: 11.0750010
                                  total: 2.54s
                                                   remaining: 6.37s
285:
        learn: 11.0438689
                                  total: 2.54s
                                                   remaining: 6.34s
286:
        learn: 11.0236924
                                  total: 2.54s
                                                   remaining: 6.32s
287:
        learn: 11.0191998
                                  total: 2.54s
                                                   remaining: 6.29s
        learn: 10.9995557
                                  total: 2.55s
288:
                                                   remaining: 6.26s
        learn: 10.9777355
289:
                                  total: 2.55s
                                                   remaining: 6.24s
                                                   remaining: 6.21s
290:
        learn: 10.9723784
                                  total: 2.55s
291:
        learn: 10.9689943
                                  total: 2.55s
                                                   remaining: 6.18s
292:
        learn: 10.9654420
                                  total: 2.55s
                                                   remaining: 6.15s
                                  total: 2.55s
                                                   remaining: 6.13s
293:
        learn: 10.9278418
294:
        learn: 10.9242823
                                  total: 2.63s
                                                   remaining: 6.29s
295:
        learn: 10.9212055
                                  total: 2.63s
                                                   remaining: 6.27s
296:
        learn: 10.9176601
                                  total: 2.64s
                                                   remaining: 6.24s
297:
        learn: 10.8987824
                                  total: 2.64s
                                                   remaining: 6.21s
298:
        learn: 10.8807915
                                                   remaining: 6.19s
                                  total: 2.64s
299:
        learn: 10.8584375
                                  total: 2.64s
                                                   remaining: 6.16s
        learn: 10.8307177
300:
                                  total: 2.64s
                                                   remaining: 6.13s
301:
        learn: 10.8279489
                                  total: 2.64s
                                                   remaining: 6.11s
302:
        learn: 10.8244561
                                  total: 2.64s
                                                   remaining: 6.08s
303:
        learn: 10.8034339
                                  total: 2.65s
                                                   remaining: 6.06s
304:
        learn: 10.7989019
                                  total: 2.73s
                                                   remaining: 6.22s
305:
        learn: 10.7827934
                                  total: 2.73s
                                                   remaining: 6.19s
        learn: 10.7801779
306:
                                  total: 2.73s
                                                   remaining: 6.17s
```

```
307:
        learn: 10.7591081
                                  total: 2.73s
                                                   remaining: 6.14s
308:
        learn: 10.7536897
                                  total: 2.73s
                                                   remaining: 6.12s
        learn: 10.7292813
                                  total: 2.73s
309:
                                                   remaining: 6.09s
310:
        learn: 10.7120003
                                  total: 2.74s
                                                   remaining: 6.06s
311:
        learn: 10.7031103
                                  total: 2.74s
                                                   remaining: 6.04s
        learn: 10.6797859
312:
                                  total: 2.74s
                                                   remaining: 6.01s
313:
        learn: 10.6732687
                                  total: 2.74s
                                                   remaining: 5.99s
314:
        learn: 10.6637769
                                  total: 2.83s
                                                   remaining: 6.14s
315:
        learn: 10.6447919
                                  total: 2.83s
                                                   remaining: 6.12s
        learn: 10.6322617
                                  total: 2.83s
316:
                                                   remaining: 6.09s
317:
        learn: 10.6298190
                                  total: 2.83s
                                                   remaining: 6.07s
318:
        learn: 10.6218948
                                                   remaining: 6.04s
                                  total: 2.83s
319:
        learn: 10.5925503
                                  total: 2.83s
                                                   remaining: 6.02s
320:
        learn: 10.5858624
                                  total: 2.83s
                                                   remaining: 5.99s
321:
        learn: 10.5835953
                                  total: 2.83s
                                                   remaining: 5.96s
322:
        learn: 10.5734122
                                  total: 2.83s
                                                   remaining: 5.94s
323:
        learn: 10.5702110
                                  total: 2.92s
                                                   remaining: 6.09s
324:
        learn: 10.5644020
                                  total: 2.92s
                                                   remaining: 6.07s
                                  total: 2.92s
325:
        learn: 10.5614273
                                                   remaining: 6.05s
326:
        learn: 10.5585160
                                  total: 2.92s
                                                   remaining: 6.02s
327:
        learn: 10.5563068
                                  total: 2.93s
                                                   remaining: 6s
        learn: 10.5535421
328:
                                  total: 2.93s
                                                   remaining: 5.97s
329:
        learn: 10.5365251
                                  total: 2.93s
                                                   remaining: 5.95s
330:
        learn: 10.5331098
                                  total: 2.93s
                                                   remaining: 5.92s
331:
        learn: 10.5101851
                                  total: 2.93s
                                                   remaining: 5.9s
332:
        learn: 10.5078603
                                  total: 2.93s
                                                   remaining: 5.88s
333:
        learn: 10.4740024
                                  total: 2.93s
                                                   remaining: 5.85s
                                                   remaining: 5.83s
334:
        learn: 10.4687918
                                  total: 2.94s
335:
        learn: 10.4668215
                                  total: 2.94s
                                                   remaining: 5.8s
        learn: 10.4384942
336:
                                  total: 3.02s
                                                   remaining: 5.93s
337:
        learn: 10.4138205
                                  total: 3.02s
                                                   remaining: 5.91s
338:
        learn: 10.3874592
                                  total: 3.02s
                                                   remaining: 5.89s
339:
        learn: 10.3595823
                                  total: 3.02s
                                                   remaining: 5.86s
340:
        learn: 10.3392509
                                  total: 3.02s
                                                   remaining: 5.84s
341:
        learn: 10.3368515
                                  total: 3.02s
                                                   remaining: 5.82s
                                                   remaining: 5.79s
342:
        learn: 10.3211533
                                  total: 3.02s
343:
        learn: 10.3180508
                                  total: 3.02s
                                                   remaining: 5.77s
344:
        learn: 10.3159581
                                  total: 3.03s
                                                   remaining: 5.75s
        learn: 10.3001453
345:
                                  total: 3.03s
                                                   remaining: 5.72s
346:
        learn: 10.2794473
                                  total: 3.11s
                                                   remaining: 5.86s
347:
        learn: 10.2704365
                                                   remaining: 5.83s
                                  total: 3.11s
348:
        learn: 10.2520204
                                  total: 3.12s
                                                   remaining: 5.81s
        learn: 10.2290721
349:
                                  total: 3.12s
                                                   remaining: 5.79s
        learn: 10.2268511
350:
                                  total: 3.12s
                                                   remaining: 5.76s
351:
        learn: 10.1968638
                                                   remaining: 5.74s
                                  total: 3.12s
352:
        learn: 10.1689549
                                  total: 3.12s
                                                   remaining: 5.72s
353:
        learn: 10.1549979
                                  total: 3.12s
                                                   remaining: 5.7s
                                                   remaining: 5.67s
354:
        learn: 10.1530074
                                  total: 3.12s
355:
        learn: 10.1507547
                                  total: 3.12s
                                                   remaining: 5.65s
356:
        learn: 10.1295213
                                  total: 3.21s
                                                   remaining: 5.78s
357:
        learn: 10.1110547
                                  total: 3.21s
                                                   remaining: 5.75s
358:
        learn: 10.0841324
                                  total: 3.21s
                                                   remaining: 5.73s
359:
        learn: 10.0757508
                                  total: 3.21s
                                                   remaining: 5.71s
360:
        learn: 10.0616789
                                  total: 3.21s
                                                   remaining: 5.69s
        learn: 10.0599758
361:
                                  total: 3.21s
                                                   remaining: 5.67s
362:
        learn: 10.0500526
                                                   remaining: 5.64s
                                  total: 3.22s
363:
        learn: 10.0365135
                                  total: 3.22s
                                                   remaining: 5.62s
364:
        learn: 10.0132914
                                  total: 3.22s
                                                   remaining: 5.6s
365:
        learn: 10.0114369
                                  total: 3.22s
                                                   remaining: 5.58s
366:
        learn: 9.9997841
                                  total: 3.22s
                                                   remaining: 5.56s
        learn: 9.9906470
367:
                                  total: 3.3s
                                                   remaining: 5.67s
```

```
learn: 9.9713671
368:
                                  total: 3.31s
                                                   remaining: 5.65s
369:
        learn: 9.9622525
                                  total: 3.31s
                                                   remaining: 5.63s
        learn: 9.9571518
370:
                                  total: 3.31s
                                                   remaining: 5.61s
371:
        learn: 9.9493288
                                  total: 3.31s
                                                   remaining: 5.59s
372:
        learn: 9.9375790
                                  total: 3.31s
                                                   remaining: 5.57s
373:
        learn: 9.9162797
                                  total: 3.31s
                                                   remaining: 5.54s
374:
        learn: 9.8976157
                                  total: 3.31s
                                                   remaining: 5.52s
375:
        learn: 9.8836935
                                                   remaining: 5.5s
                                  total: 3.31s
376:
        learn: 9.8585412
                                  total: 3.4s
                                                   remaining: 5.62s
377:
        learn: 9.8395963
                                  total: 3.4s
                                                   remaining: 5.6s
        learn: 9.8368183
378:
                                  total: 3.4s
                                                   remaining: 5.58s
379:
        learn: 9.8351111
                                                   remaining: 5.55s
                                  total: 3.4s
380:
        learn: 9.8310097
                                  total: 3.4s
                                                   remaining: 5.53s
381:
        learn: 9.8293856
                                  total: 3.4s
                                                   remaining: 5.51s
382:
        learn: 9.8217406
                                  total: 3.41s
                                                   remaining: 5.49s
383:
        learn: 9.7987759
                                  total: 3.41s
                                                   remaining: 5.47s
384:
        learn: 9.7860461
                                  total: 3.41s
                                                   remaining: 5.45s
385:
        learn: 9.7824472
                                  total: 3.41s
                                                   remaining: 5.43s
                                  total: 3.41s
386:
        learn: 9.7661917
                                                   remaining: 5.41s
387:
        learn: 9.7481425
                                  total: 3.41s
                                                   remaining: 5.38s
388:
        learn: 9.7309032
                                  total: 3.5s
                                                   remaining: 5.49s
389:
        learn: 9.7134829
                                  total: 3.5s
                                                   remaining: 5.47s
390:
        learn: 9.6944139
                                  total: 3.5s
                                                   remaining: 5.45s
391:
        learn: 9.6743154
                                  total: 3.5s
                                                   remaining: 5.43s
392:
        learn: 9.6656995
                                  total: 3.5s
                                                   remaining: 5.41s
393:
        learn: 9.6404366
                                  total: 3.5s
                                                   remaining: 5.39s
394:
        learn: 9.6388989
                                  total: 3.5s
                                                   remaining: 5.37s
395:
        learn: 9.6351779
                                  total: 3.5s
                                                   remaining: 5.35s
396:
        learn: 9.6200906
                                  total: 3.51s
                                                   remaining: 5.33s
397:
        learn: 9.6030686
                                  total: 3.51s
                                                   remaining: 5.3s
398:
        learn: 9.5861787
                                  total: 3.59s
                                                   remaining: 5.41s
        learn: 9.5655898
                                  total: 3.59s
399:
                                                   remaining: 5.39s
400:
        learn: 9.5521562
                                  total: 3.59s
                                                   remaining: 5.37s
401:
        learn: 9.5478382
                                  total: 3.6s
                                                   remaining: 5.35s
        learn: 9.5348890
402:
                                  total: 3.6s
                                                   remaining: 5.33s
                                  total: 3.6s
                                                   remaining: 5.31s
403:
        learn: 9.5236712
404:
        learn: 9.5116892
                                  total: 3.6s
                                                   remaining: 5.29s
405:
        learn: 9.4998385
                                  total: 3.6s
                                                   remaining: 5.27s
406:
        learn: 9.4923779
                                  total: 3.6s
                                                   remaining: 5.25s
407:
        learn: 9.4873056
                                  total: 3.6s
                                                   remaining: 5.23s
408:
        learn: 9.4774829
                                                   remaining: 5.21s
                                  total: 3.6s
409:
        learn: 9.4679113
                                  total: 3.69s
                                                   remaining: 5.3s
        learn: 9.4515621
                                  total: 3.69s
410:
                                                   remaining: 5.29s
        learn: 9.4484215
411:
                                  total: 3.69s
                                                   remaining: 5.26s
412:
        learn: 9.4300424
                                                   remaining: 5.25s
                                  total: 3.69s
413:
        learn: 9.4211464
                                  total: 3.69s
                                                   remaining: 5.22s
414:
        learn: 9.4196679
                                  total: 3.69s
                                                   remaining: 5.21s
415:
        learn: 9.4024534
                                  total: 3.69s
                                                   remaining: 5.18s
416:
        learn: 9.3952579
                                  total: 3.69s
                                                   remaining: 5.17s
417:
        learn: 9.3823126
                                  total: 3.7s
                                                   remaining: 5.15s
418:
        learn: 9.3792925
                                  total: 3.7s
                                                   remaining: 5.13s
        learn: 9.3690340
419:
                                  total: 3.7s
                                                   remaining: 5.11s
420:
        learn: 9.3601242
                                  total: 3.78s
                                                   remaining: 5.2s
421:
        learn: 9.3461194
                                  total: 3.78s
                                                   remaining: 5.18s
422:
        learn: 9.3448526
                                  total: 3.78s
                                                   remaining: 5.16s
423:
        learn: 9.3367431
                                  total: 3.79s
                                                   remaining: 5.14s
424:
        learn: 9.3287422
                                  total: 3.79s
                                                   remaining: 5.12s
425:
        learn: 9.3231058
                                  total: 3.79s
                                                   remaining: 5.1s
426:
        learn: 9.3143801
                                  total: 3.79s
                                                   remaining: 5.08s
427:
        learn: 9.3060979
                                  total: 3.79s
                                                   remaining: 5.06s
        learn: 9.2951074
428:
                                  total: 3.79s
                                                   remaining: 5.04s
```

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429:
        learn: 9.2812888
                                  total: 3.79s
                                                   remaining: 5.03s
430:
        learn: 9.2758707
                                  total: 3.79s
                                                   remaining: 5.01s
                                  total: 3.79s
431:
        learn: 9.2637643
                                                   remaining: 4.99s
432:
        learn: 9.2585442
                                  total: 3.88s
                                                   remaining: 5.08s
433:
        learn: 9.2567339
                                  total: 3.88s
                                                   remaining: 5.06s
        learn: 9.2494474
434:
                                  total: 3.88s
                                                   remaining: 5.04s
435:
        learn: 9.2397593
                                  total: 3.88s
                                                   remaining: 5.02s
436:
        learn: 9.2284910
                                                   remaining: 5s
                                  total: 3.88s
437:
        learn: 9.2270737
                                  total: 3.88s
                                                   remaining: 4.98s
438:
        learn: 9.2141700
                                  total: 3.88s
                                                   remaining: 4.96s
        learn: 9.2129271
439:
                                  total: 3.88s
                                                   remaining: 4.94s
440:
        learn: 9.2052119
                                                   remaining: 4.93s
                                  total: 3.89s
441:
        learn: 9.2040858
                                  total: 3.97s
                                                   remaining: 5.01s
442:
        learn: 9.1987384
                                  total: 3.97s
                                                   remaining: 5s
443:
        learn: 9.1859350
                                  total: 3.97s
                                                   remaining: 4.98s
444:
        learn: 9.1845214
                                  total: 3.98s
                                                   remaining: 4.96s
445:
        learn: 9.1704626
                                  total: 3.98s
                                                   remaining: 4.94s
446:
        learn: 9.1560378
                                  total: 3.98s
                                                   remaining: 4.92s
447:
                                  total: 3.98s
        learn: 9.1480897
                                                   remaining: 4.9s
448:
        learn: 9.1381659
                                  total: 3.98s
                                                   remaining: 4.88s
449:
        learn: 9.1303207
                                  total: 3.98s
                                                   remaining: 4.87s
450:
        learn: 9.1230553
                                  total: 3.98s
                                                   remaining: 4.85s
451:
        learn: 9.1158636
                                  total: 3.98s
                                                   remaining: 4.83s
452:
        learn: 9.1142536
                                  total: 3.98s
                                                   remaining: 4.81s
453:
        learn: 9.0985139
                                  total: 4.07s
                                                   remaining: 4.89s
454:
        learn: 9.0875482
                                  total: 4.07s
                                                   remaining: 4.88s
455:
        learn: 9.0815365
                                  total: 4.07s
                                                   remaining: 4.86s
                                                   remaining: 4.84s
456:
        learn: 9.0698928
                                  total: 4.07s
457:
        learn: 9.0669460
                                  total: 4.07s
                                                   remaining: 4.82s
458:
                                  total: 4.07s
        learn: 9.0654942
                                                   remaining: 4.8s
459:
        learn: 9.0564830
                                  total: 4.08s
                                                   remaining: 4.78s
        learn: 9.0492374
460:
                                  total: 4.08s
                                                   remaining: 4.78s
461:
        learn: 9.0418700
                                  total: 4.08s
                                                   remaining: 4.76s
462:
        learn: 9.0343183
                                  total: 4.09s
                                                   remaining: 4.74s
463:
        learn: 9.0310676
                                  total: 4.17s
                                                   remaining: 4.81s
464:
        learn: 9.0183529
                                  total: 4.17s
                                                   remaining: 4.79s
465:
        learn: 9.0081126
                                  total: 4.17s
                                                   remaining: 4.78s
466:
        learn: 9.0013397
                                  total: 4.17s
                                                   remaining: 4.76s
467:
        learn: 8.9952379
                                  total: 4.17s
                                                   remaining: 4.74s
468:
        learn: 8.9915938
                                  total: 4.17s
                                                   remaining: 4.72s
469:
        learn: 8.9858372
                                  total: 4.17s
                                                   remaining: 4.7s
470:
        learn: 8.9785989
                                  total: 4.17s
                                                   remaining: 4.69s
        learn: 8.9737081
471:
                                  total: 4.17s
                                                   remaining: 4.67s
        learn: 8.9650225
472:
                                  total: 4.18s
                                                   remaining: 4.65s
473:
        learn: 8.9582700
                                  total: 4.26s
                                                   remaining: 4.73s
474:
        learn: 8.9530747
                                  total: 4.26s
                                                   remaining: 4.71s
475:
        learn: 8.9520414
                                  total: 4.26s
                                                   remaining: 4.69s
476:
        learn: 8.9438989
                                  total: 4.26s
                                                   remaining: 4.67s
477:
        learn: 8.9426465
                                  total: 4.26s
                                                   remaining: 4.66s
478:
        learn: 8.9308443
                                  total: 4.27s
                                                   remaining: 4.64s
479:
        learn: 8.9253096
                                  total: 4.27s
                                                   remaining: 4.62s
480:
        learn: 8.9148822
                                  total: 4.27s
                                                   remaining: 4.61s
481:
        learn: 8.8994584
                                  total: 4.27s
                                                   remaining: 4.59s
482:
        learn: 8.8888085
                                  total: 4.27s
                                                   remaining: 4.57s
483:
        learn: 8.8877412
                                  total: 4.27s
                                                   remaining: 4.55s
484:
        learn: 8.8730967
                                  total: 4.36s
                                                   remaining: 4.63s
485:
        learn: 8.8653913
                                  total: 4.36s
                                                   remaining: 4.61s
486:
        learn: 8.8505213
                                  total: 4.36s
                                                   remaining: 4.59s
487:
        learn: 8.8413229
                                  total: 4.36s
                                                   remaining: 4.58s
488:
        learn: 8.8302395
                                  total: 4.36s
                                                   remaining: 4.56s
489:
        learn: 8.8137389
                                  total: 4.36s
                                                   remaining: 4.54s
```

```
490:
        learn: 8.8117313
                                  total: 4.36s
                                                   remaining: 4.52s
491:
        learn: 8.8045335
                                  total: 4.37s
                                                   remaining: 4.51s
        learn: 8.7994561
                                  total: 4.37s
492:
                                                   remaining: 4.49s
493:
        learn: 8.7954929
                                  total: 4.38s
                                                   remaining: 4.49s
494:
        learn: 8.7844595
                                  total: 4.45s
                                                   remaining: 4.54s
        learn: 8.7761355
495:
                                  total: 4.45s
                                                   remaining: 4.53s
496:
        learn: 8.7702790
                                  total: 4.45s
                                                   remaining: 4.51s
497:
        learn: 8.7613649
                                  total: 4.46s
                                                   remaining: 4.49s
498:
        learn: 8.7534491
                                  total: 4.46s
                                                   remaining: 4.47s
499:
        learn: 8.7462171
                                  total: 4.46s
                                                   remaining: 4.46s
        learn: 8.7389525
                                  total: 4.46s
500:
                                                   remaining: 4.44s
501:
        learn: 8.7258335
                                  total: 4.46s
                                                   remaining: 4.42s
502:
        learn: 8.7192151
                                  total: 4.46s
                                                   remaining: 4.41s
503:
        learn: 8.7109894
                                  total: 4.46s
                                                   remaining: 4.39s
504:
        learn: 8.7052052
                                  total: 4.46s
                                                   remaining: 4.38s
505:
        learn: 8.7006526
                                  total: 4.46s
                                                   remaining: 4.36s
                                                   remaining: 4.42s
506:
        learn: 8.6920640
                                  total: 4.55s
507:
        learn: 8.6783902
                                  total: 4.55s
                                                   remaining: 4.41s
508:
        learn: 8.6740692
                                  total: 4.55s
                                                   remaining: 4.39s
509:
        learn: 8.6659708
                                  total: 4.55s
                                                   remaining: 4.38s
        learn: 8.6610239
510:
                                  total: 4.55s
                                                   remaining: 4.36s
511:
        learn: 8.6546307
                                  total: 4.56s
                                                   remaining: 4.34s
512:
        learn: 8.6452061
                                  total: 4.56s
                                                   remaining: 4.33s
513:
        learn: 8.6358158
                                  total: 4.56s
                                                   remaining: 4.31s
                                                   remaining: 4.29s
514:
        learn: 8.6285670
                                  total: 4.56s
515:
        learn: 8.6214408
                                  total: 4.56s
                                                   remaining: 4.28s
516:
        learn: 8.6149940
                                  total: 4.64s
                                                   remaining: 4.34s
517:
        learn: 8.6079736
                                  total: 4.64s
                                                   remaining: 4.32s
518:
        learn: 8.6043653
                                  total: 4.65s
                                                   remaining: 4.31s
519:
        learn: 8.5987743
                                  total: 4.65s
                                                   remaining: 4.29s
520:
        learn: 8.5888524
                                  total: 4.65s
                                                   remaining: 4.27s
521:
        learn: 8.5824518
                                  total: 4.65s
                                                   remaining: 4.26s
522:
        learn: 8.5710400
                                  total: 4.65s
                                                   remaining: 4.24s
523:
                                                   remaining: 4.22s
        learn: 8.5546656
                                  total: 4.65s
524:
        learn: 8.5457768
                                  total: 4.65s
                                                   remaining: 4.21s
525:
        learn: 8.5378687
                                  total: 4.65s
                                                   remaining: 4.19s
526:
        learn: 8.5225556
                                  total: 4.66s
                                                   remaining: 4.18s
527:
        learn: 8.5183503
                                  total: 4.74s
                                                   remaining: 4.24s
528:
        learn: 8.5134824
                                  total: 4.74s
                                                   remaining: 4.22s
529:
        learn: 8.5061832
                                  total: 4.74s
                                                   remaining: 4.21s
530:
        learn: 8.4998941
                                  total: 4.74s
                                                   remaining: 4.19s
531:
        learn: 8.4949409
                                  total: 4.75s
                                                   remaining: 4.17s
532:
        learn: 8.4905973
                                  total: 4.75s
                                                   remaining: 4.16s
        learn: 8.4838890
                                  total: 4.75s
533:
                                                   remaining: 4.14s
534:
        learn: 8.4741292
                                  total: 4.75s
                                                   remaining: 4.13s
535:
        learn: 8.4664050
                                  total: 4.75s
                                                   remaining: 4.11s
536:
        learn: 8.4606702
                                  total: 4.75s
                                                   remaining: 4.1s
537:
                                                   remaining: 4.08s
        learn: 8.4561911
                                  total: 4.75s
538:
        learn: 8.4551678
                                  total: 4.83s
                                                   remaining: 4.13s
        learn: 8.4489176
539:
                                  total: 4.84s
                                                   remaining: 4.12s
540:
        learn: 8.4453000
                                  total: 4.84s
                                                   remaining: 4.1s
541:
        learn: 8.4434991
                                  total: 4.84s
                                                   remaining: 4.09s
542:
        learn: 8.4380074
                                  total: 4.84s
                                                   remaining: 4.07s
543:
        learn: 8.4297549
                                  total: 4.84s
                                                   remaining: 4.06s
544:
        learn: 8.4264099
                                  total: 4.84s
                                                   remaining: 4.04s
545:
        learn: 8.4197936
                                  total: 4.84s
                                                   remaining: 4.03s
546:
        learn: 8.4071506
                                  total: 4.84s
                                                   remaining: 4.01s
547:
        learn: 8.4059620
                                  total: 4.85s
                                                   remaining: 4s
548:
        learn: 8.3991963
                                  total: 4.85s
                                                   remaining: 3.99s
549:
        learn: 8.3943664
                                  total: 4.93s
                                                   remaining: 4.03s
        learn: 8.3870694
550:
                                  total: 4.93s
                                                   remaining: 4.02s
```

```
551:
        learn: 8.3816319
                                  total: 4.93s
                                                   remaining: 4s
552:
        learn: 8.3728428
                                  total: 4.93s
                                                   remaining: 3.99s
553:
        learn: 8.3660317
                                  total: 4.93s
                                                   remaining: 3.97s
554:
        learn: 8.3602081
                                  total: 4.94s
                                                   remaining: 3.96s
555:
        learn: 8.3582512
                                  total: 4.94s
                                                   remaining: 3.94s
        learn: 8.3485622
                                  total: 4.94s
556:
                                                   remaining: 3.93s
557:
        learn: 8.3426149
                                  total: 4.94s
                                                   remaining: 3.91s
        learn: 8.3340893
                                  total: 4.94s
                                                   remaining: 3.9s
558:
559:
        learn: 8.3302032
                                  total: 4.94s
                                                   remaining: 3.88s
        learn: 8.3255855
                                  total: 4.94s
560:
                                                   remaining: 3.87s
561:
        learn: 8.3244742
                                  total: 5.02s
                                                   remaining: 3.92s
562:
        learn: 8.3209370
                                                   remaining: 3.9s
                                  total: 5.03s
563:
        learn: 8.3157304
                                  total: 5.03s
                                                   remaining: 3.88s
        learn: 8.3147600
                                  total: 5.03s
564:
                                                   remaining: 3.87s
565:
        learn: 8.3105401
                                  total: 5.03s
                                                   remaining: 3.86s
566:
        learn: 8.3028348
                                  total: 5.03s
                                                   remaining: 3.84s
567:
        learn: 8.2903937
                                  total: 5.03s
                                                   remaining: 3.83s
568:
        learn: 8.2885241
                                  total: 5.03s
                                                   remaining: 3.81s
569:
        learn: 8.2831692
                                  total: 5.03s
                                                   remaining: 3.8s
570:
        learn: 8.2714245
                                  total: 5.03s
                                                   remaining: 3.78s
571:
        learn: 8.2683552
                                  total: 5.12s
                                                   remaining: 3.83s
572:
        learn: 8.2639041
                                  total: 5.12s
                                                   remaining: 3.82s
573:
        learn: 8.2580308
                                  total: 5.12s
                                                   remaining: 3.8s
574:
        learn: 8.2550109
                                  total: 5.12s
                                                   remaining: 3.79s
                                                   remaining: 3.77s
575:
        learn: 8.2445478
                                  total: 5.13s
576:
        learn: 8.2368197
                                  total: 5.13s
                                                   remaining: 3.76s
577:
        learn: 8.2340410
                                  total: 5.13s
                                                   remaining: 3.75s
578:
        learn: 8.2301542
                                  total: 5.13s
                                                   remaining: 3.73s
579:
        learn: 8.2225713
                                  total: 5.13s
                                                   remaining: 3.72s
        learn: 8.2215310
580:
                                  total: 5.13s
                                                   remaining: 3.7s
581:
        learn: 8.2205104
                                  total: 5.13s
                                                   remaining: 3.69s
                                  total: 5.22s
582:
        learn: 8.2162897
                                                   remaining: 3.73s
583:
        learn: 8.2120291
                                  total: 5.22s
                                                   remaining: 3.72s
584:
        learn: 8.2082500
                                  total: 5.22s
                                                   remaining: 3.7s
        learn: 8.1978911
585:
                                  total: 5.22s
                                                   remaining: 3.69s
                                                   remaining: 3.67s
586:
        learn: 8.1931365
                                  total: 5.22s
587:
        learn: 8.1884787
                                  total: 5.22s
                                                   remaining: 3.66s
        learn: 8.1849929
588:
                                  total: 5.22s
                                                   remaining: 3.65s
589:
        learn: 8.1824686
                                  total: 5.23s
                                                   remaining: 3.63s
                                                   remaining: 3.62s
590:
        learn: 8.1712722
                                  total: 5.23s
591:
        learn: 8.1702738
                                                   remaining: 3.66s
                                  total: 5.31s
592:
        learn: 8.1683805
                                  total: 5.31s
                                                   remaining: 3.65s
593:
        learn: 8.1627002
                                  total: 5.31s
                                                   remaining: 3.63s
        learn: 8.1552823
594:
                                  total: 5.32s
                                                   remaining: 3.62s
595:
        learn: 8.1529844
                                                   remaining: 3.6s
                                  total: 5.32s
596:
        learn: 8.1476818
                                  total: 5.32s
                                                   remaining: 3.59s
597:
        learn: 8.1464980
                                  total: 5.32s
                                                   remaining: 3.58s
                                                   remaining: 3.56s
598:
        learn: 8.1425751
                                  total: 5.32s
599:
        learn: 8.1381234
                                  total: 5.32s
                                                   remaining: 3.55s
600:
        learn: 8.1253542
                                  total: 5.32s
                                                   remaining: 3.53s
601:
        learn: 8.1209087
                                  total: 5.32s
                                                   remaining: 3.52s
602:
        learn: 8.1079557
                                  total: 5.4s
                                                   remaining: 3.56s
603:
        learn: 8.1068591
                                                   remaining: 3.54s
                                  total: 5.4s
604:
        learn: 8.0998826
                                  total: 5.4s
                                                   remaining: 3.53s
        learn: 8.0941777
605:
                                  total: 5.41s
                                                   remaining: 3.51s
606:
        learn: 8.0867393
                                                   remaining: 3.5s
                                  total: 5.41s
607:
        learn: 8.0779336
                                  total: 5.41s
                                                   remaining: 3.49s
        learn: 8.0677038
                                  total: 5.41s
608:
                                                   remaining: 3.47s
609:
        learn: 8.0634574
                                  total: 5.41s
                                                   remaining: 3.46s
610:
        learn: 8.0516973
                                  total: 5.41s
                                                   remaining: 3.44s
        learn: 8.0471765
611:
                                  total: 5.41s
                                                   remaining: 3.43s
```

```
learn: 8.0420272
612:
                                  total: 5.41s
                                                   remaining: 3.42s
613:
        learn: 8.0303143
                                  total: 5.5s
                                                   remaining: 3.46s
614:
        learn: 8.0196272
                                  total: 5.5s
                                                   remaining: 3.44s
615:
        learn: 8.0144531
                                  total: 5.5s
                                                   remaining: 3.43s
616:
        learn: 8.0117437
                                  total: 5.5s
                                                   remaining: 3.41s
        learn: 8.0038546
617:
                                  total: 5.5s
                                                   remaining: 3.4s
618:
        learn: 7.9934307
                                  total: 5.5s
                                                   remaining: 3.39s
619:
        learn: 7.9918964
                                                   remaining: 3.37s
                                  total: 5.5s
620:
        learn: 7.9845818
                                                   remaining: 3.36s
                                  total: 5.5s
621:
        learn: 7.9835082
                                  total: 5.51s
                                                   remaining: 3.35s
622:
        learn: 7.9754163
                                  total: 5.59s
                                                   remaining: 3.38s
623:
        learn: 7.9715326
                                                   remaining: 3.37s
                                  total: 5.59s
624:
        learn: 7.9606127
                                  total: 5.59s
                                                   remaining: 3.36s
625:
        learn: 7.9594219
                                  total: 5.6s
                                                   remaining: 3.34s
626:
        learn: 7.9585586
                                  total: 5.6s
                                                   remaining: 3.33s
627:
        learn: 7.9563141
                                  total: 5.6s
                                                   remaining: 3.32s
                                                   remaining: 3.3s
628:
        learn: 7.9547241
                                  total: 5.6s
629:
        learn: 7.9497842
                                  total: 5.6s
                                                   remaining: 3.29s
630:
        learn: 7.9440618
                                  total: 5.6s
                                                   remaining: 3.28s
631:
        learn: 7.9365024
                                                   remaining: 3.26s
                                  total: 5.6s
632:
        learn: 7.9358191
                                  total: 5.61s
                                                   remaining: 3.25s
        learn: 7.9306325
633:
                                  total: 5.61s
                                                   remaining: 3.24s
634:
        learn: 7.9275203
                                  total: 5.69s
                                                   remaining: 3.27s
635:
        learn: 7.9208939
                                  total: 5.69s
                                                   remaining: 3.26s
                                                   remaining: 3.24s
        learn: 7.9118903
                                  total: 5.69s
636:
637:
        learn: 7.9013393
                                  total: 5.69s
                                                   remaining: 3.23s
638:
        learn: 7.9002134
                                  total: 5.69s
                                                   remaining: 3.22s
639:
        learn: 7.8973702
                                  total: 5.69s
                                                   remaining: 3.2s
640:
        learn: 7.8914137
                                  total: 5.7s
                                                   remaining: 3.19s
641:
        learn: 7.8870432
                                  total: 5.7s
                                                   remaining: 3.18s
642:
        learn: 7.8814550
                                  total: 5.7s
                                                   remaining: 3.16s
        learn: 7.8692007
643:
                                  total: 5.7s
                                                   remaining: 3.15s
644:
        learn: 7.8643037
                                  total: 5.78s
                                                   remaining: 3.18s
645:
        learn: 7.8598533
                                  total: 5.79s
                                                   remaining: 3.17s
646:
        learn: 7.8503388
                                  total: 5.79s
                                                   remaining: 3.16s
                                  total: 5.79s
                                                   remaining: 3.14s
647:
        learn: 7.8449460
648:
        learn: 7.8430351
                                  total: 5.79s
                                                   remaining: 3.13s
649:
        learn: 7.8364574
                                  total: 5.79s
                                                   remaining: 3.12s
        learn: 7.8311168
                                  total: 5.79s
650:
                                                   remaining: 3.1s
651:
        learn: 7.8218696
                                  total: 5.79s
                                                   remaining: 3.09s
652:
        learn: 7.8179611
                                                   remaining: 3.08s
                                  total: 5.79s
        learn: 7.8141703
653:
                                  total: 5.79s
                                                   remaining: 3.07s
        learn: 7.8007067
654:
                                  total: 5.8s
                                                   remaining: 3.05s
        learn: 7.7994587
655:
                                  total: 5.8s
                                                   remaining: 3.04s
        learn: 7.7901289
                                                   remaining: 3.07s
656:
                                  total: 5.88s
657:
        learn: 7.7851387
                                  total: 5.88s
                                                   remaining: 3.06s
658:
        learn: 7.7811873
                                  total: 5.88s
                                                   remaining: 3.04s
                                                   remaining: 3.03s
659:
        learn: 7.7781930
                                  total: 5.88s
660:
        learn: 7.7697126
                                  total: 5.88s
                                                   remaining: 3.02s
661:
        learn: 7.7624104
                                  total: 5.88s
                                                   remaining: 3s
662:
        learn: 7.7570435
                                  total: 5.89s
                                                   remaining: 2.99s
663:
        learn: 7.7517501
                                  total: 5.89s
                                                   remaining: 2.98s
664:
        learn: 7.7465083
                                                   remaining: 2.97s
                                  total: 5.89s
665:
        learn: 7.7428249
                                  total: 5.89s
                                                   remaining: 2.95s
        learn: 7.7324858
666:
                                  total: 5.89s
                                                   remaining: 2.94s
        learn: 7.7267854
                                                   remaining: 2.93s
667:
                                  total: 5.9s
668:
        learn: 7.7175175
                                  total: 5.97s
                                                   remaining: 2.96s
        learn: 7.7126021
669:
                                  total: 5.98s
                                                   remaining: 2.94s
670:
        learn: 7.7056671
                                  total: 5.98s
                                                   remaining: 2.93s
671:
        learn: 7.6974824
                                  total: 5.98s
                                                   remaining: 2.92s
        learn: 7.6960042
672:
                                  total: 5.98s
                                                   remaining: 2.91s
```

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673:
        learn: 7.6943170
                                  total: 5.98s
                                                   remaining: 2.89s
674:
        learn: 7.6931424
                                  total: 5.98s
                                                   remaining: 2.88s
        learn: 7.6893086
675:
                                  total: 5.98s
                                                   remaining: 2.87s
676:
        learn: 7.6826576
                                  total: 5.99s
                                                   remaining: 2.85s
677:
        learn: 7.6746701
                                  total: 5.99s
                                                   remaining: 2.84s
        learn: 7.6718301
678:
                                  total: 6.07s
                                                   remaining: 2.87s
679:
        learn: 7.6659687
                                  total: 6.07s
                                                   remaining: 2.86s
        learn: 7.6623169
                                  total: 6.07s
                                                   remaining: 2.84s
680:
        learn: 7.6565307
                                  total: 6.07s
                                                   remaining: 2.83s
681:
682:
        learn: 7.6532457
                                  total: 6.08s
                                                   remaining: 2.82s
683:
        learn: 7.6474239
                                  total: 6.08s
                                                   remaining: 2.81s
684:
        learn: 7.6401188
                                  total: 6.08s
                                                   remaining: 2.79s
685:
        learn: 7.6353712
                                  total: 6.08s
                                                   remaining: 2.78s
        learn: 7.6260567
                                  total: 6.08s
686:
                                                   remaining: 2.77s
687:
        learn: 7.6183583
                                  total: 6.08s
                                                   remaining: 2.76s
688:
        learn: 7.6150864
                                  total: 6.08s
                                                   remaining: 2.75s
689:
        learn: 7.6116247
                                  total: 6.17s
                                                   remaining: 2.77s
690:
        learn: 7.6009449
                                  total: 6.17s
                                                   remaining: 2.76s
691:
        learn: 7.5933800
                                  total: 6.17s
                                                   remaining: 2.75s
692:
        learn: 7.5849678
                                  total: 6.17s
                                                   remaining: 2.73s
        learn: 7.5811642
                                  total: 6.17s
693:
                                                   remaining: 2.72s
694:
        learn: 7.5707534
                                  total: 6.17s
                                                   remaining: 2.71s
695:
        learn: 7.5653377
                                  total: 6.17s
                                                   remaining: 2.7s
696:
        learn: 7.5600221
                                  total: 6.18s
                                                   remaining: 2.69s
697:
        learn: 7.5544969
                                  total: 6.18s
                                                   remaining: 2.67s
698:
        learn: 7.5510220
                                  total: 6.26s
                                                   remaining: 2.7s
699:
        learn: 7.5503006
                                  total: 6.26s
                                                   remaining: 2.68s
700:
        learn: 7.5436628
                                  total: 6.26s
                                                   remaining: 2.67s
701:
        learn: 7.5358373
                                  total: 6.27s
                                                   remaining: 2.66s
702:
        learn: 7.5327005
                                  total: 6.27s
                                                   remaining: 2.65s
703:
        learn: 7.5272912
                                  total: 6.27s
                                                   remaining: 2.63s
        learn: 7.5205821
704:
                                  total: 6.27s
                                                   remaining: 2.62s
705:
        learn: 7.5191613
                                  total: 6.27s
                                                   remaining: 2.61s
706:
        learn: 7.5112350
                                  total: 6.27s
                                                   remaining: 2.6s
707:
        learn: 7.5085754
                                  total: 6.27s
                                                   remaining: 2.59s
                                                   remaining: 2.58s
708:
        learn: 7.5077460
                                  total: 6.27s
709:
        learn: 7.4988040
                                  total: 6.28s
                                                   remaining: 2.56s
710:
        learn: 7.4918030
                                  total: 6.36s
                                                   remaining: 2.58s
711:
        learn: 7.4911968
                                  total: 6.36s
                                                   remaining: 2.57s
712:
        learn: 7.4854483
                                  total: 6.36s
                                                   remaining: 2.56s
713:
        learn: 7.4812579
                                  total: 6.36s
                                                   remaining: 2.55s
714:
        learn: 7.4786853
                                  total: 6.36s
                                                   remaining: 2.54s
715:
        learn: 7.4751018
                                  total: 6.37s
                                                   remaining: 2.52s
716:
        learn: 7.4661573
                                  total: 6.37s
                                                   remaining: 2.51s
717:
        learn: 7.4608098
                                  total: 6.37s
                                                   remaining: 2.5s
718:
        learn: 7.4538166
                                  total: 6.37s
                                                   remaining: 2.49s
719:
        learn: 7.4489266
                                  total: 6.37s
                                                   remaining: 2.48s
                                                   remaining: 2.46s
720:
        learn: 7.4394096
                                  total: 6.37s
721:
        learn: 7.4289648
                                  total: 6.37s
                                                   remaining: 2.45s
722:
        learn: 7.4233958
                                  total: 6.45s
                                                   remaining: 2.47s
723:
        learn: 7.4205062
                                  total: 6.45s
                                                   remaining: 2.46s
724:
        learn: 7.4153669
                                  total: 6.46s
                                                   remaining: 2.45s
725:
        learn: 7.4087706
                                  total: 6.46s
                                                   remaining: 2.44s
726:
        learn: 7.4041821
                                  total: 6.46s
                                                   remaining: 2.42s
        learn: 7.3991087
727:
                                  total: 6.46s
                                                   remaining: 2.41s
728:
        learn: 7.3854522
                                                   remaining: 2.4s
                                  total: 6.46s
729:
        learn: 7.3745097
                                  total: 6.46s
                                                   remaining: 2.39s
730:
        learn: 7.3683805
                                  total: 6.46s
                                                   remaining: 2.38s
731:
        learn: 7.3637383
                                  total: 6.46s
                                                   remaining: 2.37s
732:
        learn: 7.3594478
                                  total: 6.46s
                                                   remaining: 2.35s
        learn: 7.3568428
733:
                                  total: 6.55s
                                                   remaining: 2.37s
```

```
734:
        learn: 7.3485623
                                  total: 6.55s
                                                   remaining: 2.36s
735:
        learn: 7.3375698
                                  total: 6.55s
                                                   remaining: 2.35s
736:
        learn: 7.3323341
                                  total: 6.55s
                                                   remaining: 2.34s
737:
        learn: 7.3281332
                                  total: 6.55s
                                                   remaining: 2.33s
738:
        learn: 7.3271024
                                  total: 6.55s
                                                   remaining: 2.31s
739:
        learn: 7.3220072
                                  total: 6.56s
                                                   remaining: 2.3s
740:
        learn: 7.3193334
                                  total: 6.56s
                                                   remaining: 2.29s
741:
        learn: 7.3168288
                                  total: 6.56s
                                                   remaining: 2.28s
742:
        learn: 7.3091156
                                  total: 6.56s
                                                   remaining: 2.27s
743:
        learn: 7.3031634
                                  total: 6.56s
                                                   remaining: 2.26s
744:
        learn: 7.2998681
                                  total: 6.56s
                                                   remaining: 2.25s
745:
        learn: 7.2991245
                                  total: 6.64s
                                                   remaining: 2.26s
746:
        learn: 7.2943381
                                  total: 6.65s
                                                   remaining: 2.25s
747:
        learn: 7.2926026
                                  total: 6.65s
                                                   remaining: 2.24s
748:
        learn: 7.2861693
                                  total: 6.65s
                                                   remaining: 2.23s
749:
        learn: 7.2761562
                                  total: 6.65s
                                                   remaining: 2.22s
750:
        learn: 7.2686197
                                  total: 6.65s
                                                   remaining: 2.21s
751:
        learn: 7.2640834
                                  total: 6.65s
                                                   remaining: 2.19s
752:
        learn: 7.2603291
                                  total: 6.65s
                                                   remaining: 2.18s
753:
        learn: 7.2550754
                                  total: 6.65s
                                                   remaining: 2.17s
        learn: 7.2496170
754:
                                  total: 6.66s
                                                   remaining: 2.16s
755:
        learn: 7.2479141
                                  total: 6.66s
                                                   remaining: 2.15s
756:
        learn: 7.2433819
                                  total: 6.74s
                                                   remaining: 2.16s
        learn: 7.2395742
757:
                                  total: 6.74s
                                                   remaining: 2.15s
        learn: 7.2354057
                                                   remaining: 2.14s
758:
                                  total: 6.74s
759:
        learn: 7.2313646
                                  total: 6.74s
                                                   remaining: 2.13s
760:
        learn: 7.2285380
                                  total: 6.75s
                                                   remaining: 2.12s
761:
        learn: 7.2264561
                                  total: 6.75s
                                                   remaining: 2.11s
762:
        learn: 7.2251448
                                  total: 6.75s
                                                   remaining: 2.1s
763:
        learn: 7.2199021
                                  total: 6.75s
                                                   remaining: 2.08s
764:
        learn: 7.2181519
                                  total: 6.75s
                                                   remaining: 2.07s
        learn: 7.2126996
765:
                                  total: 6.75s
                                                   remaining: 2.06s
                                                   remaining: 2.08s
766:
        learn: 7.2077067
                                  total: 6.84s
767:
        learn: 7.1993448
                                  total: 6.84s
                                                   remaining: 2.06s
        learn: 7.1950639
768:
                                  total: 6.84s
                                                   remaining: 2.05s
        learn: 7.1939170
769:
                                  total: 6.84s
                                                   remaining: 2.04s
770:
        learn: 7.1919523
                                  total: 6.84s
                                                   remaining: 2.03s
771:
        learn: 7.1870753
                                  total: 6.84s
                                                   remaining: 2.02s
772:
        learn: 7.1844994
                                  total: 6.84s
                                                   remaining: 2.01s
773:
        learn: 7.1768162
                                  total: 6.84s
                                                   remaining: 2s
774:
                                  total: 6.84s
        learn: 7.1697630
                                                   remaining: 1.99s
775:
        learn: 7.1649148
                                  total: 6.85s
                                                   remaining: 1.98s
776:
        learn: 7.1600798
                                  total: 6.85s
                                                   remaining: 1.97s
        learn: 7.1540433
                                  total: 6.93s
777:
                                                   remaining: 1.98s
778:
        learn: 7.1478723
                                  total: 6.93s
                                                   remaining: 1.97s
779:
        learn: 7.1437642
                                  total: 6.93s
                                                   remaining: 1.96s
780:
        learn: 7.1385636
                                  total: 6.93s
                                                   remaining: 1.94s
781:
        learn: 7.1340119
                                  total: 6.94s
                                                   remaining: 1.93s
782:
        learn: 7.1302523
                                  total: 6.94s
                                                   remaining: 1.92s
783:
        learn: 7.1265194
                                  total: 6.94s
                                                   remaining: 1.91s
784:
        learn: 7.1155892
                                  total: 6.94s
                                                   remaining: 1.9s
785:
        learn: 7.1088515
                                  total: 6.94s
                                                   remaining: 1.89s
786:
        learn: 7.1073838
                                  total: 6.95s
                                                   remaining: 1.88s
787:
        learn: 7.1037179
                                  total: 7.03s
                                                   remaining: 1.89s
788:
        learn: 7.0942767
                                  total: 7.03s
                                                   remaining: 1.88s
789:
        learn: 7.0892505
                                                   remaining: 1.87s
                                  total: 7.03s
790:
        learn: 7.0849214
                                  total: 7.03s
                                                   remaining: 1.86s
791:
        learn: 7.0842294
                                  total: 7.03s
                                                   remaining: 1.85s
792:
        learn: 7.0837169
                                  total: 7.04s
                                                   remaining: 1.84s
793:
        learn: 7.0783904
                                  total: 7.04s
                                                   remaining: 1.82s
794:
        learn: 7.0729569
                                  total: 7.04s
                                                   remaining: 1.81s
```

```
795:
        learn: 7.0723800
                                  total: 7.04s
                                                   remaining: 1.8s
796:
        learn: 7.0669355
                                  total: 7.04s
                                                   remaining: 1.79s
797:
        learn: 7.0583973
                                  total: 7.12s
                                                   remaining: 1.8s
798:
        learn: 7.0536018
                                  total: 7.13s
                                                   remaining: 1.79s
799:
        learn: 7.0517244
                                  total: 7.13s
                                                   remaining: 1.78s
        learn: 7.0446802
                                  total: 7.13s
800:
                                                   remaining: 1.77s
801:
        learn: 7.0409770
                                  total: 7.13s
                                                   remaining: 1.76s
802:
        learn: 7.0367840
                                                   remaining: 1.75s
                                  total: 7.13s
803:
        learn: 7.0292068
                                  total: 7.13s
                                                   remaining: 1.74s
804:
        learn: 7.0262885
                                  total: 7.13s
                                                   remaining: 1.73s
805:
        learn: 7.0191794
                                  total: 7.13s
                                                   remaining: 1.72s
        learn: 7.0129469
                                                   remaining: 1.71s
806:
                                  total: 7.13s
807:
        learn: 7.0083162
                                  total: 7.22s
                                                   remaining: 1.72s
808:
        learn: 7.0068080
                                  total: 7.22s
                                                   remaining: 1.7s
809:
        learn: 7.0022630
                                  total: 7.22s
                                                   remaining: 1.69s
810:
        learn: 6.9959086
                                  total: 7.22s
                                                   remaining: 1.68s
811:
        learn: 6.9893822
                                  total: 7.22s
                                                   remaining: 1.67s
812:
        learn: 6.9765072
                                  total: 7.23s
                                                   remaining: 1.66s
813:
        learn: 6.9725890
                                  total: 7.23s
                                                   remaining: 1.65s
814:
        learn: 6.9672214
                                  total: 7.23s
                                                   remaining: 1.64s
815:
        learn: 6.9620431
                                  total: 7.23s
                                                   remaining: 1.63s
816:
        learn: 6.9601266
                                  total: 7.23s
                                                   remaining: 1.62s
817:
        learn: 6.9555498
                                  total: 7.23s
                                                   remaining: 1.61s
818:
        learn: 6.9508092
                                  total: 7.23s
                                                   remaining: 1.6s
                                  total: 7.32s
819:
        learn: 6.9472871
                                                   remaining: 1.6s
820:
        learn: 6.9402943
                                  total: 7.32s
                                                   remaining: 1.59s
821:
        learn: 6.9357624
                                  total: 7.32s
                                                   remaining: 1.58s
822:
        learn: 6.9328013
                                  total: 7.32s
                                                   remaining: 1.57s
823:
        learn: 6.9270750
                                  total: 7.32s
                                                   remaining: 1.56s
824:
        learn: 6.9220651
                                  total: 7.32s
                                                   remaining: 1.55s
825:
        learn: 6.9152571
                                  total: 7.32s
                                                   remaining: 1.54s
                                  total: 7.32s
826:
        learn: 6.9141082
                                                   remaining: 1.53s
827:
        learn: 6.9115098
                                  total: 7.32s
                                                   remaining: 1.52s
828:
        learn: 6.9065010
                                  total: 7.33s
                                                   remaining: 1.51s
        learn: 6.9054456
829:
                                  total: 7.33s
                                                   remaining: 1.5s
                                  total: 7.41s
830:
        learn: 6.9028275
                                                   remaining: 1.51s
831:
        learn: 6.8986656
                                  total: 7.41s
                                                   remaining: 1.5s
832:
        learn: 6.8932277
                                  total: 7.41s
                                                   remaining: 1.49s
833:
        learn: 6.8900896
                                  total: 7.42s
                                                   remaining: 1.48s
834:
        learn: 6.8859269
                                  total: 7.42s
                                                   remaining: 1.47s
835:
        learn: 6.8807046
                                  total: 7.42s
                                                   remaining: 1.46s
        learn: 6.8740646
836:
                                  total: 7.42s
                                                   remaining: 1.44s
        learn: 6.8689870
837:
                                  total: 7.42s
                                                   remaining: 1.43s
838:
        learn: 6.8618799
                                  total: 7.42s
                                                   remaining: 1.42s
                                                   remaining: 1.41s
839:
        learn: 6.8608389
                                  total: 7.42s
840:
        learn: 6.8567538
                                  total: 7.42s
                                                   remaining: 1.4s
841:
                                  total: 7.51s
        learn: 6.8535074
                                                   remaining: 1.41s
842:
        learn: 6.8469799
                                  total: 7.51s
                                                   remaining: 1.4s
843:
        learn: 6.8434689
                                  total: 7.51s
                                                   remaining: 1.39s
844:
        learn: 6.8369386
                                  total: 7.51s
                                                   remaining: 1.38s
845:
        learn: 6.8318436
                                  total: 7.51s
                                                   remaining: 1.37s
846:
        learn: 6.8267373
                                  total: 7.51s
                                                   remaining: 1.36s
847:
        learn: 6.8245592
                                  total: 7.51s
                                                   remaining: 1.35s
848:
        learn: 6.8129545
                                  total: 7.51s
                                                   remaining: 1.34s
849:
        learn: 6.8090208
                                  total: 7.52s
                                                   remaining: 1.33s
850:
        learn: 6.8064509
                                                   remaining: 1.33s
                                  total: 7.6s
851:
        learn: 6.8026160
                                  total: 7.6s
                                                   remaining: 1.32s
852:
        learn: 6.7990034
                                  total: 7.61s
                                                   remaining: 1.31s
853:
        learn: 6.7970414
                                  total: 7.61s
                                                   remaining: 1.3s
854:
        learn: 6.7893517
                                  total: 7.61s
                                                   remaining: 1.29s
        learn: 6.7851185
855:
                                  total: 7.61s
                                                   remaining: 1.28s
```

```
learn: 6.7787234
856:
                                  total: 7.61s
                                                   remaining: 1.27s
857:
        learn: 6.7687455
                                  total: 7.61s
                                                   remaining: 1.26s
                                  total: 7.62s
858:
        learn: 6.7616889
                                                   remaining: 1.25s
859:
        learn: 6.7591606
                                  total: 7.62s
                                                   remaining: 1.24s
860:
        learn: 6.7534389
                                  total: 7.62s
                                                   remaining: 1.23s
                                  total: 7.7s
861:
        learn: 6.7485053
                                                   remaining: 1.23s
862:
        learn: 6.7454404
                                  total: 7.7s
                                                   remaining: 1.22s
        learn: 6.7428532
                                  total: 7.7s
                                                   remaining: 1.21s
863:
        learn: 6.7350356
                                  total: 7.7s
                                                   remaining: 1.2s
864:
865:
        learn: 6.7308306
                                  total: 7.7s
                                                   remaining: 1.19s
                                  total: 7.71s
866:
        learn: 6.7248992
                                                   remaining: 1.18s
        learn: 6.7218817
                                                   remaining: 1.17s
867:
                                  total: 7.71s
868:
        learn: 6.7195501
                                  total: 7.71s
                                                   remaining: 1.16s
        learn: 6.7128065
                                  total: 7.71s
869:
                                                   remaining: 1.15s
870:
        learn: 6.7093543
                                  total: 7.71s
                                                   remaining: 1.14s
871:
        learn: 6.7083601
                                  total: 7.71s
                                                   remaining: 1.13s
                                  total: 7.79s
872:
        learn: 6.7045546
                                                   remaining: 1.13s
873:
        learn: 6.7018307
                                  total: 7.8s
                                                   remaining: 1.12s
874:
        learn: 6.6990654
                                  total: 7.8s
                                                   remaining: 1.11s
875:
        learn: 6.6969005
                                  total: 7.8s
                                                   remaining: 1.1s
876:
        learn: 6.6912778
                                  total: 7.8s
                                                   remaining: 1.09s
877:
        learn: 6.6902122
                                  total: 7.8s
                                                   remaining: 1.08s
878:
        learn: 6.6843975
                                  total: 7.8s
                                                   remaining: 1.07s
879:
        learn: 6.6815337
                                  total: 7.8s
                                                   remaining: 1.06s
                                  total: 7.8s
880:
        learn: 6.6797645
                                                   remaining: 1.05s
881:
        learn: 6.6736422
                                  total: 7.8s
                                                   remaining: 1.04s
882:
        learn: 6.6695012
                                  total: 7.89s
                                                   remaining: 1.04s
883:
        learn: 6.6627096
                                  total: 7.89s
                                                   remaining: 1.03s
                                  total: 7.89s
884:
        learn: 6.6566170
                                                   remaining: 1.02s
885:
        learn: 6.6536004
                                  total: 7.89s
                                                   remaining: 1.01s
886:
        learn: 6.6493266
                                  total: 7.89s
                                                   remaining: 1s
                                  total: 7.89s
887:
        learn: 6.6467964
                                                   remaining: 996ms
888:
        learn: 6.6441718
                                  total: 7.9s
                                                   remaining: 986ms
889:
        learn: 6.6408515
                                  total: 7.9s
                                                   remaining: 976ms
890:
        learn: 6.6377243
                                  total: 7.9s
                                                   remaining: 966ms
                                  total: 7.9s
891:
        learn: 6.6351332
                                                   remaining: 957ms
892:
        learn: 6.6332601
                                  total: 7.9s
                                                   remaining: 947ms
893:
        learn: 6.6292798
                                  total: 7.99s
                                                   remaining: 947ms
894:
        learn: 6.6272021
                                  total: 7.99s
                                                   remaining: 937ms
895:
        learn: 6.6215788
                                  total: 7.99s
                                                   remaining: 927ms
                                  total: 7.99s
896:
        learn: 6.6186776
                                                   remaining: 917ms
897:
        learn: 6.6105515
                                  total: 7.99s
                                                   remaining: 908ms
                                  total: 7.99s
898:
        learn: 6.6073561
                                                   remaining: 898ms
                                  total: 7.99s
899:
        learn: 6.6021921
                                                   remaining: 888ms
900:
        learn: 6.5998009
                                                   remaining: 879ms
                                  total: 8s
901:
        learn: 6.5965651
                                  total: 8s
                                                   remaining: 869ms
902:
        learn: 6.5881450
                                  total: 8s
                                                   remaining: 859ms
903:
        learn: 6.5835615
                                                   remaining: 850ms
                                  total: 8s
904:
        learn: 6.5801808
                                  total: 8.08s
                                                   remaining: 848ms
905:
        learn: 6.5769641
                                  total: 8.08s
                                                   remaining: 839ms
906:
        learn: 6.5738661
                                  total: 8.09s
                                                   remaining: 829ms
907:
        learn: 6.5694790
                                  total: 8.09s
                                                   remaining: 819ms
908:
        learn: 6.5644391
                                  total: 8.09s
                                                   remaining: 810ms
909:
        learn: 6.5629843
                                  total: 8.09s
                                                   remaining: 800ms
910:
        learn: 6.5558268
                                  total: 8.09s
                                                   remaining: 790ms
911:
        learn: 6.5464246
                                                   remaining: 781ms
                                  total: 8.09s
912:
        learn: 6.5428432
                                  total: 8.09s
                                                   remaining: 771ms
913:
        learn: 6.5361059
                                  total: 8.09s
                                                   remaining: 761ms
914:
        learn: 6.5308409
                                  total: 8.09s
                                                   remaining: 752ms
915:
        learn: 6.5217371
                                  total: 8.18s
                                                   remaining: 750ms
916:
        learn: 6.5158305
                                  total: 8.18s
                                                   remaining: 740ms
```

```
917:
        learn: 6.5122841
                                  total: 8.18s
                                                   remaining: 731ms
918:
        learn: 6.5056190
                                  total: 8.18s
                                                   remaining: 721ms
919:
                                                   remaining: 711ms
        learn: 6.5010473
                                  total: 8.18s
920:
        learn: 6.4959430
                                  total: 8.18s
                                                   remaining: 702ms
921:
        learn: 6.4901109
                                  total: 8.18s
                                                   remaining: 692ms
        learn: 6.4842825
922:
                                  total: 8.19s
                                                   remaining: 683ms
923:
        learn: 6.4728057
                                  total: 8.19s
                                                   remaining: 674ms
924:
        learn: 6.4674650
                                  total: 8.27s
                                                   remaining: 671ms
925:
        learn: 6.4607307
                                  total: 8.28s
                                                   remaining: 661ms
926:
        learn: 6.4575115
                                  total: 8.28s
                                                   remaining: 652ms
927:
        learn: 6.4567765
                                  total: 8.28s
                                                   remaining: 642ms
928:
        learn: 6.4532784
                                                   remaining: 633ms
                                  total: 8.28s
929:
        learn: 6.4490830
                                  total: 8.28s
                                                   remaining: 623ms
930:
        learn: 6.4459305
                                  total: 8.28s
                                                   remaining: 614ms
931:
        learn: 6.4435230
                                  total: 8.28s
                                                   remaining: 604ms
932:
        learn: 6.4393179
                                  total: 8.28s
                                                   remaining: 595ms
                                                   remaining: 585ms
933:
        learn: 6.4381708
                                  total: 8.28s
934:
        learn: 6.4348138
                                  total: 8.37s
                                                   remaining: 582ms
935:
        learn: 6.4329224
                                  total: 8.37s
                                                   remaining: 572ms
936:
        learn: 6.4234602
                                  total: 8.37s
                                                   remaining: 563ms
937:
        learn: 6.4210742
                                  total: 8.37s
                                                   remaining: 553ms
938:
        learn: 6.4176645
                                  total: 8.37s
                                                   remaining: 544ms
939:
        learn: 6.4126035
                                  total: 8.38s
                                                   remaining: 535ms
940:
        learn: 6.4089954
                                  total: 8.38s
                                                   remaining: 525ms
941:
        learn: 6.4019703
                                  total: 8.38s
                                                   remaining: 516ms
942:
        learn: 6.3929533
                                  total: 8.38s
                                                   remaining: 506ms
943:
        learn: 6.3924130
                                  total: 8.46s
                                                   remaining: 502ms
944:
        learn: 6.3899537
                                  total: 8.47s
                                                   remaining: 493ms
945:
        learn: 6.3869590
                                  total: 8.47s
                                                   remaining: 483ms
946:
        learn: 6.3839552
                                  total: 8.47s
                                                   remaining: 474ms
947:
        learn: 6.3796302
                                  total: 8.47s
                                                   remaining: 465ms
948:
        learn: 6.3739481
                                  total: 8.47s
                                                   remaining: 455ms
949:
        learn: 6.3702005
                                  total: 8.47s
                                                   remaining: 446ms
950:
                                                   remaining: 437ms
        learn: 6.3610080
                                  total: 8.47s
951:
        learn: 6.3604975
                                  total: 8.47s
                                                   remaining: 427ms
952:
        learn: 6.3539277
                                  total: 8.47s
                                                   remaining: 418ms
953:
        learn: 6.3504252
                                  total: 8.56s
                                                   remaining: 413ms
954:
        learn: 6.3460760
                                  total: 8.56s
                                                   remaining: 403ms
                                  total: 8.56s
955:
        learn: 6.3452134
                                                   remaining: 394ms
956:
        learn: 6.3409673
                                  total: 8.56s
                                                   remaining: 385ms
957:
        learn: 6.3387261
                                  total: 8.56s
                                                   remaining: 376ms
958:
        learn: 6.3345146
                                  total: 8.57s
                                                   remaining: 366ms
959:
        learn: 6.3332364
                                  total: 8.57s
                                                   remaining: 357ms
        learn: 6.3282250
960:
                                  total: 8.57s
                                                   remaining: 348ms
961:
        learn: 6.3240426
                                                   remaining: 339ms
                                  total: 8.57s
962:
        learn: 6.3174942
                                  total: 8.57s
                                                   remaining: 329ms
963:
        learn: 6.3153936
                                  total: 8.66s
                                                   remaining: 323ms
                                                   remaining: 314ms
964:
        learn: 6.3143926
                                  total: 8.66s
965:
        learn: 6.3030102
                                  total: 8.66s
                                                   remaining: 305ms
966:
        learn: 6.3009963
                                  total: 8.66s
                                                   remaining: 296ms
967:
        learn: 6.2901483
                                  total: 8.66s
                                                   remaining: 286ms
968:
        learn: 6.2865029
                                  total: 8.66s
                                                   remaining: 277ms
969:
        learn: 6.2818897
                                  total: 8.66s
                                                   remaining: 268ms
970:
        learn: 6.2714670
                                  total: 8.66s
                                                   remaining: 259ms
        learn: 6.2669121
971:
                                  total: 8.67s
                                                   remaining: 250ms
972:
        learn: 6.2642673
                                                   remaining: 241ms
                                  total: 8.67s
973:
        learn: 6.2634958
                                  total: 8.67s
                                                   remaining: 231ms
974:
        learn: 6.2584032
                                  total: 8.75s
                                                   remaining: 224ms
975:
        learn: 6.2515369
                                  total: 8.75s
                                                   remaining: 215ms
976:
        learn: 6.2484831
                                  total: 8.75s
                                                   remaining: 206ms
        learn: 6.2408605
977:
                                  total: 8.76s
                                                   remaining: 197ms
```

```
learn: 6.2384499
978:
                                  total: 8.76s
                                                   remaining: 188ms
979:
        learn: 6.2342979
                                  total: 8.76s
                                                   remaining: 179ms
                                  total: 8.76s
980:
        learn: 6.2309917
                                                   remaining: 170ms
981:
        learn: 6.2293654
                                  total: 8.76s
                                                   remaining: 161ms
982:
        learn: 6.2254330
                                  total: 8.76s
                                                   remaining: 152ms
        learn: 6.2203052
                                  total: 8.76s
983:
                                                   remaining: 142ms
984:
        learn: 6.2158207
                                  total: 8.76s
                                                   remaining: 133ms
985:
        learn: 6.2092976
                                  total: 8.76s
                                                   remaining: 124ms
        learn: 6.2040331
                                  total: 8.85s
                                                   remaining: 117ms
986:
987:
        learn: 6.1963359
                                  total: 8.85s
                                                   remaining: 107ms
988:
        learn: 6.1888558
                                  total: 8.85s
                                                   remaining: 98.4ms
989:
        learn: 6.1859544
                                                   remaining: 89.4ms
                                  total: 8.85s
990:
        learn: 6.1841329
                                  total: 8.85s
                                                   remaining: 80.4ms
991:
        learn: 6.1818519
                                  total: 8.85s
                                                   remaining: 71.4ms
992:
        learn: 6.1761442
                                  total: 8.85s
                                                   remaining: 62.4ms
993:
        learn: 6.1742145
                                  total: 8.86s
                                                   remaining: 53.5ms
994:
        learn: 6.1709170
                                  total: 8.86s
                                                   remaining: 44.5ms
995:
        learn: 6.1647949
                                  total: 8.94s
                                                   remaining: 35.9ms
996:
        learn: 6.1570890
                                  total: 8.94s
                                                   remaining: 26.9ms
997:
        learn: 6.1521409
                                  total: 8.95s
                                                   remaining: 17.9ms
        learn: 6.1495387
998:
                                  total: 8.95s
                                                   remaining: 8.96ms
999:
        learn: 6.1487889
                                  total: 8.95s
                                                   remaining: Ous
0:
        learn: 14.4454561
                                  total: 1.3ms
                                                   remaining: 1.3s
1:
        learn: 14.0679504
                                  total: 2.75ms
                                                   remaining: 1.37s
2:
        learn: 13.7625575
                                  total: 3.9ms
                                                   remaining: 1.29s
3:
        learn: 13.4705972
                                  total: 5.03ms
                                                   remaining: 1.25s
4:
        learn: 13.2146698
                                  total: 6.18ms
                                                   remaining: 1.23s
5:
        learn: 12.9967740
                                  total: 8.56ms
                                                   remaining: 1.42s
6:
        learn: 12.8227464
                                  total: 9.7ms
                                                   remaining: 1.38s
        learn: 12.6465988
7:
                                  total: 10.8ms
                                                   remaining: 1.34s
8:
        learn: 12.5126521
                                  total: 11.9ms
                                                   remaining: 1.31s
9:
        learn: 12.3680888
                                  total: 13.1ms
                                                   remaining: 1.29s
                                                   remaining: 1.27s
10:
        learn: 12.2713451
                                  total: 14.1ms
        learn: 12.1142451
11:
                                  total: 72.1ms
                                                   remaining: 5.94s
        learn: 11.9906593
12:
                                  total: 73.6ms
                                                   remaining: 5.58s
        learn: 11.8825929
                                  total: 74.7ms
13:
                                                   remaining: 5.26s
14:
        learn: 11.8085318
                                  total: 75.8ms
                                                   remaining: 4.98s
15:
        learn: 11.7368282
                                  total: 76.9ms
                                                   remaining: 4.73s
        learn: 11.6613910
                                  total: 78.3ms
16:
                                                   remaining: 4.53s
17:
        learn: 11.5834138
                                  total: 79.5ms
                                                   remaining: 4.33s
18:
        learn: 11.5182962
                                  total: 80.6ms
                                                   remaining: 4.16s
19:
        learn: 11.4298353
                                  total: 81.8ms
                                                   remaining: 4.01s
20:
        learn: 11.3914812
                                  total: 88.1ms
                                                   remaining: 4.11s
        learn: 11.3488615
                                  total: 168ms
21:
                                                   remaining: 7.45s
22:
        learn: 11.2936730
                                                   remaining: 7.18s
                                  total: 169ms
23:
        learn: 11.2381783
                                  total: 170ms
                                                   remaining: 6.92s
24:
        learn: 11.1762930
                                  total: 171ms
                                                   remaining: 6.68s
                                                   remaining: 6.45s
25:
        learn: 11.1086899
                                  total: 172ms
26:
        learn: 11.0475821
                                  total: 173ms
                                                   remaining: 6.25s
27:
        learn: 11.0075619
                                  total: 175ms
                                                   remaining: 6.06s
28:
        learn: 10.9523582
                                  total: 176ms
                                                   remaining: 5.88s
29:
        learn: 10.8920741
                                  total: 177ms
                                                   remaining: 5.72s
30:
        learn: 10.8333279
                                  total: 178ms
                                                   remaining: 5.56s
31:
        learn: 10.7929891
                                  total: 179ms
                                                   remaining: 5.42s
        learn: 10.7409382
                                  total: 264ms
32:
                                                   remaining: 7.74s
33:
        learn: 10.6740550
                                                   remaining: 7.58s
                                  total: 267ms
34:
        learn: 10.6360112
                                  total: 268ms
                                                   remaining: 7.39s
35:
        learn: 10.6225541
                                  total: 269ms
                                                   remaining: 7.21s
36:
        learn: 10.5744484
                                  total: 270ms
                                                   remaining: 7.03s
37:
        learn: 10.5426637
                                  total: 272ms
                                                   remaining: 6.88s
        learn: 10.5003999
38:
                                  total: 273ms
                                                   remaining: 6.73s
```

```
39:
        learn: 10.4615241
                                  total: 274ms
                                                   remaining: 6.58s
40:
        learn: 10.4337998
                                  total: 275ms
                                                   remaining: 6.44s
41:
        learn: 10.3806726
                                  total: 276ms
                                                   remaining: 6.3s
42:
        learn: 10.3479775
                                  total: 359ms
                                                   remaining: 7.99s
43:
        learn: 10.3101854
                                  total: 360ms
                                                   remaining: 7.83s
44:
        learn: 10.2950182
                                  total: 362ms
                                                   remaining: 7.67s
45:
        learn: 10.2683909
                                  total: 363ms
                                                   remaining: 7.52s
46:
        learn: 10.2526043
                                                   remaining: 7.38s
                                  total: 364ms
47:
        learn: 10.2048873
                                  total: 366ms
                                                   remaining: 7.26s
48:
        learn: 10.1886200
                                  total: 367ms
                                                   remaining: 7.13s
49:
        learn: 10.1610130
                                  total: 368ms
                                                   remaining: 7s
50:
        learn: 10.1430109
                                  total: 369ms
                                                   remaining: 6.87s
51:
        learn: 10.1265517
                                  total: 370ms
                                                   remaining: 6.75s
52:
        learn: 10.0973884
                                  total: 372ms
                                                   remaining: 6.64s
53:
        learn: 10.0838500
                                  total: 373ms
                                                   remaining: 6.53s
54:
        learn: 10.0646104
                                  total: 455ms
                                                   remaining: 7.82s
55:
        learn: 10.0403452
                                  total: 458ms
                                                   remaining: 7.72s
56:
        learn: 10.0331966
                                  total: 459ms
                                                   remaining: 7.6s
                                  total: 460ms
57:
        learn: 10.0098799
                                                   remaining: 7.48s
58:
        learn: 9.9762635
                                  total: 462ms
                                                   remaining: 7.36s
59:
        learn: 9.9628770
                                  total: 463ms
                                                   remaining: 7.25s
60:
        learn: 9.9485764
                                  total: 464ms
                                                   remaining: 7.14s
61:
        learn: 9.9138629
                                  total: 465ms
                                                   remaining: 7.04s
        learn: 9.8880358
62:
                                  total: 466ms
                                                   remaining: 6.93s
                                  total: 467ms
63:
        learn: 9.8696090
                                                   remaining: 6.83s
64:
        learn: 9.8529821
                                  total: 552ms
                                                   remaining: 7.93s
65:
        learn: 9.8396298
                                  total: 553ms
                                                   remaining: 7.83s
66:
        learn: 9.8089961
                                  total: 555ms
                                                   remaining: 7.72s
67:
        learn: 9.7638903
                                  total: 556ms
                                                   remaining: 7.62s
        learn: 9.7355768
68:
                                  total: 557ms
                                                   remaining: 7.51s
69:
        learn: 9.7246592
                                  total: 558ms
                                                   remaining: 7.41s
        learn: 9.7080684
                                  total: 560ms
70:
                                                   remaining: 7.33s
71:
        learn: 9.6978940
                                  total: 562ms
                                                   remaining: 7.24s
72:
        learn: 9.6852831
                                  total: 647ms
                                                   remaining: 8.22s
73:
        learn: 9.6508491
                                  total: 649ms
                                                   remaining: 8.12s
74:
                                  total: 650ms
        learn: 9.6090695
                                                   remaining: 8.02s
75:
        learn: 9.5929404
                                  total: 651ms
                                                   remaining: 7.91s
        learn: 9.5501363
76:
                                  total: 652ms
                                                   remaining: 7.82s
77:
        learn: 9.5114739
                                  total: 654ms
                                                   remaining: 7.72s
78:
        learn: 9.5003065
                                  total: 655ms
                                                   remaining: 7.63s
79:
        learn: 9.4810911
                                  total: 656ms
                                                   remaining: 7.54s
80:
        learn: 9.4500688
                                  total: 657ms
                                                   remaining: 7.45s
81:
        learn: 9.4033428
                                  total: 658ms
                                                   remaining: 7.37s
        learn: 9.3625522
82:
                                  total: 659ms
                                                   remaining: 7.28s
83:
        learn: 9.3421070
                                                   remaining: 8.1s
                                  total: 743ms
84:
        learn: 9.2819438
                                  total: 744ms
                                                   remaining: 8.01s
85:
        learn: 9.2573472
                                  total: 745ms
                                                   remaining: 7.92s
86:
        learn: 9.2458950
                                  total: 746ms
                                                   remaining: 7.83s
87:
        learn: 9.2308921
                                  total: 747ms
                                                   remaining: 7.75s
88:
        learn: 9.2028776
                                  total: 748ms
                                                   remaining: 7.66s
                                  total: 750ms
89:
        learn: 9.1650527
                                                   remaining: 7.58s
90:
        learn: 9.1201146
                                  total: 751ms
                                                   remaining: 7.5s
91:
        learn: 9.1014400
                                  total: 752ms
                                                   remaining: 7.42s
                                  total: 753ms
92:
        learn: 9.0819957
                                                   remaining: 7.34s
93:
        learn: 9.0477920
                                  total: 754ms
                                                   remaining: 7.27s
94:
        learn: 9.0326174
                                  total: 755ms
                                                   remaining: 7.19s
95:
        learn: 9.0182800
                                  total: 756ms
                                                   remaining: 7.12s
                                  total: 758ms
96:
        learn: 9.0118900
                                                   remaining: 7.05s
97:
        learn: 8.9762053
                                  total: 759ms
                                                   remaining: 6.99s
98:
        learn: 8.9625113
                                  total: 761ms
                                                   remaining: 6.93s
        learn: 8.9309311
99:
                                  total: 763ms
                                                   remaining: 6.87s
```

```
learn: 8.9136908
100:
                                  total: 765ms
                                                   remaining: 6.81s
101:
        learn: 8.8798380
                                  total: 766ms
                                                   remaining: 6.74s
                                  total: 767ms
102:
        learn: 8.8753585
                                                   remaining: 6.68s
103:
        learn: 8.8597181
                                  total: 768ms
                                                   remaining: 6.62s
104:
        learn: 8.8481166
                                  total: 851ms
                                                   remaining: 7.26s
        learn: 8.8136672
                                  total: 853ms
105:
                                                   remaining: 7.19s
106:
        learn: 8.7895747
                                  total: 854ms
                                                   remaining: 7.13s
        learn: 8.7629371
                                                   remaining: 7.06s
107:
                                  total: 855ms
        learn: 8.7384122
                                  total: 856ms
                                                   remaining: 7s
108:
        learn: 8.7310917
                                  total: 857ms
109:
                                                   remaining: 6.94s
        learn: 8.7069657
110:
                                  total: 858ms
                                                   remaining: 6.88s
        learn: 8.6801240
                                                   remaining: 6.82s
111:
                                  total: 860ms
112:
        learn: 8.6501275
                                  total: 861ms
                                                   remaining: 6.76s
        learn: 8.6394426
                                  total: 863ms
113:
                                                   remaining: 6.7s
114:
        learn: 8.6332422
                                  total: 864ms
                                                   remaining: 6.65s
115:
        learn: 8.6219826
                                  total: 865ms
                                                   remaining: 6.59s
116:
        learn: 8.5756662
                                  total: 947ms
                                                   remaining: 7.15s
117:
        learn: 8.5705732
                                  total: 949ms
                                                   remaining: 7.09s
118:
        learn: 8.5452505
                                  total: 950ms
                                                   remaining: 7.03s
119:
        learn: 8.5207478
                                  total: 951ms
                                                   remaining: 6.97s
        learn: 8.4933912
120:
                                  total: 952ms
                                                   remaining: 6.92s
121:
        learn: 8.4787136
                                  total: 954ms
                                                   remaining: 6.86s
122:
        learn: 8.4477018
                                  total: 956ms
                                                   remaining: 6.81s
123:
        learn: 8.4273632
                                  total: 962ms
                                                   remaining: 6.8s
124:
        learn: 8.3744712
                                  total: 963ms
                                                   remaining: 6.74s
125:
        learn: 8.3542004
                                  total: 965ms
                                                   remaining: 6.69s
126:
        learn: 8.3218936
                                  total: 1.04s
                                                   remaining: 7.16s
127:
        learn: 8.2905515
                                  total: 1.04s
                                                   remaining: 7.11s
128:
        learn: 8.2862196
                                  total: 1.04s
                                                   remaining: 7.05s
129:
        learn: 8.2316960
                                  total: 1.04s
                                                   remaining: 7s
130:
        learn: 8.2289423
                                  total: 1.05s
                                                   remaining: 6.94s
131:
        learn: 8.2021649
                                  total: 1.05s
                                                   remaining: 6.89s
        learn: 8.1743157
                                  total: 1.05s
132:
                                                   remaining: 6.84s
133:
        learn: 8.1425863
                                  total: 1.05s
                                                   remaining: 6.79s
134:
        learn: 8.1156784
                                  total: 1.05s
                                                   remaining: 6.74s
135:
        learn: 8.1120512
                                  total: 1.05s
                                                   remaining: 6.69s
136:
        learn: 8.0913246
                                  total: 1.05s
                                                   remaining: 6.64s
137:
        learn: 8.0880417
                                  total: 1.14s
                                                   remaining: 7.11s
        learn: 8.0775694
                                  total: 1.14s
138:
                                                   remaining: 7.06s
139:
        learn: 8.0565879
                                  total: 1.14s
                                                   remaining: 7s
140:
        learn: 8.0383669
                                                   remaining: 6.95s
                                  total: 1.14s
        learn: 7.9925754
141:
                                  total: 1.14s
                                                   remaining: 6.9s
                                  total: 1.14s
        learn: 7.9696534
142:
                                                   remaining: 6.86s
143:
        learn: 7.9476061
                                  total: 1.14s
                                                   remaining: 6.81s
144:
        learn: 7.9215805
                                                   remaining: 6.76s
                                  total: 1.15s
145:
        learn: 7.9016664
                                  total: 1.15s
                                                   remaining: 6.72s
        learn: 7.8751198
146:
                                  total: 1.15s
                                                   remaining: 6.67s
                                                   remaining: 7.12s
147:
        learn: 7.8673943
                                  total: 1.24s
148:
        learn: 7.8472403
                                  total: 1.24s
                                                   remaining: 7.08s
149:
        learn: 7.8373225
                                  total: 1.24s
                                                   remaining: 7.03s
150:
        learn: 7.8221129
                                  total: 1.24s
                                                   remaining: 6.98s
151:
        learn: 7.8024056
                                  total: 1.24s
                                                   remaining: 6.93s
152:
        learn: 7.7863017
                                  total: 1.24s
                                                   remaining: 6.89s
153:
        learn: 7.7524856
                                  total: 1.25s
                                                   remaining: 6.84s
        learn: 7.7353573
154:
                                  total: 1.25s
                                                   remaining: 6.79s
155:
        learn: 7.7323798
                                                   remaining: 6.75s
                                  total: 1.25s
156:
        learn: 7.7142440
                                  total: 1.25s
                                                   remaining: 6.7s
157:
        learn: 7.6811890
                                  total: 1.25s
                                                   remaining: 6.66s
158:
        learn: 7.6485275
                                  total: 1.25s
                                                   remaining: 6.62s
159:
        learn: 7.6243129
                                  total: 1.33s
                                                   remaining: 6.98s
160:
        learn: 7.6214019
                                  total: 1.33s
                                                   remaining: 6.93s
```

161:	learn: 7.6108825	total: 1.33s	remaining:	6.89s
162:	learn: 7.5871930	total: 1.33s	remaining:	6.85s
163:	learn: 7.5534460	total: 1.33s	remaining:	
164:	learn: 7.5334062	total: 1.34s	remaining:	
165:	learn: 7.5095724	total: 1.34s	remaining:	
166:	learn: 7.4925902	total: 1.34s	remaining:	
			•	
167:	learn: 7.4764921	total: 1.34s	remaining:	
168:	learn: 7.4574669	total: 1.43s	remaining:	
169:	learn: 7.4451271	total: 1.43s	remaining:	
170:	learn: 7.4088727	total: 1.43s	remaining:	6.92s
171:	learn: 7.4061103	total: 1.43s	remaining:	6.88s
172:	learn: 7.3880872	total: 1.43s	remaining:	6.84s
173:	learn: 7.3673557	total: 1.43s	remaining:	6.8s
174:	learn: 7.3397556	total: 1.43s	remaining:	6.75s
175:	learn: 7.3374806	total: 1.43s	remaining:	
176:	learn: 7.3184560	total: 1.44s	remaining:	
177:	learn: 7.2972892	total: 1.44s	remaining:	
178:	learn: 7.2763599	total: 1.52s	remaining:	
178: 179:	learn: 7.2368035	total: 1.52s	remaining:	
			_	
180:	learn: 7.2123420	total: 1.52s	remaining:	
181:	learn: 7.2097584	total: 1.52s	remaining:	
182:	learn: 7.1992310	total: 1.52s	remaining:	
183:	learn: 7.1828897	total: 1.53s	remaining:	
184:	learn: 7.1626951	total: 1.53s	remaining:	6.73s
185:	learn: 7.1604764	total: 1.53s	remaining:	6.69s
186:	learn: 7.1447136	total: 1.53s	remaining:	6.65s
187:	learn: 7.1256468	total: 1.53s	remaining:	6.62s
188:	learn: 7.1065943	total: 1.62s	remaining:	
189:	learn: 7.0798097	total: 1.62s	remaining:	
190:	learn: 7.0618520	total: 1.62s	remaining:	
191:	learn: 7.0451870	total: 1.62s	remaining:	
192:	learn: 7.0431870	total: 1.62s	remaining:	
192. 193:	learn: 7.0258866		_	
		total: 1.62s	remaining:	
194:	learn: 6.9906686	total: 1.63s	remaining:	
195:	learn: 6.9789823	total: 1.63s	remaining:	
196:	learn: 6.9731799	total: 1.63s	remaining:	
197:	learn: 6.9669710	total: 1.63s	remaining:	
198:	learn: 6.9472932	total: 1.71s	remaining:	6.9s
199:	learn: 6.9348072	total: 1.71s	remaining:	6.86s
200:	learn: 6.9233050	total: 1.72s	remaining:	6.82s
201:	learn: 6.9029255	total: 1.72s	remaining:	6.78s
202:	learn: 6.8818881	total: 1.72s	remaining:	
203:	learn: 6.8659852	total: 1.72s	remaining:	
204:	learn: 6.8514055	total: 1.72s	remaining:	
205:	learn: 6.8432304	total: 1.72s	remaining:	
206:	learn: 6.8311915	total: 1.72s	remaining:	
207:	learn: 6.8118247	total: 1.72s	_	
			remaining:	
208:	learn: 6.7809441	total: 1.73s	remaining:	
209:	learn: 6.7545413	total: 1.81s	remaining:	
210:	learn: 6.7521133	total: 1.81s	remaining:	
211:	learn: 6.7501181	total: 1.81s	remaining:	
212:	learn: 6.7299229	total: 1.81s	remaining:	
213:	learn: 6.7060315	total: 1.82s	remaining:	6.67s
214:	learn: 6.6904465	total: 1.82s	remaining:	6.63s
215:	learn: 6.6826940	total: 1.82s	remaining:	6.6s
216:	learn: 6.6652017	total: 1.82s	remaining:	
217:	learn: 6.6501010	total: 1.82s	remaining:	
218:	learn: 6.6356673	total: 1.82s	remaining:	
219:	learn: 6.6335323	total: 1.91s	remaining:	
220:	learn: 6.6246116	total: 1.91s	remaining:	
221:	learn: 6.6071915	total: 1.91s	remaining:	
1.	100/1010	COCAI. 1.713	i cilia i i i i i i i i i i i i i i i i i i	0.003

```
learn: 6.6056066
222:
                                  total: 1.91s
                                                   remaining: 6.65s
223:
        learn: 6.5994618
                                  total: 1.91s
                                                   remaining: 6.62s
224:
        learn: 6.5877703
                                  total: 1.91s
                                                   remaining: 6.58s
225:
        learn: 6.5792620
                                  total: 1.91s
                                                   remaining: 6.55s
226:
        learn: 6.5631830
                                  total: 1.91s
                                                   remaining: 6.52s
        learn: 6.5515059
227:
                                  total: 1.92s
                                                   remaining: 6.48s
228:
        learn: 6.5285617
                                  total: 1.92s
                                                   remaining: 6.45s
229:
        learn: 6.4943797
                                                   remaining: 6.42s
                                  total: 1.92s
230:
        learn: 6.4831068
                                  total: 1.92s
                                                   remaining: 6.39s
231:
        learn: 6.4814726
                                  total: 2s
                                                   remaining: 6.62s
232:
        learn: 6.4640783
                                  total: 2s
                                                   remaining: 6.59s
233:
        learn: 6.4301774
                                                   remaining: 6.56s
                                  total: 2s
234:
        learn: 6.4155813
                                  total: 2s
                                                   remaining: 6.53s
        learn: 6.4033402
                                  total: 2.01s
235:
                                                   remaining: 6.5s
236:
        learn: 6.4018248
                                  total: 2.01s
                                                   remaining: 6.46s
237:
        learn: 6.3916248
                                  total: 2.01s
                                                   remaining: 6.43s
                                                   remaining: 6.4s
238:
        learn: 6.3735781
                                  total: 2.01s
239:
        learn: 6.3555844
                                  total: 2.01s
                                                   remaining: 6.37s
240:
                                  total: 2.01s
        learn: 6.3409842
                                                   remaining: 6.34s
241:
        learn: 6.3262583
                                  total: 2.1s
                                                   remaining: 6.57s
242:
        learn: 6.3027414
                                  total: 2.1s
                                                   remaining: 6.53s
243:
        learn: 6.2925773
                                  total: 2.1s
                                                   remaining: 6.5s
244:
        learn: 6.2763178
                                  total: 2.1s
                                                   remaining: 6.47s
245:
        learn: 6.2624698
                                  total: 2.1s
                                                   remaining: 6.44s
246:
        learn: 6.2399661
                                  total: 2.1s
                                                   remaining: 6.41s
247:
        learn: 6.2384127
                                  total: 2.1s
                                                   remaining: 6.38s
248:
        learn: 6.2287181
                                  total: 2.1s
                                                   remaining: 6.35s
                                                   remaining: 6.32s
249:
        learn: 6.2273789
                                  total: 2.1s
250:
        learn: 6.2069689
                                  total: 2.11s
                                                   remaining: 6.29s
        learn: 6.2056280
251:
                                  total: 2.11s
                                                   remaining: 6.26s
252:
        learn: 6.2045151
                                  total: 2.19s
                                                   remaining: 6.47s
                                  total: 2.19s
253:
        learn: 6.1746460
                                                   remaining: 6.44s
254:
        learn: 6.1700675
                                  total: 2.19s
                                                   remaining: 6.41s
255:
        learn: 6.1515458
                                  total: 2.19s
                                                   remaining: 6.38s
256:
        learn: 6.1262531
                                  total: 2.2s
                                                   remaining: 6.35s
257:
        learn: 6.1194350
                                  total: 2.2s
                                                   remaining: 6.32s
258:
        learn: 6.1135229
                                  total: 2.2s
                                                   remaining: 6.29s
259:
        learn: 6.1010069
                                  total: 2.2s
                                                   remaining: 6.26s
260:
        learn: 6.0924651
                                  total: 2.2s
                                                   remaining: 6.24s
261:
        learn: 6.0907584
                                  total: 2.2s
                                                   remaining: 6.21s
262:
        learn: 6.0779264
                                  total: 2.29s
                                                   remaining: 6.41s
263:
        learn: 6.0636347
                                  total: 2.29s
                                                   remaining: 6.38s
                                  total: 2.29s
264:
        learn: 6.0475659
                                                   remaining: 6.35s
265:
        learn: 6.0423912
                                  total: 2.29s
                                                   remaining: 6.32s
                                                   remaining: 6.29s
266:
        learn: 6.0264304
                                  total: 2.29s
267:
        learn: 6.0173345
                                  total: 2.29s
                                                   remaining: 6.26s
268:
        learn: 6.0017514
                                  total: 2.29s
                                                   remaining: 6.24s
                                  total: 2.29s
                                                   remaining: 6.21s
269:
        learn: 5.9932446
270:
        learn: 5.9871541
                                  total: 2.3s
                                                   remaining: 6.18s
271:
        learn: 5.9739151
                                  total: 2.3s
                                                   remaining: 6.15s
272:
        learn: 5.9608431
                                  total: 2.3s
                                                   remaining: 6.12s
273:
        learn: 5.9599001
                                  total: 2.31s
                                                   remaining: 6.11s
274:
        learn: 5.9497099
                                  total: 2.38s
                                                   remaining: 6.28s
275:
        learn: 5.9332730
                                  total: 2.38s
                                                   remaining: 6.25s
        learn: 5.9321111
276:
                                  total: 2.38s
                                                   remaining: 6.23s
277:
        learn: 5.9141664
                                                   remaining: 6.2s
                                  total: 2.39s
278:
        learn: 5.9131827
                                  total: 2.39s
                                                   remaining: 6.17s
279:
        learn: 5.8976731
                                  total: 2.39s
                                                   remaining: 6.15s
280:
        learn: 5.8889611
                                  total: 2.39s
                                                   remaining: 6.12s
281:
        learn: 5.8750938
                                  total: 2.39s
                                                   remaining: 6.09s
282:
        learn: 5.8623929
                                  total: 2.39s
                                                   remaining: 6.06s
```

```
283:
        learn: 5.8449326
                                  total: 2.39s
                                                   remaining: 6.04s
284:
        learn: 5.8219957
                                  total: 2.48s
                                                   remaining: 6.22s
285:
        learn: 5.8002280
                                  total: 2.48s
                                                   remaining: 6.19s
286:
        learn: 5.7884004
                                  total: 2.48s
                                                   remaining: 6.16s
287:
        learn: 5.7770939
                                  total: 2.48s
                                                   remaining: 6.13s
        learn: 5.7685909
                                  total: 2.48s
288:
                                                   remaining: 6.11s
289:
        learn: 5.7643167
                                  total: 2.48s
                                                   remaining: 6.08s
290:
        learn: 5.7548405
                                  total: 2.48s
                                                   remaining: 6.05s
291:
        learn: 5.7413592
                                  total: 2.49s
                                                   remaining: 6.03s
292:
        learn: 5.7272495
                                  total: 2.49s
                                                   remaining: 6s
        learn: 5.7205945
293:
                                  total: 2.49s
                                                   remaining: 5.98s
294:
        learn: 5.7165059
                                  total: 2.49s
                                                   remaining: 5.95s
295:
        learn: 5.7010455
                                  total: 2.57s
                                                   remaining: 6.12s
        learn: 5.6909355
                                  total: 2.58s
296:
                                                   remaining: 6.09s
297:
        learn: 5.6898281
                                  total: 2.58s
                                                   remaining: 6.07s
298:
        learn: 5.6760376
                                  total: 2.58s
                                                   remaining: 6.04s
299:
        learn: 5.6648418
                                  total: 2.58s
                                                   remaining: 6.02s
300:
        learn: 5.6522097
                                  total: 2.58s
                                                   remaining: 5.99s
                                  total: 2.58s
301:
        learn: 5.6425710
                                                   remaining: 5.97s
302:
        learn: 5.6246931
                                  total: 2.58s
                                                   remaining: 5.94s
        learn: 5.6141769
                                  total: 2.58s
303:
                                                   remaining: 5.92s
304:
        learn: 5.5985015
                                  total: 2.58s
                                                   remaining: 5.89s
305:
        learn: 5.5730267
                                  total: 2.59s
                                                   remaining: 5.87s
306:
        learn: 5.5659759
                                  total: 2.67s
                                                   remaining: 6.03s
307:
        learn: 5.5649307
                                  total: 2.67s
                                                   remaining: 6s
308:
        learn: 5.5405704
                                  total: 2.67s
                                                   remaining: 5.97s
309:
        learn: 5.5171484
                                  total: 2.67s
                                                   remaining: 5.95s
310:
        learn: 5.5082305
                                  total: 2.67s
                                                   remaining: 5.92s
311:
        learn: 5.5011793
                                  total: 2.67s
                                                   remaining: 5.9s
312:
        learn: 5.4838631
                                  total: 2.68s
                                                   remaining: 5.87s
313:
        learn: 5.4722208
                                  total: 2.68s
                                                   remaining: 5.85s
        learn: 5.4600104
                                  total: 2.68s
314:
                                                   remaining: 5.83s
315:
        learn: 5.4591852
                                  total: 2.68s
                                                   remaining: 5.8s
        learn: 5.4410009
316:
                                  total: 2.68s
                                                   remaining: 5.78s
        learn: 5.4234073
317:
                                  total: 2.76s
                                                   remaining: 5.93s
                                  total: 2.77s
                                                   remaining: 5.9s
318:
        learn: 5.4183869
319:
        learn: 5.4056150
                                  total: 2.77s
                                                   remaining: 5.88s
320:
        learn: 5.3985537
                                  total: 2.77s
                                                   remaining: 5.86s
321:
        learn: 5.3892137
                                  total: 2.77s
                                                   remaining: 5.83s
322:
        learn: 5.3798921
                                  total: 2.77s
                                                   remaining: 5.81s
323:
        learn: 5.3648747
                                                   remaining: 5.78s
                                  total: 2.77s
324:
        learn: 5.3639778
                                  total: 2.77s
                                                   remaining: 5.76s
325:
        learn: 5.3490209
                                  total: 2.77s
                                                   remaining: 5.74s
        learn: 5.3384494
326:
                                  total: 2.78s
                                                   remaining: 5.71s
327:
        learn: 5.3236894
                                  total: 2.86s
                                                   remaining: 5.86s
328:
        learn: 5.3167148
                                  total: 2.86s
                                                   remaining: 5.84s
329:
        learn: 5.3158368
                                  total: 2.86s
                                                   remaining: 5.81s
                                  total: 2.86s
                                                   remaining: 5.79s
330:
        learn: 5.3091831
331:
        learn: 5.3023231
                                  total: 2.87s
                                                   remaining: 5.76s
332:
        learn: 5.2976605
                                  total: 2.87s
                                                   remaining: 5.74s
333:
        learn: 5.2865510
                                  total: 2.87s
                                                   remaining: 5.72s
        learn: 5.2742750
334:
                                  total: 2.87s
                                                   remaining: 5.69s
335:
        learn: 5.2673996
                                                   remaining: 5.67s
                                  total: 2.87s
336:
        learn: 5.2664879
                                  total: 2.87s
                                                   remaining: 5.65s
        learn: 5.2546891
337:
                                  total: 2.87s
                                                   remaining: 5.62s
338:
        learn: 5.2513377
                                                   remaining: 5.6s
                                  total: 2.87s
339:
        learn: 5.2413266
                                  total: 2.96s
                                                   remaining: 5.74s
340:
        learn: 5.2348038
                                  total: 2.96s
                                                   remaining: 5.71s
341:
        learn: 5.2152755
                                  total: 2.96s
                                                   remaining: 5.69s
342:
        learn: 5.2142653
                                  total: 2.96s
                                                   remaining: 5.67s
343:
        learn: 5.2003999
                                  total: 2.96s
                                                   remaining: 5.65s
```

```
344:
        learn: 5.1994031
                                  total: 2.96s
                                                   remaining: 5.62s
345:
        learn: 5.1969930
                                  total: 2.96s
                                                   remaining: 5.6s
        learn: 5.1959956
                                  total: 2.96s
346:
                                                   remaining: 5.58s
347:
        learn: 5.1866070
                                  total: 2.97s
                                                   remaining: 5.57s
348:
        learn: 5.1657822
                                  total: 3.05s
                                                   remaining: 5.69s
349:
        learn: 5.1566566
                                  total: 3.05s
                                                   remaining: 5.67s
350:
        learn: 5.1481782
                                  total: 3.05s
                                                   remaining: 5.65s
351:
        learn: 5.1390956
                                                   remaining: 5.63s
                                  total: 3.06s
352:
        learn: 5.1231454
                                  total: 3.06s
                                                   remaining: 5.6s
353:
        learn: 5.1121795
                                  total: 3.06s
                                                   remaining: 5.58s
        learn: 5.1009565
354:
                                  total: 3.06s
                                                   remaining: 5.56s
355:
        learn: 5.0909966
                                                   remaining: 5.54s
                                  total: 3.06s
356:
        learn: 5.0889640
                                  total: 3.06s
                                                   remaining: 5.51s
357:
        learn: 5.0879449
                                  total: 3.06s
                                                   remaining: 5.49s
358:
        learn: 5.0781052
                                  total: 3.06s
                                                   remaining: 5.47s
359:
        learn: 5.0661525
                                  total: 3.06s
                                                   remaining: 5.45s
360:
        learn: 5.0491226
                                  total: 3.06s
                                                   remaining: 5.43s
361:
        learn: 5.0408886
                                  total: 3.15s
                                                   remaining: 5.54s
362:
        learn: 5.0360717
                                  total: 3.15s
                                                   remaining: 5.52s
363:
        learn: 5.0264952
                                                   remaining: 5.5s
                                  total: 3.15s
364:
        learn: 5.0159793
                                  total: 3.15s
                                                   remaining: 5.48s
365:
        learn: 5.0103801
                                  total: 3.15s
                                                   remaining: 5.46s
366:
        learn: 4.9942136
                                  total: 3.15s
                                                   remaining: 5.44s
367:
        learn: 4.9869091
                                  total: 3.15s
                                                   remaining: 5.42s
                                                   remaining: 5.39s
368:
        learn: 4.9769713
                                  total: 3.15s
369:
        learn: 4.9761645
                                  total: 3.15s
                                                   remaining: 5.37s
370:
        learn: 4.9753954
                                  total: 3.16s
                                                   remaining: 5.35s
371:
        learn: 4.9745960
                                  total: 3.24s
                                                   remaining: 5.47s
372:
        learn: 4.9692866
                                  total: 3.24s
                                                   remaining: 5.45s
        learn: 4.9609919
373:
                                  total: 3.25s
                                                   remaining: 5.43s
374:
        learn: 4.9493759
                                  total: 3.25s
                                                   remaining: 5.41s
                                  total: 3.25s
375:
        learn: 4.9484733
                                                   remaining: 5.39s
376:
        learn: 4.9437753
                                  total: 3.25s
                                                   remaining: 5.37s
        learn: 4.9331444
377:
                                  total: 3.25s
                                                   remaining: 5.35s
        learn: 4.9193135
378:
                                  total: 3.25s
                                                   remaining: 5.33s
                                  total: 3.25s
                                                   remaining: 5.31s
379:
        learn: 4.9088155
380:
        learn: 4.9036206
                                  total: 3.25s
                                                   remaining: 5.29s
381:
        learn: 4.8909824
                                  total: 3.26s
                                                   remaining: 5.27s
382:
        learn: 4.8828887
                                  total: 3.26s
                                                   remaining: 5.25s
383:
        learn: 4.8736686
                                  total: 3.34s
                                                   remaining: 5.35s
384:
        learn: 4.8616428
                                                   remaining: 5.33s
                                  total: 3.34s
385:
        learn: 4.8490032
                                  total: 3.34s
                                                   remaining: 5.31s
        learn: 4.8361730
                                  total: 3.34s
386:
                                                   remaining: 5.29s
        learn: 4.8245228
                                  total: 3.34s
387:
                                                   remaining: 5.27s
388:
        learn: 4.8120778
                                  total: 3.34s
                                                   remaining: 5.25s
389:
        learn: 4.8033016
                                  total: 3.34s
                                                   remaining: 5.23s
390:
        learn: 4.7967588
                                  total: 3.35s
                                                   remaining: 5.21s
                                                   remaining: 5.19s
391:
        learn: 4.7795290
                                  total: 3.35s
392:
        learn: 4.7789054
                                  total: 3.35s
                                                   remaining: 5.17s
393:
        learn: 4.7553221
                                  total: 3.35s
                                                   remaining: 5.15s
394:
        learn: 4.7435824
                                  total: 3.35s
                                                   remaining: 5.13s
395:
        learn: 4.7325068
                                  total: 3.43s
                                                   remaining: 5.24s
396:
        learn: 4.7263396
                                  total: 3.44s
                                                   remaining: 5.22s
397:
        learn: 4.7126791
                                  total: 3.44s
                                                   remaining: 5.2s
398:
        learn: 4.7120409
                                  total: 3.44s
                                                   remaining: 5.18s
399:
        learn: 4.6987072
                                  total: 3.44s
                                                   remaining: 5.16s
400:
        learn: 4.6933694
                                  total: 3.44s
                                                   remaining: 5.14s
401:
        learn: 4.6924974
                                  total: 3.44s
                                                   remaining: 5.12s
402:
        learn: 4.6847211
                                  total: 3.44s
                                                   remaining: 5.1s
403:
        learn: 4.6770342
                                  total: 3.44s
                                                   remaining: 5.08s
404:
        learn: 4.6683770
                                  total: 3.44s
                                                   remaining: 5.06s
```

```
learn: 4.6643964
405:
                                  total: 3.44s
                                                   remaining: 5.04s
406:
        learn: 4.6618416
                                  total: 3.53s
                                                   remaining: 5.14s
407:
                                  total: 3.53s
        learn: 4.6432625
                                                   remaining: 5.12s
408:
        learn: 4.6352838
                                  total: 3.53s
                                                   remaining: 5.1s
409:
        learn: 4.6281973
                                  total: 3.53s
                                                   remaining: 5.08s
                                  total: 3.53s
410:
        learn: 4.6273034
                                                   remaining: 5.06s
411:
        learn: 4.6211556
                                  total: 3.53s
                                                   remaining: 5.04s
412:
        learn: 4.6097603
                                                   remaining: 5.03s
                                  total: 3.54s
413:
        learn: 4.6014581
                                  total: 3.54s
                                                   remaining: 5.01s
414:
        learn: 4.5882906
                                  total: 3.54s
                                                   remaining: 4.99s
415:
        learn: 4.5703917
                                  total: 3.54s
                                                   remaining: 4.97s
416:
        learn: 4.5575758
                                                   remaining: 4.95s
                                  total: 3.54s
417:
        learn: 4.5525541
                                  total: 3.63s
                                                   remaining: 5.05s
418:
        learn: 4.5416722
                                  total: 3.64s
                                                   remaining: 5.05s
419:
        learn: 4.5279214
                                  total: 3.66s
                                                   remaining: 5.05s
420:
        learn: 4.5187654
                                  total: 3.67s
                                                   remaining: 5.05s
421:
        learn: 4.5071610
                                  total: 3.68s
                                                   remaining: 5.04s
422:
        learn: 4.4976373
                                  total: 3.68s
                                                   remaining: 5.02s
423:
        learn: 4.4930904
                                  total: 3.68s
                                                   remaining: 5s
424:
        learn: 4.4849472
                                  total: 3.68s
                                                   remaining: 4.98s
425:
        learn: 4.4724638
                                  total: 3.68s
                                                   remaining: 4.96s
426:
        learn: 4.4673340
                                  total: 3.72s
                                                   remaining: 4.99s
427:
        learn: 4.4564248
                                  total: 3.72s
                                                   remaining: 4.97s
428:
        learn: 4.4395108
                                  total: 3.72s
                                                   remaining: 4.95s
429:
        learn: 4.4359525
                                  total: 3.72s
                                                   remaining: 4.93s
430:
        learn: 4.4263839
                                  total: 3.72s
                                                   remaining: 4.91s
431:
        learn: 4.4177620
                                  total: 3.72s
                                                   remaining: 4.89s
432:
        learn: 4.4111262
                                  total: 3.72s
                                                   remaining: 4.88s
433:
        learn: 4.4063647
                                  total: 3.73s
                                                   remaining: 4.86s
434:
        learn: 4.3950824
                                  total: 3.73s
                                                   remaining: 4.84s
435:
        learn: 4.3945289
                                  total: 3.73s
                                                   remaining: 4.82s
436:
        learn: 4.3855613
                                  total: 3.81s
                                                   remaining: 4.91s
437:
        learn: 4.3714091
                                  total: 3.81s
                                                   remaining: 4.89s
438:
        learn: 4.3651354
                                  total: 3.81s
                                                   remaining: 4.88s
439:
        learn: 4.3608964
                                  total: 3.82s
                                                   remaining: 4.86s
440:
        learn: 4.3539966
                                  total: 3.82s
                                                   remaining: 4.84s
441:
        learn: 4.3468596
                                  total: 3.82s
                                                   remaining: 4.82s
442:
        learn: 4.3401825
                                  total: 3.82s
                                                   remaining: 4.8s
443:
        learn: 4.3366472
                                  total: 3.82s
                                                   remaining: 4.79s
444:
        learn: 4.3309483
                                  total: 3.82s
                                                   remaining: 4.77s
445:
        learn: 4.3304775
                                                   remaining: 4.75s
                                  total: 3.83s
446:
        learn: 4.3189416
                                  total: 3.91s
                                                   remaining: 4.83s
447:
                                  total: 3.91s
        learn: 4.3088715
                                                   remaining: 4.82s
        learn: 4.2987945
448:
                                  total: 3.91s
                                                   remaining: 4.8s
449:
        learn: 4.2934824
                                  total: 3.91s
                                                   remaining: 4.78s
450:
        learn: 4.2894471
                                  total: 3.91s
                                                   remaining: 4.76s
451:
        learn: 4.2799182
                                  total: 3.91s
                                                   remaining: 4.74s
                                                   remaining: 4.73s
452:
        learn: 4.2751685
                                  total: 3.91s
453:
        learn: 4.2684201
                                  total: 3.92s
                                                   remaining: 4.71s
454:
        learn: 4.2636318
                                  total: 3.92s
                                                   remaining: 4.69s
455:
        learn: 4.2631527
                                  total: 3.92s
                                                   remaining: 4.67s
456:
        learn: 4.2585894
                                  total: 3.92s
                                                   remaining: 4.66s
457:
        learn: 4.2470273
                                                   remaining: 4.74s
                                  total: 4s
458:
        learn: 4.2353962
                                  total: 4s
                                                   remaining: 4.72s
459:
        learn: 4.2348906
                                  total: 4s
                                                   remaining: 4.7s
460:
        learn: 4.2245233
                                  total: 4.01s
                                                   remaining: 4.68s
461:
        learn: 4.2199313
                                  total: 4.01s
                                                   remaining: 4.67s
462:
        learn: 4.2096422
                                  total: 4.02s
                                                   remaining: 4.67s
463:
        learn: 4.1979285
                                  total: 4.03s
                                                   remaining: 4.65s
464:
        learn: 4.1887000
                                  total: 4.03s
                                                   remaining: 4.63s
465:
        learn: 4.1841597
                                  total: 4.03s
                                                   remaining: 4.62s
```

```
learn: 4.1788089
466:
                                  total: 4.1s
                                                   remaining: 4.68s
467:
        learn: 4.1705973
                                  total: 4.1s
                                                   remaining: 4.66s
468:
        learn: 4.1636796
                                  total: 4.1s
                                                   remaining: 4.64s
469:
        learn: 4.1568138
                                  total: 4.1s
                                                   remaining: 4.63s
470:
        learn: 4.1454144
                                  total: 4.1s
                                                   remaining: 4.61s
        learn: 4.1382091
471:
                                  total: 4.11s
                                                   remaining: 4.59s
472:
        learn: 4.1377814
                                  total: 4.11s
                                                   remaining: 4.58s
473:
        learn: 4.1333704
                                  total: 4.11s
                                                   remaining: 4.56s
474:
        learn: 4.1232524
                                  total: 4.11s
                                                   remaining: 4.54s
475:
        learn: 4.1228518
                                  total: 4.11s
                                                   remaining: 4.53s
476:
        learn: 4.1107348
                                  total: 4.11s
                                                   remaining: 4.51s
477:
        learn: 4.1103706
                                                   remaining: 4.49s
                                  total: 4.11s
478:
        learn: 4.1001901
                                  total: 4.19s
                                                   remaining: 4.56s
479:
        learn: 4.0998010
                                  total: 4.2s
                                                   remaining: 4.54s
480:
        learn: 4.0949014
                                  total: 4.2s
                                                   remaining: 4.53s
481:
        learn: 4.0886340
                                  total: 4.2s
                                                   remaining: 4.51s
482:
        learn: 4.0811674
                                  total: 4.2s
                                                   remaining: 4.5s
483:
        learn: 4.0738703
                                  total: 4.2s
                                                   remaining: 4.48s
484:
        learn: 4.0625339
                                  total: 4.2s
                                                   remaining: 4.46s
485:
        learn: 4.0600323
                                  total: 4.2s
                                                   remaining: 4.45s
486:
        learn: 4.0522430
                                  total: 4.2s
                                                   remaining: 4.43s
487:
        learn: 4.0518079
                                  total: 4.21s
                                                   remaining: 4.41s
488:
        learn: 4.0448153
                                  total: 4.21s
                                                   remaining: 4.4s
489:
        learn: 4.0381820
                                  total: 4.29s
                                                   remaining: 4.47s
490:
        learn: 4.0378777
                                  total: 4.29s
                                                   remaining: 4.45s
491:
        learn: 4.0328401
                                  total: 4.29s
                                                   remaining: 4.43s
492:
        learn: 4.0235672
                                  total: 4.29s
                                                   remaining: 4.42s
                                                   remaining: 4.4s
493:
        learn: 4.0169465
                                  total: 4.3s
494:
        learn: 4.0047675
                                  total: 4.3s
                                                   remaining: 4.38s
                                  total: 4.3s
495:
        learn: 4.0005306
                                                   remaining: 4.37s
496:
        learn: 3.9973744
                                  total: 4.3s
                                                   remaining: 4.35s
        learn: 3.9970419
497:
                                  total: 4.3s
                                                   remaining: 4.33s
498:
        learn: 3.9873710
                                  total: 4.3s
                                                   remaining: 4.32s
499:
        learn: 3.9800741
                                  total: 4.3s
                                                   remaining: 4.3s
        learn: 3.9717331
500:
                                  total: 4.38s
                                                   remaining: 4.37s
        learn: 3.9653987
501:
                                  total: 4.39s
                                                   remaining: 4.35s
502:
        learn: 3.9610176
                                  total: 4.39s
                                                   remaining: 4.33s
503:
        learn: 3.9522370
                                  total: 4.39s
                                                   remaining: 4.32s
                                                   remaining: 4.3s
504:
        learn: 3.9429070
                                  total: 4.39s
505:
        learn: 3.9340619
                                  total: 4.39s
                                                   remaining: 4.29s
506:
        learn: 3.9250849
                                  total: 4.39s
                                                   remaining: 4.27s
507:
        learn: 3.9185654
                                  total: 4.39s
                                                   remaining: 4.25s
        learn: 3.9153060
508:
                                  total: 4.39s
                                                   remaining: 4.24s
        learn: 3.9048621
509:
                                  total: 4.4s
                                                   remaining: 4.22s
510:
        learn: 3.8990298
                                                   remaining: 4.21s
                                  total: 4.4s
511:
        learn: 3.8987270
                                  total: 4.4s
                                                   remaining: 4.2s
512:
        learn: 3.8889255
                                  total: 4.48s
                                                   remaining: 4.25s
513:
        learn: 3.8791970
                                  total: 4.48s
                                                   remaining: 4.24s
514:
        learn: 3.8725053
                                  total: 4.48s
                                                   remaining: 4.22s
515:
        learn: 3.8661023
                                  total: 4.49s
                                                   remaining: 4.21s
516:
        learn: 3.8594914
                                  total: 4.49s
                                                   remaining: 4.19s
517:
        learn: 3.8508499
                                  total: 4.49s
                                                   remaining: 4.18s
518:
        learn: 3.8403962
                                  total: 4.49s
                                                   remaining: 4.16s
519:
        learn: 3.8312879
                                  total: 4.49s
                                                   remaining: 4.14s
520:
        learn: 3.8227177
                                  total: 4.49s
                                                   remaining: 4.13s
521:
        learn: 3.8182703
                                  total: 4.49s
                                                   remaining: 4.12s
522:
        learn: 3.8043856
                                  total: 4.58s
                                                   remaining: 4.17s
523:
        learn: 3.7939576
                                  total: 4.58s
                                                   remaining: 4.16s
524:
        learn: 3.7895587
                                  total: 4.58s
                                                   remaining: 4.14s
525:
        learn: 3.7762306
                                  total: 4.58s
                                                   remaining: 4.13s
526:
        learn: 3.7707573
                                  total: 4.58s
                                                   remaining: 4.11s
```

```
527:
        learn: 3.7629016
                                  total: 4.58s
                                                   remaining: 4.1s
528:
        learn: 3.7560610
                                  total: 4.58s
                                                   remaining: 4.08s
529:
        learn: 3.7520562
                                  total: 4.59s
                                                   remaining: 4.07s
530:
        learn: 3.7517956
                                  total: 4.59s
                                                   remaining: 4.05s
531:
        learn: 3.7445704
                                  total: 4.59s
                                                   remaining: 4.04s
532:
        learn: 3.7383933
                                  total: 4.59s
                                                   remaining: 4.02s
533:
        learn: 3.7212789
                                  total: 4.67s
                                                   remaining: 4.08s
534:
        learn: 3.7108710
                                  total: 4.67s
                                                   remaining: 4.06s
535:
        learn: 3.7025739
                                  total: 4.68s
                                                   remaining: 4.05s
        learn: 3.6987432
                                  total: 4.68s
536:
                                                   remaining: 4.03s
                                  total: 4.68s
537:
        learn: 3.6905423
                                                   remaining: 4.02s
538:
        learn: 3.6828316
                                  total: 4.68s
                                                   remaining: 4s
539:
        learn: 3.6805288
                                  total: 4.68s
                                                   remaining: 3.99s
540:
        learn: 3.6736652
                                  total: 4.68s
                                                   remaining: 3.97s
541:
        learn: 3.6617003
                                  total: 4.68s
                                                   remaining: 3.96s
542:
        learn: 3.6560058
                                  total: 4.68s
                                                   remaining: 3.94s
543:
        learn: 3.6506539
                                  total: 4.69s
                                                   remaining: 3.93s
544:
        learn: 3.6446585
                                  total: 4.77s
                                                   remaining: 3.98s
                                  total: 4.77s
545:
        learn: 3.6391582
                                                   remaining: 3.96s
546:
        learn: 3.6337565
                                  total: 4.77s
                                                   remaining: 3.95s
547:
        learn: 3.6256847
                                  total: 4.77s
                                                   remaining: 3.93s
548:
        learn: 3.6194510
                                  total: 4.77s
                                                   remaining: 3.92s
549:
        learn: 3.6141614
                                  total: 4.77s
                                                   remaining: 3.9s
550:
        learn: 3.6097928
                                  total: 4.77s
                                                   remaining: 3.89s
                                                   remaining: 3.88s
551:
        learn: 3.6054361
                                  total: 4.78s
552:
        learn: 3.5980671
                                  total: 4.78s
                                                   remaining: 3.86s
553:
        learn: 3.5977340
                                  total: 4.78s
                                                   remaining: 3.85s
554:
        learn: 3.5871205
                                  total: 4.78s
                                                   remaining: 3.83s
555:
        learn: 3.5798198
                                  total: 4.78s
                                                   remaining: 3.82s
                                  total: 4.86s
556:
        learn: 3.5728903
                                                   remaining: 3.87s
557:
        learn: 3.5682384
                                  total: 4.86s
                                                   remaining: 3.85s
        learn: 3.5634876
558:
                                  total: 4.86s
                                                   remaining: 3.84s
                                                   remaining: 3.82s
559:
        learn: 3.5512705
                                  total: 4.86s
560:
        learn: 3.5421495
                                  total: 4.87s
                                                   remaining: 3.81s
561:
        learn: 3.5369696
                                  total: 4.87s
                                                   remaining: 3.79s
                                                   remaining: 3.78s
562:
        learn: 3.5324724
                                  total: 4.87s
563:
        learn: 3.5226946
                                  total: 4.87s
                                                   remaining: 3.77s
564:
        learn: 3.5156081
                                  total: 4.87s
                                                   remaining: 3.75s
565:
        learn: 3.5091311
                                  total: 4.87s
                                                   remaining: 3.74s
566:
        learn: 3.5041061
                                  total: 4.87s
                                                   remaining: 3.72s
567:
        learn: 3.4958076
                                  total: 4.96s
                                                   remaining: 3.77s
        learn: 3.4862928
                                  total: 4.96s
568:
                                                   remaining: 3.75s
        learn: 3.4794683
569:
                                  total: 4.96s
                                                   remaining: 3.74s
        learn: 3.4744782
570:
                                  total: 4.96s
                                                   remaining: 3.73s
571:
        learn: 3.4687012
                                  total: 4.96s
                                                   remaining: 3.71s
572:
        learn: 3.4597032
                                  total: 4.96s
                                                   remaining: 3.7s
573:
        learn: 3.4516942
                                  total: 4.96s
                                                   remaining: 3.68s
                                                   remaining: 3.67s
574:
        learn: 3.4487146
                                  total: 4.96s
575:
        learn: 3.4408071
                                  total: 4.96s
                                                   remaining: 3.65s
576:
        learn: 3.4349830
                                  total: 4.97s
                                                   remaining: 3.64s
577:
        learn: 3.4296904
                                  total: 4.97s
                                                   remaining: 3.63s
578:
        learn: 3.4236812
                                  total: 5.05s
                                                   remaining: 3.67s
579:
        learn: 3.4108811
                                  total: 5.05s
                                                   remaining: 3.66s
580:
        learn: 3.4004219
                                  total: 5.05s
                                                   remaining: 3.65s
581:
        learn: 3.3973323
                                  total: 5.05s
                                                   remaining: 3.63s
582:
        learn: 3.3867294
                                                   remaining: 3.62s
                                  total: 5.06s
583:
        learn: 3.3827528
                                  total: 5.06s
                                                   remaining: 3.6s
584:
        learn: 3.3753784
                                  total: 5.06s
                                                   remaining: 3.59s
585:
        learn: 3.3710782
                                  total: 5.06s
                                                   remaining: 3.58s
586:
        learn: 3.3640198
                                  total: 5.06s
                                                   remaining: 3.56s
        learn: 3.3555792
587:
                                  total: 5.06s
                                                   remaining: 3.55s
```

```
learn: 3.3499755
588:
                                  total: 5.15s
                                                   remaining: 3.59s
589:
        learn: 3.3418975
                                  total: 5.15s
                                                   remaining: 3.58s
        learn: 3.3360498
590:
                                  total: 5.15s
                                                   remaining: 3.56s
591:
        learn: 3.3308415
                                  total: 5.15s
                                                   remaining: 3.55s
592:
        learn: 3.3284953
                                  total: 5.15s
                                                   remaining: 3.54s
        learn: 3.3223244
593:
                                  total: 5.15s
                                                   remaining: 3.52s
594:
        learn: 3.3140731
                                  total: 5.15s
                                                   remaining: 3.51s
595:
        learn: 3.3056702
                                                   remaining: 3.5s
                                  total: 5.16s
        learn: 3.2964317
                                  total: 5.16s
                                                   remaining: 3.48s
596:
597:
        learn: 3.2886863
                                  total: 5.16s
                                                   remaining: 3.47s
598:
        learn: 3.2781407
                                  total: 5.16s
                                                   remaining: 3.45s
599:
        learn: 3.2727613
                                                   remaining: 3.5s
                                  total: 5.24s
600:
        learn: 3.2675382
                                  total: 5.24s
                                                   remaining: 3.48s
        learn: 3.2627002
                                  total: 5.25s
601:
                                                   remaining: 3.47s
602:
        learn: 3.2521927
                                  total: 5.25s
                                                   remaining: 3.45s
603:
        learn: 3.2485785
                                  total: 5.25s
                                                   remaining: 3.44s
604.
        learn: 3.2476555
                                  total: 5.25s
                                                   remaining: 3.43s
605:
        learn: 3.2446877
                                  total: 5.25s
                                                   remaining: 3.41s
606:
        learn: 3.2402441
                                  total: 5.25s
                                                   remaining: 3.4s
607:
        learn: 3.2330157
                                  total: 5.25s
                                                   remaining: 3.39s
        learn: 3.2293312
                                  total: 5.25s
608:
                                                   remaining: 3.37s
609:
        learn: 3.2240199
                                  total: 5.33s
                                                   remaining: 3.41s
610:
        learn: 3.2196722
                                  total: 5.34s
                                                   remaining: 3.4s
611:
        learn: 3.2175031
                                  total: 5.34s
                                                   remaining: 3.38s
                                                   remaining: 3.37s
612:
        learn: 3.2114758
                                  total: 5.34s
613:
        learn: 3.2035386
                                  total: 5.34s
                                                   remaining: 3.36s
614:
        learn: 3.1963390
                                  total: 5.34s
                                                   remaining: 3.34s
615:
        learn: 3.1892496
                                  total: 5.34s
                                                   remaining: 3.33s
616:
        learn: 3.1821531
                                  total: 5.34s
                                                   remaining: 3.32s
617:
        learn: 3.1818556
                                  total: 5.35s
                                                   remaining: 3.3s
618:
        learn: 3.1738523
                                  total: 5.35s
                                                   remaining: 3.29s
619:
        learn: 3.1647103
                                  total: 5.43s
                                                   remaining: 3.33s
620:
        learn: 3.1613330
                                  total: 5.43s
                                                   remaining: 3.31s
621:
        learn: 3.1570918
                                  total: 5.43s
                                                   remaining: 3.3s
622:
        learn: 3.1481887
                                  total: 5.43s
                                                   remaining: 3.29s
                                                   remaining: 3.27s
623:
        learn: 3.1449105
                                  total: 5.44s
624:
        learn: 3.1394418
                                  total: 5.44s
                                                   remaining: 3.26s
625:
        learn: 3.1348326
                                  total: 5.44s
                                                   remaining: 3.25s
626:
        learn: 3.1311805
                                  total: 5.44s
                                                   remaining: 3.23s
627:
        learn: 3.1267788
                                  total: 5.44s
                                                   remaining: 3.22s
628:
        learn: 3.1172011
                                                   remaining: 3.21s
                                  total: 5.44s
629:
        learn: 3.1055434
                                  total: 5.53s
                                                   remaining: 3.25s
        learn: 3.0936695
630:
                                  total: 5.53s
                                                   remaining: 3.23s
        learn: 3.0869546
631:
                                  total: 5.53s
                                                   remaining: 3.22s
        learn: 3.0844305
                                                   remaining: 3.21s
632:
                                  total: 5.53s
633:
        learn: 3.0807463
                                  total: 5.53s
                                                   remaining: 3.19s
        learn: 3.0804840
                                  total: 5.53s
634:
                                                   remaining: 3.18s
635:
        learn: 3.0741127
                                  total: 5.54s
                                                   remaining: 3.17s
636:
        learn: 3.0686536
                                  total: 5.54s
                                                   remaining: 3.15s
637:
        learn: 3.0617996
                                  total: 5.54s
                                                   remaining: 3.14s
638:
        learn: 3.0582216
                                  total: 5.54s
                                                   remaining: 3.13s
639:
        learn: 3.0542412
                                  total: 5.54s
                                                   remaining: 3.12s
640:
        learn: 3.0458112
                                  total: 5.54s
                                                   remaining: 3.1s
641:
        learn: 3.0439256
                                  total: 5.62s
                                                   remaining: 3.13s
        learn: 3.0403006
642:
                                  total: 5.62s
                                                   remaining: 3.12s
643:
        learn: 3.0401215
                                                   remaining: 3.11s
                                  total: 5.62s
644:
        learn: 3.0359535
                                  total: 5.63s
                                                   remaining: 3.1s
        learn: 3.0324617
                                  total: 5.63s
645:
                                                   remaining: 3.08s
646:
        learn: 3.0270865
                                  total: 5.63s
                                                   remaining: 3.07s
647:
        learn: 3.0235878
                                  total: 5.63s
                                                   remaining: 3.06s
648:
        learn: 3.0210595
                                  total: 5.63s
                                                   remaining: 3.04s
```

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649:
        learn: 3.0169534
                                  total: 5.63s
                                                   remaining: 3.03s
650:
        learn: 3.0077574
                                  total: 5.63s
                                                   remaining: 3.02s
        learn: 3.0007111
651:
                                  total: 5.72s
                                                   remaining: 3.05s
652:
        learn: 3.0003635
                                  total: 5.72s
                                                   remaining: 3.04s
653:
        learn: 2.9948121
                                  total: 5.72s
                                                   remaining: 3.03s
        learn: 2.9869214
654:
                                  total: 5.72s
                                                   remaining: 3.01s
655:
        learn: 2.9811219
                                  total: 5.72s
                                                   remaining: 3s
        learn: 2.9739130
                                  total: 5.72s
                                                   remaining: 2.99s
656:
657:
        learn: 2.9683766
                                  total: 5.72s
                                                   remaining: 2.98s
        learn: 2.9654160
                                  total: 5.72s
658:
                                                   remaining: 2.96s
                                  total: 5.73s
659:
        learn: 2.9615771
                                                   remaining: 2.95s
        learn: 2.9530276
                                                   remaining: 2.94s
660:
                                  total: 5.73s
661:
        learn: 2.9476878
                                  total: 5.73s
                                                   remaining: 2.92s
        learn: 2.9432816
                                  total: 5.81s
662:
                                                   remaining: 2.95s
663:
        learn: 2.9368981
                                  total: 5.81s
                                                   remaining: 2.94s
664:
        learn: 2.9366143
                                  total: 5.82s
                                                   remaining: 2.93s
665:
        learn: 2.9273984
                                  total: 5.82s
                                                   remaining: 2.92s
666:
        learn: 2.9180636
                                  total: 5.82s
                                                   remaining: 2.9s
667:
        learn: 2.9091113
                                  total: 5.82s
                                                   remaining: 2.89s
        learn: 2.9043562
                                  total: 5.82s
                                                   remaining: 2.88s
668:
        learn: 2.8954088
                                  total: 5.82s
669:
                                                   remaining: 2.87s
670:
        learn: 2.8905255
                                  total: 5.82s
                                                   remaining: 2.85s
671:
        learn: 2.8834990
                                  total: 5.82s
                                                   remaining: 2.84s
672:
        learn: 2.8775750
                                  total: 5.82s
                                                   remaining: 2.83s
673:
        learn: 2.8734214
                                  total: 5.91s
                                                   remaining: 2.86s
674:
        learn: 2.8703787
                                  total: 5.91s
                                                   remaining: 2.85s
675:
        learn: 2.8647943
                                  total: 5.91s
                                                   remaining: 2.83s
676:
        learn: 2.8632680
                                  total: 5.91s
                                                   remaining: 2.82s
677:
        learn: 2.8629132
                                  total: 5.91s
                                                   remaining: 2.81s
678:
        learn: 2.8601404
                                  total: 5.92s
                                                   remaining: 2.8s
679:
        learn: 2.8535541
                                  total: 5.92s
                                                   remaining: 2.78s
                                  total: 5.92s
680:
        learn: 2.8470864
                                                   remaining: 2.77s
681:
        learn: 2.8412759
                                  total: 5.92s
                                                   remaining: 2.76s
682:
        learn: 2.8395433
                                  total: 5.92s
                                                   remaining: 2.75s
683:
        learn: 2.8333158
                                  total: 5.92s
                                                   remaining: 2.73s
                                                   remaining: 2.76s
684:
        learn: 2.8275008
                                  total: 6s
685:
        learn: 2.8240927
                                  total: 6s
                                                   remaining: 2.75s
686:
        learn: 2.8184258
                                  total: 6.01s
                                                   remaining: 2.74s
687:
        learn: 2.8135563
                                  total: 6.01s
                                                   remaining: 2.72s
688:
        learn: 2.8078105
                                  total: 6.01s
                                                   remaining: 2.71s
689:
        learn: 2.8032474
                                  total: 6.01s
                                                   remaining: 2.7s
690:
        learn: 2.7988785
                                  total: 6.01s
                                                   remaining: 2.69s
        learn: 2.7929742
691:
                                  total: 6.01s
                                                   remaining: 2.68s
        learn: 2.7875233
692:
                                  total: 6.01s
                                                   remaining: 2.66s
693:
        learn: 2.7826526
                                  total: 6.01s
                                                   remaining: 2.65s
694:
        learn: 2.7760485
                                  total: 6.01s
                                                   remaining: 2.64s
695:
        learn: 2.7720352
                                  total: 6.1s
                                                   remaining: 2.66s
                                                   remaining: 2.65s
696:
        learn: 2.7653703
                                  total: 6.1s
697:
        learn: 2.7634484
                                  total: 6.1s
                                                   remaining: 2.64s
        learn: 2.7604530
                                  total: 6.1s
698:
                                                   remaining: 2.63s
699:
        learn: 2.7591238
                                  total: 6.11s
                                                   remaining: 2.62s
700:
        learn: 2.7536062
                                  total: 6.11s
                                                   remaining: 2.6s
701:
        learn: 2.7496268
                                  total: 6.11s
                                                   remaining: 2.59s
702:
        learn: 2.7454369
                                  total: 6.11s
                                                   remaining: 2.58s
703:
        learn: 2.7381309
                                  total: 6.11s
                                                   remaining: 2.57s
704:
        learn: 2.7334050
                                                   remaining: 2.56s
                                  total: 6.11s
705:
        learn: 2.7310684
                                  total: 6.2s
                                                   remaining: 2.58s
706:
        learn: 2.7269568
                                  total: 6.2s
                                                   remaining: 2.57s
707:
        learn: 2.7239419
                                  total: 6.2s
                                                   remaining: 2.56s
708:
        learn: 2.7207312
                                  total: 6.2s
                                                   remaining: 2.54s
        learn: 2.7196468
709:
                                  total: 6.2s
                                                   remaining: 2.53s
```

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710:
        learn: 2.7128889
                                  total: 6.2s
                                                   remaining: 2.52s
711:
        learn: 2.7057545
                                  total: 6.2s
                                                   remaining: 2.51s
712:
        learn: 2.7013704
                                  total: 6.2s
                                                   remaining: 2.5s
713:
        learn: 2.6965872
                                  total: 6.2s
                                                   remaining: 2.48s
714:
        learn: 2.6925282
                                  total: 6.21s
                                                   remaining: 2.47s
        learn: 2.6885395
715:
                                  total: 6.21s
                                                   remaining: 2.46s
716:
        learn: 2.6876018
                                  total: 6.21s
                                                   remaining: 2.45s
717:
        learn: 2.6849186
                                  total: 6.29s
                                                   remaining: 2.47s
718:
        learn: 2.6789481
                                  total: 6.29s
                                                   remaining: 2.46s
719:
        learn: 2.6754403
                                  total: 6.29s
                                                   remaining: 2.45s
720:
        learn: 2.6743286
                                  total: 6.3s
                                                   remaining: 2.44s
721:
        learn: 2.6671253
                                                   remaining: 2.42s
                                  total: 6.3s
722:
        learn: 2.6624290
                                  total: 6.3s
                                                   remaining: 2.41s
723:
        learn: 2.6523217
                                  total: 6.3s
                                                   remaining: 2.4s
724:
        learn: 2.6494191
                                  total: 6.3s
                                                   remaining: 2.39s
725:
        learn: 2.6435006
                                  total: 6.3s
                                                   remaining: 2.38s
726:
        learn: 2.6389433
                                  total: 6.3s
                                                   remaining: 2.37s
727:
        learn: 2.6352222
                                  total: 6.3s
                                                   remaining: 2.35s
728:
        learn: 2.6327591
                                  total: 6.38s
                                                   remaining: 2.37s
729:
        learn: 2.6243546
                                  total: 6.39s
                                                   remaining: 2.36s
730:
        learn: 2.6220270
                                  total: 6.39s
                                                   remaining: 2.35s
731:
        learn: 2.6127666
                                  total: 6.39s
                                                   remaining: 2.34s
732:
        learn: 2.6117493
                                  total: 6.39s
                                                   remaining: 2.33s
733:
        learn: 2.6035032
                                  total: 6.39s
                                                   remaining: 2.32s
734:
        learn: 2.5959533
                                  total: 6.39s
                                                   remaining: 2.3s
735:
        learn: 2.5892343
                                  total: 6.39s
                                                   remaining: 2.29s
736:
        learn: 2.5874215
                                  total: 6.39s
                                                   remaining: 2.28s
737:
        learn: 2.5817502
                                  total: 6.4s
                                                   remaining: 2.27s
738:
        learn: 2.5773291
                                  total: 6.4s
                                                   remaining: 2.26s
739:
        learn: 2.5696210
                                  total: 6.48s
                                                   remaining: 2.28s
740:
        learn: 2.5678456
                                  total: 6.48s
                                                   remaining: 2.27s
741:
        learn: 2.5624196
                                  total: 6.48s
                                                   remaining: 2.25s
                                                   remaining: 2.24s
742:
        learn: 2.5608773
                                  total: 6.49s
743:
        learn: 2.5557143
                                  total: 6.49s
                                                   remaining: 2.23s
744:
        learn: 2.5522800
                                  total: 6.49s
                                                   remaining: 2.22s
                                  total: 6.49s
745:
        learn: 2.5483292
                                                   remaining: 2.21s
746:
        learn: 2.5442813
                                  total: 6.49s
                                                   remaining: 2.2s
747:
        learn: 2.5440155
                                  total: 6.49s
                                                   remaining: 2.19s
748:
        learn: 2.5392113
                                  total: 6.58s
                                                   remaining: 2.2s
749:
        learn: 2.5358586
                                  total: 6.58s
                                                   remaining: 2.19s
750:
        learn: 2.5335955
                                  total: 6.58s
                                                   remaining: 2.18s
751:
        learn: 2.5284408
                                  total: 6.58s
                                                   remaining: 2.17s
752:
        learn: 2.5236622
                                  total: 6.58s
                                                   remaining: 2.16s
753:
        learn: 2.5224512
                                  total: 6.58s
                                                   remaining: 2.15s
754:
        learn: 2.5188287
                                  total: 6.58s
                                                   remaining: 2.14s
755:
        learn: 2.5119197
                                  total: 6.59s
                                                   remaining: 2.13s
756:
        learn: 2.5076724
                                  total: 6.59s
                                                   remaining: 2.11s
                                                   remaining: 2.1s
757:
        learn: 2.4995871
                                  total: 6.59s
758:
        learn: 2.4961926
                                  total: 6.59s
                                                   remaining: 2.09s
759:
        learn: 2.4944255
                                  total: 6.59s
                                                   remaining: 2.08s
760:
        learn: 2.4913568
                                  total: 6.67s
                                                   remaining: 2.1s
761:
        learn: 2.4853498
                                  total: 6.67s
                                                   remaining: 2.08s
762:
        learn: 2.4806866
                                  total: 6.67s
                                                   remaining: 2.07s
763:
        learn: 2.4751104
                                  total: 6.68s
                                                   remaining: 2.06s
764:
        learn: 2.4749009
                                  total: 6.68s
                                                   remaining: 2.05s
765:
        learn: 2.4699061
                                                   remaining: 2.04s
                                  total: 6.68s
766:
        learn: 2.4646303
                                  total: 6.68s
                                                   remaining: 2.03s
767:
        learn: 2.4569816
                                  total: 6.68s
                                                   remaining: 2.02s
768:
        learn: 2.4546125
                                  total: 6.68s
                                                   remaining: 2.01s
769:
        learn: 2.4512701
                                  total: 6.68s
                                                   remaining: 2s
        learn: 2.4448020
770:
                                  total: 6.68s
                                                   remaining: 1.99s
```

```
771:
        learn: 2.4420124
                                  total: 6.77s
                                                   remaining: 2s
772:
        learn: 2.4382344
                                  total: 6.77s
                                                   remaining: 1.99s
773:
        learn: 2.4341812
                                  total: 6.77s
                                                   remaining: 1.98s
774:
        learn: 2.4313361
                                  total: 6.77s
                                                   remaining: 1.97s
775:
        learn: 2.4250080
                                  total: 6.77s
                                                   remaining: 1.96s
                                  total: 6.78s
776:
        learn: 2.4200830
                                                   remaining: 1.94s
777:
        learn: 2.4174523
                                  total: 6.78s
                                                   remaining: 1.93s
778:
        learn: 2.4103016
                                  total: 6.78s
                                                   remaining: 1.92s
779:
        learn: 2.4076264
                                  total: 6.78s
                                                   remaining: 1.91s
780:
        learn: 2.4016600
                                  total: 6.78s
                                                   remaining: 1.9s
        learn: 2.3971970
781:
                                  total: 6.86s
                                                   remaining: 1.91s
782:
        learn: 2.3945321
                                  total: 6.86s
                                                   remaining: 1.9s
783:
        learn: 2.3859575
                                  total: 6.87s
                                                   remaining: 1.89s
784:
        learn: 2.3798961
                                  total: 6.87s
                                                   remaining: 1.88s
785:
        learn: 2.3767600
                                  total: 6.87s
                                                   remaining: 1.87s
786:
        learn: 2.3757762
                                  total: 6.87s
                                                   remaining: 1.86s
787:
        learn: 2.3708042
                                  total: 6.87s
                                                   remaining: 1.85s
788:
        learn: 2.3688238
                                  total: 6.87s
                                                   remaining: 1.84s
789:
        learn: 2.3658121
                                  total: 6.87s
                                                   remaining: 1.83s
790:
        learn: 2.3627575
                                  total: 6.87s
                                                   remaining: 1.82s
791:
        learn: 2.3560414
                                  total: 6.88s
                                                   remaining: 1.8s
792:
        learn: 2.3533202
                                  total: 6.96s
                                                   remaining: 1.82s
793:
        learn: 2.3490626
                                  total: 6.96s
                                                   remaining: 1.8s
794:
        learn: 2.3416199
                                  total: 6.96s
                                                   remaining: 1.79s
795:
        learn: 2.3375785
                                  total: 6.96s
                                                   remaining: 1.78s
796:
        learn: 2.3360485
                                  total: 6.96s
                                                   remaining: 1.77s
797:
        learn: 2.3335245
                                  total: 6.97s
                                                   remaining: 1.76s
798:
        learn: 2.3283013
                                  total: 6.97s
                                                   remaining: 1.75s
799:
        learn: 2.3226452
                                  total: 6.97s
                                                   remaining: 1.74s
800:
        learn: 2.3177254
                                  total: 6.97s
                                                   remaining: 1.73s
801:
        learn: 2.3101395
                                  total: 6.97s
                                                   remaining: 1.72s
802:
        learn: 2.3074051
                                  total: 6.97s
                                                   remaining: 1.71s
803:
        learn: 2.3048003
                                  total: 6.97s
                                                   remaining: 1.7s
        learn: 2.3021173
804:
                                  total: 7.05s
                                                   remaining: 1.71s
        learn: 2.2968753
805:
                                  total: 7.05s
                                                   remaining: 1.7s
                                  total: 7.06s
806:
        learn: 2.2879764
                                                   remaining: 1.69s
807:
        learn: 2.2849522
                                  total: 7.06s
                                                   remaining: 1.68s
808:
        learn: 2.2805652
                                  total: 7.06s
                                                   remaining: 1.67s
809:
        learn: 2.2782213
                                  total: 7.06s
                                                   remaining: 1.66s
810:
        learn: 2.2751890
                                  total: 7.06s
                                                   remaining: 1.65s
811:
        learn: 2.2690960
                                                   remaining: 1.64s
                                  total: 7.06s
812:
        learn: 2.2653258
                                  total: 7.07s
                                                   remaining: 1.63s
        learn: 2.2601984
                                  total: 7.15s
813:
                                                   remaining: 1.63s
        learn: 2.2579790
814:
                                  total: 7.15s
                                                   remaining: 1.62s
815:
        learn: 2.2512492
                                                   remaining: 1.61s
                                  total: 7.15s
816:
        learn: 2.2504144
                                  total: 7.15s
                                                   remaining: 1.6s
817:
        learn: 2.2460474
                                  total: 7.16s
                                                   remaining: 1.59s
                                                   remaining: 1.58s
818:
        learn: 2.2399649
                                  total: 7.16s
819:
        learn: 2.2389626
                                  total: 7.16s
                                                   remaining: 1.57s
        learn: 2.2380755
820:
                                  total: 7.16s
                                                   remaining: 1.56s
821:
        learn: 2.2372900
                                  total: 7.16s
                                                   remaining: 1.55s
822:
        learn: 2.2339059
                                  total: 7.16s
                                                   remaining: 1.54s
823:
        learn: 2.2294770
                                  total: 7.16s
                                                   remaining: 1.53s
824:
        learn: 2.2276482
                                  total: 7.25s
                                                   remaining: 1.54s
825:
        learn: 2.2237831
                                  total: 7.25s
                                                   remaining: 1.53s
826:
        learn: 2.2130592
                                                   remaining: 1.52s
                                  total: 7.25s
827:
        learn: 2.2090398
                                  total: 7.25s
                                                   remaining: 1.5s
828:
        learn: 2.2082541
                                  total: 7.25s
                                                   remaining: 1.5s
829:
        learn: 2.2018742
                                  total: 7.25s
                                                   remaining: 1.49s
830:
        learn: 2.1973886
                                  total: 7.25s
                                                   remaining: 1.48s
        learn: 2.1941633
831:
                                  total: 7.26s
                                                   remaining: 1.47s
```

```
learn: 2.1915364
832:
                                  total: 7.26s
                                                   remaining: 1.46s
833:
        learn: 2.1897767
                                  total: 7.26s
                                                   remaining: 1.44s
        learn: 2.1863332
                                  total: 7.34s
834:
                                                   remaining: 1.45s
835:
        learn: 2.1824793
                                  total: 7.34s
                                                   remaining: 1.44s
836:
        learn: 2.1774815
                                  total: 7.34s
                                                   remaining: 1.43s
837:
        learn: 2.1764069
                                  total: 7.34s
                                                   remaining: 1.42s
838:
        learn: 2.1704649
                                  total: 7.35s
                                                   remaining: 1.41s
839:
        learn: 2.1661731
                                  total: 7.35s
                                                   remaining: 1.4s
840:
        learn: 2.1633220
                                  total: 7.35s
                                                   remaining: 1.39s
841:
        learn: 2.1597854
                                  total: 7.35s
                                                   remaining: 1.38s
842:
        learn: 2.1576573
                                  total: 7.35s
                                                   remaining: 1.37s
843:
        learn: 2.1563919
                                                   remaining: 1.36s
                                  total: 7.35s
844:
        learn: 2.1559227
                                  total: 7.44s
                                                   remaining: 1.36s
        learn: 2.1538640
                                  total: 7.44s
845:
                                                   remaining: 1.35s
846:
        learn: 2.1510340
                                  total: 7.44s
                                                   remaining: 1.34s
847:
        learn: 2.1476527
                                  total: 7.44s
                                                   remaining: 1.33s
        learn: 2.1449156
848:
                                  total: 7.44s
                                                   remaining: 1.32s
849:
        learn: 2.1426068
                                  total: 7.44s
                                                   remaining: 1.31s
850:
        learn: 2.1383540
                                  total: 7.44s
                                                   remaining: 1.3s
851:
        learn: 2.1356553
                                  total: 7.45s
                                                   remaining: 1.29s
852:
        learn: 2.1323528
                                  total: 7.45s
                                                   remaining: 1.28s
853:
        learn: 2.1276554
                                  total: 7.45s
                                                   remaining: 1.27s
854:
        learn: 2.1199896
                                  total: 7.53s
                                                   remaining: 1.28s
855:
        learn: 2.1156443
                                  total: 7.53s
                                                   remaining: 1.27s
                                  total: 7.54s
856:
        learn: 2.1145824
                                                   remaining: 1.26s
857:
        learn: 2.1095888
                                  total: 7.54s
                                                   remaining: 1.25s
858:
        learn: 2.1075512
                                  total: 7.54s
                                                   remaining: 1.24s
859:
        learn: 2.1045474
                                  total: 7.54s
                                                   remaining: 1.23s
860:
        learn: 2.1027390
                                  total: 7.54s
                                                   remaining: 1.22s
861:
        learn: 2.1003014
                                  total: 7.54s
                                                   remaining: 1.21s
862:
        learn: 2.0969881
                                  total: 7.54s
                                                   remaining: 1.2s
                                  total: 7.54s
863:
        learn: 2.0932026
                                                   remaining: 1.19s
864:
        learn: 2.0900842
                                  total: 7.54s
                                                   remaining: 1.18s
        learn: 2.0884439
865:
                                  total: 7.55s
                                                   remaining: 1.17s
        learn: 2.0860749
866:
                                  total: 7.55s
                                                   remaining: 1.16s
                                  total: 7.63s
867:
        learn: 2.0840913
                                                   remaining: 1.16s
868:
        learn: 2.0818909
                                  total: 7.63s
                                                   remaining: 1.15s
869:
        learn: 2.0787714
                                  total: 7.63s
                                                   remaining: 1.14s
870:
        learn: 2.0762982
                                  total: 7.63s
                                                   remaining: 1.13s
871:
        learn: 2.0752876
                                  total: 7.63s
                                                   remaining: 1.12s
872:
        learn: 2.0702776
                                  total: 7.63s
                                                   remaining: 1.11s
873:
        learn: 2.0682639
                                  total: 7.63s
                                                   remaining: 1.1s
874:
        learn: 2.0594572
                                  total: 7.64s
                                                   remaining: 1.09s
        learn: 2.0557415
875:
                                  total: 7.64s
                                                   remaining: 1.08s
876:
        learn: 2.0538695
                                                   remaining: 1.07s
                                  total: 7.64s
877:
        learn: 2.0475658
                                  total: 7.64s
                                                   remaining: 1.06s
878:
        learn: 2.0447700
                                  total: 7.72s
                                                   remaining: 1.06s
                                                   remaining: 1.05s
879:
        learn: 2.0415118
                                  total: 7.72s
880:
        learn: 2.0377094
                                  total: 7.73s
                                                   remaining: 1.04s
881:
        learn: 2.0348945
                                  total: 7.73s
                                                   remaining: 1.03s
882:
        learn: 2.0316705
                                  total: 7.73s
                                                   remaining: 1.02s
883:
        learn: 2.0289230
                                  total: 7.73s
                                                   remaining: 1.01s
884:
        learn: 2.0271563
                                  total: 7.73s
                                                   remaining: 1s
885:
        learn: 2.0269885
                                  total: 7.73s
                                                   remaining: 995ms
886:
        learn: 2.0257784
                                  total: 7.73s
                                                   remaining: 985ms
887:
        learn: 2.0234080
                                                   remaining: 986ms
                                  total: 7.82s
888:
        learn: 2.0218550
                                  total: 7.82s
                                                   remaining: 977ms
889:
        learn: 2.0180091
                                  total: 7.82s
                                                   remaining: 967ms
890:
        learn: 2.0174354
                                  total: 7.82s
                                                   remaining: 957ms
891:
        learn: 2.0124250
                                  total: 7.82s
                                                   remaining: 947ms
        learn: 2.0094254
892:
                                  total: 7.83s
                                                   remaining: 938ms
```

```
893:
        learn: 2.0044874
                                  total: 7.83s
                                                   remaining: 928ms
894:
        learn: 2.0011998
                                  total: 7.83s
                                                   remaining: 918ms
                                  total: 7.83s
895:
        learn: 2.0010418
                                                   remaining: 909ms
896:
        learn: 2.0007381
                                  total: 7.83s
                                                   remaining: 899ms
897:
        learn: 1.9948683
                                  total: 7.83s
                                                   remaining: 889ms
        learn: 1.9912877
                                  total: 7.92s
898:
                                                   remaining: 889ms
899:
        learn: 1.9856887
                                  total: 7.92s
                                                   remaining: 880ms
900:
        learn: 1.9834818
                                  total: 7.92s
                                                   remaining: 870ms
        learn: 1.9779632
                                  total: 7.92s
                                                   remaining: 861ms
901:
902:
        learn: 1.9713445
                                  total: 7.92s
                                                   remaining: 851ms
                                  total: 7.92s
903:
        learn: 1.9667061
                                                   remaining: 841ms
904:
        learn: 1.9623170
                                  total: 7.92s
                                                   remaining: 832ms
905:
        learn: 1.9600864
                                  total: 7.93s
                                                   remaining: 822ms
                                  total: 7.93s
906:
        learn: 1.9563479
                                                   remaining: 813ms
907:
        learn: 1.9535918
                                  total: 7.93s
                                                   remaining: 803ms
908:
        learn: 1.9482723
                                  total: 7.93s
                                                   remaining: 794ms
909:
        learn: 1.9457339
                                  total: 7.93s
                                                   remaining: 784ms
910:
        learn: 1.9438667
                                  total: 8.01s
                                                   remaining: 783ms
911:
        learn: 1.9412058
                                  total: 8.01s
                                                   remaining: 773ms
912:
        learn: 1.9371336
                                  total: 8.01s
                                                   remaining: 764ms
        learn: 1.9354843
913:
                                  total: 8.01s
                                                   remaining: 754ms
                                  total: 8.02s
914:
        learn: 1.9334802
                                                   remaining: 745ms
915:
        learn: 1.9308359
                                  total: 8.02s
                                                   remaining: 735ms
916:
        learn: 1.9247493
                                  total: 8.02s
                                                   remaining: 726ms
917:
                                                   remaining: 716ms
        learn: 1.9233827
                                  total: 8.02s
918:
        learn: 1.9182356
                                  total: 8.02s
                                                   remaining: 707ms
919:
        learn: 1.9140972
                                  total: 8.02s
                                                   remaining: 698ms
920:
        learn: 1.9088479
                                  total: 8.02s
                                                   remaining: 688ms
921:
        learn: 1.9067760
                                  total: 8.02s
                                                   remaining: 679ms
922:
        learn: 1.9066149
                                  total: 8.11s
                                                   remaining: 676ms
923:
        learn: 1.9022883
                                  total: 8.11s
                                                   remaining: 667ms
        learn: 1.9021241
                                  total: 8.11s
924:
                                                   remaining: 658ms
925:
        learn: 1.8984486
                                  total: 8.11s
                                                   remaining: 648ms
926:
        learn: 1.8969016
                                  total: 8.11s
                                                   remaining: 639ms
927:
        learn: 1.8948046
                                  total: 8.12s
                                                   remaining: 630ms
928:
        learn: 1.8903571
                                  total: 8.12s
                                                   remaining: 620ms
929:
        learn: 1.8892407
                                  total: 8.12s
                                                   remaining: 611ms
930:
        learn: 1.8881270
                                  total: 8.12s
                                                   remaining: 602ms
        learn: 1.8845604
931:
                                  total: 8.12s
                                                   remaining: 593ms
932:
        learn: 1.8805769
                                  total: 8.2s
                                                   remaining: 589ms
933:
        learn: 1.8764196
                                                   remaining: 579ms
                                  total: 8.2s
934:
        learn: 1.8707960
                                  total: 8.2s
                                                   remaining: 570ms
        learn: 1.8694820
935:
                                  total: 8.2s
                                                   remaining: 561ms
936:
        learn: 1.8661234
                                  total: 8.2s
                                                   remaining: 552ms
937:
        learn: 1.8636380
                                                   remaining: 542ms
                                  total: 8.2s
938:
        learn: 1.8603398
                                  total: 8.21s
                                                   remaining: 533ms
939:
        learn: 1.8591685
                                  total: 8.21s
                                                   remaining: 524ms
                                                   remaining: 515ms
940:
        learn: 1.8572367
                                  total: 8.21s
941:
        learn: 1.8554717
                                  total: 8.21s
                                                   remaining: 505ms
        learn: 1.8536639
942:
                                  total: 8.21s
                                                   remaining: 496ms
943:
        learn: 1.8467747
                                  total: 8.21s
                                                   remaining: 487ms
944:
        learn: 1.8434630
                                  total: 8.29s
                                                   remaining: 483ms
945:
        learn: 1.8372459
                                  total: 8.29s
                                                   remaining: 473ms
        learn: 1.8323127
946:
                                  total: 8.3s
                                                   remaining: 464ms
947:
        learn: 1.8283884
                                  total: 8.3s
                                                   remaining: 455ms
948:
        learn: 1.8241082
                                                   remaining: 446ms
                                  total: 8.3s
949:
        learn: 1.8214601
                                  total: 8.3s
                                                   remaining: 437ms
950:
        learn: 1.8200878
                                  total: 8.3s
                                                   remaining: 428ms
951:
        learn: 1.8167030
                                  total: 8.3s
                                                   remaining: 419ms
952:
        learn: 1.8150784
                                  total: 8.3s
                                                   remaining: 410ms
        learn: 1.8089195
953:
                                  total: 8.3s
                                                   remaining: 400ms
```

```
954:
        learn: 1.8060336
                                  total: 8.39s
                                                   remaining: 395ms
955:
        learn: 1.8042827
                                  total: 8.39s
                                                   remaining: 386ms
        learn: 1.7996032
956:
                                  total: 8.39s
                                                   remaining: 377ms
957:
        learn: 1.7974335
                                  total: 8.39s
                                                   remaining: 368ms
958:
        learn: 1.7957366
                                  total: 8.39s
                                                   remaining: 359ms
        learn: 1.7934643
959:
                                  total: 8.39s
                                                   remaining: 350ms
960:
        learn: 1.7911552
                                  total: 8.4s
                                                   remaining: 341ms
        learn: 1.7894454
                                                   remaining: 332ms
961:
                                  total: 8.4s
        learn: 1.7876730
                                  total: 8.4s
                                                   remaining: 323ms
962:
963:
        learn: 1.7857860
                                  total: 8.4s
                                                   remaining: 314ms
964:
        learn: 1.7851706
                                  total: 8.4s
                                                   remaining: 305ms
965:
        learn: 1.7839260
                                                   remaining: 296ms
                                  total: 8.4s
966:
        learn: 1.7808542
                                  total: 8.48s
                                                   remaining: 290ms
        learn: 1.7774613
                                  total: 8.49s
967:
                                                   remaining: 281ms
968:
        learn: 1.7772120
                                  total: 8.49s
                                                   remaining: 272ms
969:
        learn: 1.7747114
                                  total: 8.49s
                                                   remaining: 263ms
970:
        learn: 1.7696480
                                  total: 8.49s
                                                   remaining: 254ms
971:
        learn: 1.7660149
                                  total: 8.49s
                                                   remaining: 245ms
972:
        learn: 1.7641293
                                  total: 8.49s
                                                   remaining: 236ms
973:
        learn: 1.7616148
                                  total: 8.49s
                                                   remaining: 227ms
974:
        learn: 1.7614696
                                  total: 8.49s
                                                   remaining: 218ms
        learn: 1.7535334
975:
                                  total: 8.5s
                                                   remaining: 209ms
976:
        learn: 1.7480013
                                                   remaining: 200ms
                                  total: 8.5s
977:
        learn: 1.7464941
                                  total: 8.5s
                                                   remaining: 191ms
978:
        learn: 1.7416557
                                  total: 8.58s
                                                   remaining: 184ms
979:
        learn: 1.7398428
                                  total: 8.58s
                                                   remaining: 175ms
980:
        learn: 1.7379974
                                  total: 8.58s
                                                   remaining: 166ms
981:
        learn: 1.7343759
                                  total: 8.58s
                                                   remaining: 157ms
982:
        learn: 1.7315510
                                  total: 8.59s
                                                   remaining: 148ms
983:
        learn: 1.7250896
                                  total: 8.59s
                                                   remaining: 140ms
984:
        learn: 1.7222959
                                  total: 8.59s
                                                   remaining: 131ms
        learn: 1.7210153
985:
                                  total: 8.59s
                                                   remaining: 122ms
986:
        learn: 1.7187930
                                  total: 8.59s
                                                   remaining: 113ms
987:
        learn: 1.7157438
                                  total: 8.59s
                                                   remaining: 104ms
988:
        learn: 1.7145411
                                  total: 8.68s
                                                   remaining: 96.5ms
989:
        learn: 1.7132614
                                  total: 8.68s
                                                   remaining: 87.6ms
990:
        learn: 1.7130978
                                  total: 8.68s
                                                   remaining: 78.8ms
991:
        learn: 1.7064949
                                  total: 8.68s
                                                   remaining: 70ms
992:
        learn: 1.7051930
                                  total: 8.68s
                                                   remaining: 61.2ms
993:
        learn: 1.6996144
                                  total: 8.68s
                                                   remaining: 52.4ms
994:
        learn: 1.6937597
                                                   remaining: 43.6ms
                                  total: 8.68s
995:
        learn: 1.6915163
                                  total: 8.69s
                                                   remaining: 34.9ms
        learn: 1.6894539
996:
                                  total: 8.69s
                                                   remaining: 26.1ms
997:
        learn: 1.6877294
                                  total: 8.69s
                                                   remaining: 17.4ms
998:
        learn: 1.6868654
                                                   remaining: 8.78ms
                                  total: 8.77s
999:
        learn: 1.6858865
                                  total: 8.77s
                                                   remaining: Ous
0:
        learn: 20.2366538
                                  total: 1.33ms
                                                   remaining: 1.33s
                                                   remaining: 1.51s
1:
        learn: 20.0225254
                                  total: 3.03ms
2:
        learn: 19.8173599
                                  total: 4.12ms
                                                   remaining: 1.37s
3:
        learn: 19.6468730
                                  total: 5.26ms
                                                   remaining: 1.31s
4:
        learn: 19.4529742
                                  total: 6.33ms
                                                   remaining: 1.26s
5:
        learn: 19.2749201
                                  total: 8.2ms
                                                   remaining: 1.36s
6:
        learn: 19.0847929
                                  total: 9.86ms
                                                   remaining: 1.4s
7:
        learn: 18.8838404
                                  total: 11.8ms
                                                   remaining: 1.46s
        learn: 18.7258580
8:
                                  total: 22.1ms
                                                   remaining: 2.43s
9:
        learn: 18.5715467
                                  total: 23.3ms
                                                   remaining: 2.31s
10:
        learn: 18.3728457
                                  total: 24.3ms
                                                   remaining: 2.19s
        learn: 18.1963729
                                  total: 25.6ms
11:
                                                   remaining: 2.11s
12:
        learn: 18.0474663
                                  total: 26.7ms
                                                   remaining: 2.03s
13:
        learn: 17.9043116
                                  total: 28.1ms
                                                   remaining: 1.98s
        learn: 17.7672016
                                  total: 29.3ms
14:
                                                   remaining: 1.93s
```

```
15:
        learn: 17.3618700
                                  total: 30.5ms
                                                   remaining: 1.87s
16:
        learn: 17.2464232
                                  total: 31.7ms
                                                   remaining: 1.83s
        learn: 17.1267193
                                  total: 32.8ms
17:
                                                   remaining: 1.79s
18:
        learn: 17.0074063
                                  total: 33.9ms
                                                   remaining: 1.75s
19:
        learn: 16.6072592
                                  total: 34.9ms
                                                   remaining: 1.71s
        learn: 16.4877576
                                  total: 117ms
20:
                                                   remaining: 5.45s
21:
        learn: 16.2027519
                                  total: 118ms
                                                   remaining: 5.26s
22:
        learn: 16.0949920
                                                   remaining: 5.07s
                                  total: 119ms
        learn: 15.9858050
                                  total: 120ms
                                                   remaining: 4.9s
23:
24:
        learn: 15.7049613
                                  total: 122ms
                                                   remaining: 4.74s
        learn: 15.6094620
                                  total: 123ms
25:
                                                   remaining: 4.59s
26:
        learn: 15.5322306
                                                   remaining: 4.46s
                                  total: 124ms
27:
        learn: 15.2036861
                                  total: 125ms
                                                   remaining: 4.33s
        learn: 15.0062702
                                  total: 126ms
28:
                                                   remaining: 4.22s
29:
        learn: 14.9342861
                                  total: 127ms
                                                   remaining: 4.11s
30:
        learn: 14.8610638
                                  total: 128ms
                                                   remaining: 4s
31:
        learn: 14.6115849
                                  total: 129ms
                                                   remaining: 3.91s
        learn: 14.3908159
32:
                                  total: 214ms
                                                   remaining: 6.26s
33:
        learn: 14.3292156
                                  total: 215ms
                                                   remaining: 6.11s
34:
        learn: 14.1777042
                                  total: 216ms
                                                   remaining: 5.96s
35:
        learn: 14.1157854
                                  total: 217ms
                                                   remaining: 5.82s
36:
        learn: 14.0505459
                                  total: 219ms
                                                   remaining: 5.69s
37:
        learn: 13.7987101
                                  total: 220ms
                                                   remaining: 5.56s
        learn: 13.7509997
38:
                                  total: 221ms
                                                   remaining: 5.44s
                                  total: 222ms
39:
        learn: 13.7004404
                                                   remaining: 5.33s
40:
        learn: 13.6565551
                                  total: 223ms
                                                   remaining: 5.21s
41:
        learn: 13.5913163
                                  total: 224ms
                                                   remaining: 5.11s
42:
        learn: 13.5348211
                                  total: 309ms
                                                   remaining: 6.87s
43:
        learn: 13.4181454
                                  total: 310ms
                                                   remaining: 6.74s
44:
        learn: 13.3711248
                                  total: 311ms
                                                   remaining: 6.6s
45:
        learn: 13.1625183
                                  total: 312ms
                                                   remaining: 6.48s
        learn: 13.0954652
                                  total: 313ms
46:
                                                   remaining: 6.35s
                                                   remaining: 6.24s
47:
        learn: 13.0557701
                                  total: 314ms
48:
        learn: 13.0230983
                                                   remaining: 6.12s
                                  total: 316ms
49:
        learn: 12.8624150
                                  total: 317ms
                                                   remaining: 6.01s
                                  total: 318ms
50:
        learn: 12.7211306
                                                   remaining: 5.91s
51:
        learn: 12.6898573
                                  total: 319ms
                                                   remaining: 5.81s
        learn: 12.5419169
52:
                                  total: 320ms
                                                   remaining: 5.72s
53:
        learn: 12.5104795
                                  total: 326ms
                                                   remaining: 5.72s
54:
        learn: 12.4378719
                                  total: 405ms
                                                   remaining: 6.96s
55:
        learn: 12.3661787
                                  total: 407ms
                                                   remaining: 6.87s
56:
        learn: 12.3409127
                                  total: 409ms
                                                   remaining: 6.76s
57:
        learn: 12.3179984
                                  total: 411ms
                                                   remaining: 6.67s
        learn: 12.2246008
58:
                                  total: 412ms
                                                   remaining: 6.57s
59:
        learn: 12.1149859
                                  total: 413ms
                                                   remaining: 6.48s
60:
        learn: 12.0104657
                                  total: 415ms
                                                   remaining: 6.38s
        learn: 11.9866913
                                  total: 416ms
61:
                                                   remaining: 6.29s
62:
        learn: 11.9292449
                                  total: 419ms
                                                   remaining: 6.24s
63:
        learn: 11.9072554
                                  total: 500ms
                                                   remaining: 7.3s
64:
        learn: 11.8865526
                                  total: 501ms
                                                   remaining: 7.21s
65:
        learn: 11.8553439
                                  total: 502ms
                                                   remaining: 7.1s
        learn: 11.8314693
                                  total: 503ms
                                                   remaining: 7s
66:
67:
        learn: 11.8107975
                                  total: 504ms
                                                   remaining: 6.91s
68:
        learn: 11.7189708
                                  total: 505ms
                                                   remaining: 6.82s
69:
        learn: 11.6996960
                                  total: 507ms
                                                   remaining: 6.73s
70:
        learn: 11.6752747
                                  total: 508ms
                                                   remaining: 6.64s
71:
        learn: 11.5864280
                                  total: 509ms
                                                   remaining: 6.56s
72:
        learn: 11.4952719
                                  total: 511ms
                                                   remaining: 6.48s
73:
        learn: 11.4627507
                                  total: 512ms
                                                   remaining: 6.4s
74:
        learn: 11.3734594
                                  total: 595ms
                                                   remaining: 7.34s
75:
        learn: 11.2900034
                                  total: 596ms
                                                   remaining: 7.25s
```

```
76:
        learn: 11.2738119
                                  total: 598ms
                                                   remaining: 7.16s
77:
        learn: 11.2578253
                                  total: 599ms
                                                   remaining: 7.08s
        learn: 11.2446039
                                                   remaining: 7.01s
78:
                                  total: 601ms
79:
        learn: 11.1633216
                                  total: 602ms
                                                   remaining: 6.93s
80:
        learn: 11.1486684
                                  total: 604ms
                                                   remaining: 6.85s
                                  total: 605ms
81:
        learn: 11.1352541
                                                   remaining: 6.77s
82:
        learn: 11.1192750
                                  total: 606ms
                                                   remaining: 6.7s
        learn: 11.1077358
                                                   remaining: 6.62s
83:
                                  total: 607ms
        learn: 11.0647478
                                  total: 608ms
                                                   remaining: 6.55s
84:
85:
        learn: 10.9814485
                                  total: 610ms
                                                   remaining: 6.48s
86:
        learn: 10.9562117
                                  total: 691ms
                                                   remaining: 7.25s
87:
        learn: 10.9390950
                                                   remaining: 7.17s
                                  total: 692ms
88:
        learn: 10.8604118
                                  total: 693ms
                                                   remaining: 7.1s
89:
        learn: 10.8507039
                                  total: 695ms
                                                   remaining: 7.02s
90:
        learn: 10.8201685
                                  total: 696ms
                                                   remaining: 6.95s
91:
        learn: 10.7563036
                                  total: 697ms
                                                   remaining: 6.88s
92:
        learn: 10.6851029
                                  total: 698ms
                                                   remaining: 6.81s
93:
        learn: 10.6674067
                                  total: 699ms
                                                   remaining: 6.74s
94:
        learn: 10.6505485
                                  total: 700ms
                                                   remaining: 6.67s
95:
        learn: 10.5963932
                                  total: 702ms
                                                   remaining: 6.61s
                                  total: 786ms
96:
        learn: 10.5471648
                                                   remaining: 7.31s
        learn: 10.4999960
97:
                                  total: 787ms
                                                   remaining: 7.24s
98:
        learn: 10.4920004
                                  total: 788ms
                                                   remaining: 7.17s
99:
        learn: 10.3723724
                                  total: 789ms
                                                   remaining: 7.1s
                                  total: 791ms
                                                   remaining: 7.04s
100:
        learn: 10.3304956
101:
        learn: 10.2592040
                                  total: 792ms
                                                   remaining: 6.97s
102:
        learn: 10.2525500
                                  total: 794ms
                                                   remaining: 6.92s
103:
        learn: 10.2025512
                                  total: 796ms
                                                   remaining: 6.86s
                                  total: 797ms
104:
        learn: 10.1668173
                                                   remaining: 6.79s
        learn: 10.1610848
105:
                                  total: 798ms
                                                   remaining: 6.73s
106:
        learn: 10.0919786
                                  total: 881ms
                                                   remaining: 7.36s
        learn: 10.0329725
107:
                                  total: 883ms
                                                   remaining: 7.29s
108:
        learn: 10.0140497
                                  total: 884ms
                                                   remaining: 7.22s
        learn: 9.9776750
109:
                                  total: 885ms
                                                   remaining: 7.16s
        learn: 9.9212241
110:
                                  total: 886ms
                                                   remaining: 7.1s
                                  total: 887ms
                                                   remaining: 7.04s
111:
        learn: 9.8661390
112:
        learn: 9.8293602
                                  total: 889ms
                                                   remaining: 6.97s
113:
        learn: 9.7879306
                                  total: 890ms
                                                   remaining: 6.91s
114:
        learn: 9.7430571
                                  total: 891ms
                                                   remaining: 6.85s
115:
        learn: 9.7192183
                                  total: 897ms
                                                   remaining: 6.84s
        learn: 9.6806387
                                  total: 977ms
                                                   remaining: 7.37s
116:
117:
        learn: 9.6616302
                                  total: 978ms
                                                   remaining: 7.31s
        learn: 9.6219110
                                  total: 979ms
118:
                                                   remaining: 7.25s
        learn: 9.5944179
                                  total: 980ms
119:
                                                   remaining: 7.19s
120:
        learn: 9.5570270
                                                   remaining: 7.13s
                                  total: 982ms
121:
        learn: 9.5323467
                                  total: 983ms
                                                   remaining: 7.08s
122:
        learn: 9.4976091
                                  total: 984ms
                                                   remaining: 7.02s
                                                   remaining: 6.96s
123:
        learn: 9.4464250
                                  total: 985ms
124:
        learn: 9.4411217
                                  total: 987ms
                                                   remaining: 6.91s
125:
        learn: 9.4161164
                                  total: 988ms
                                                   remaining: 6.85s
126:
        learn: 9.3906702
                                  total: 989ms
                                                   remaining: 6.8s
127:
        learn: 9.3617058
                                  total: 990ms
                                                   remaining: 6.75s
128:
        learn: 9.3572322
                                                   remaining: 7.23s
                                  total: 1.07s
129:
        learn: 9.3414314
                                  total: 1.07s
                                                   remaining: 7.19s
        learn: 9.3158709
130:
                                  total: 1.07s
                                                   remaining: 7.13s
131:
        learn: 9.2947012
                                                   remaining: 7.08s
                                  total: 1.08s
132:
        learn: 9.2350155
                                  total: 1.08s
                                                   remaining: 7.02s
133:
        learn: 9.1722289
                                  total: 1.08s
                                                   remaining: 6.97s
134:
        learn: 9.1495201
                                  total: 1.08s
                                                   remaining: 6.92s
135:
        learn: 9.1146569
                                  total: 1.08s
                                                   remaining: 6.87s
        learn: 9.1093996
136:
                                  total: 1.08s
                                                   remaining: 6.82s
```

```
137:
        learn: 9.0790213
                                  total: 1.08s
                                                   remaining: 6.77s
138:
        learn: 9.0744455
                                  total: 1.08s
                                                   remaining: 6.72s
        learn: 9.0445861
                                  total: 1.17s
139:
                                                   remaining: 7.17s
140:
        learn: 9.0127561
                                  total: 1.17s
                                                   remaining: 7.12s
141:
        learn: 8.9916633
                                  total: 1.17s
                                                   remaining: 7.07s
142:
        learn: 8.9690025
                                  total: 1.17s
                                                   remaining: 7.01s
143:
        learn: 8.9468511
                                  total: 1.17s
                                                   remaining: 6.96s
144:
        learn: 8.9288620
                                                   remaining: 6.92s
                                  total: 1.17s
145:
        learn: 8.9071606
                                  total: 1.17s
                                                   remaining: 6.87s
        learn: 8.8880998
                                  total: 1.17s
146:
                                                   remaining: 6.82s
        learn: 8.8606113
147:
                                  total: 1.18s
                                                   remaining: 6.78s
148:
        learn: 8.8418115
                                                   remaining: 6.73s
                                  total: 1.18s
149:
        learn: 8.8155296
                                  total: 1.26s
                                                   remaining: 7.16s
        learn: 8.7930862
                                  total: 1.26s
150:
                                                   remaining: 7.11s
151:
        learn: 8.7697252
                                  total: 1.26s
                                                   remaining: 7.06s
152:
        learn: 8.7569332
                                  total: 1.27s
                                                   remaining: 7.01s
153:
        learn: 8.7373308
                                  total: 1.27s
                                                   remaining: 6.96s
154:
        learn: 8.6950300
                                  total: 1.27s
                                                   remaining: 6.92s
155:
        learn: 8.6909466
                                  total: 1.27s
                                                   remaining: 6.87s
156:
        learn: 8.6731969
                                                   remaining: 6.83s
                                  total: 1.27s
157:
        learn: 8.6247685
                                  total: 1.27s
                                                   remaining: 6.78s
158:
        learn: 8.6025891
                                  total: 1.27s
                                                   remaining: 6.74s
159:
        learn: 8.5863856
                                  total: 1.28s
                                                   remaining: 6.72s
160:
        learn: 8.5816798
                                  total: 1.36s
                                                   remaining: 7.08s
        learn: 8.5397696
                                  total: 1.36s
161:
                                                   remaining: 7.03s
162:
        learn: 8.5215558
                                  total: 1.36s
                                                   remaining: 6.99s
163:
        learn: 8.5070596
                                  total: 1.36s
                                                   remaining: 6.94s
164:
        learn: 8.4926141
                                  total: 1.36s
                                                   remaining: 6.9s
165:
        learn: 8.4729390
                                  total: 1.36s
                                                   remaining: 6.85s
        learn: 8.4539799
166:
                                  total: 1.36s
                                                   remaining: 6.81s
167:
        learn: 8.4475873
                                  total: 1.37s
                                                   remaining: 6.77s
                                  total: 1.37s
168:
        learn: 8.4180175
                                                   remaining: 6.72s
                                                   remaining: 6.71s
169:
        learn: 8.3950942
                                  total: 1.37s
                                                   remaining: 7.05s
170:
        learn: 8.3822483
                                  total: 1.45s
171:
        learn: 8.3784063
                                  total: 1.46s
                                                   remaining: 7s
172:
        learn: 8.3685073
                                  total: 1.46s
                                                   remaining: 6.96s
173:
        learn: 8.3380247
                                  total: 1.46s
                                                   remaining: 6.92s
        learn: 8.3270872
174:
                                  total: 1.46s
                                                   remaining: 6.88s
175:
        learn: 8.3180875
                                  total: 1.46s
                                                   remaining: 6.83s
176:
        learn: 8.3026602
                                  total: 1.46s
                                                   remaining: 6.79s
177:
        learn: 8.2993887
                                  total: 1.46s
                                                   remaining: 6.75s
        learn: 8.2737988
178:
                                  total: 1.46s
                                                   remaining: 6.71s
        learn: 8.2499366
179:
                                  total: 1.46s
                                                   remaining: 6.67s
        learn: 8.2323683
180:
                                  total: 1.47s
                                                   remaining: 6.63s
        learn: 8.1943035
                                                   remaining: 6.62s
181:
                                  total: 1.47s
182:
        learn: 8.1612621
                                  total: 1.55s
                                                   remaining: 6.92s
        learn: 8.1239942
                                  total: 1.55s
183:
                                                   remaining: 6.88s
                                                   remaining: 6.84s
184:
        learn: 8.1106714
                                  total: 1.55s
185:
        learn: 8.0848510
                                  total: 1.55s
                                                   remaining: 6.8s
186:
        learn: 8.0570724
                                  total: 1.55s
                                                   remaining: 6.76s
187:
        learn: 8.0315673
                                  total: 1.55s
                                                   remaining: 6.72s
188:
        learn: 8.0279342
                                  total: 1.56s
                                                   remaining: 6.68s
189:
        learn: 7.9998102
                                  total: 1.56s
                                                   remaining: 6.64s
190:
        learn: 7.9681165
                                  total: 1.56s
                                                   remaining: 6.6s
        learn: 7.9655892
191:
                                  total: 1.56s
                                                   remaining: 6.57s
192:
        learn: 7.9549842
                                  total: 1.56s
                                                   remaining: 6.53s
193:
        learn: 7.9518485
                                  total: 1.65s
                                                   remaining: 6.85s
194:
        learn: 7.9170854
                                  total: 1.65s
                                                   remaining: 6.81s
195:
        learn: 7.9145546
                                  total: 1.65s
                                                   remaining: 6.77s
196:
        learn: 7.8956712
                                  total: 1.65s
                                                   remaining: 6.74s
        learn: 7.8912171
197:
                                  total: 1.65s
                                                   remaining: 6.7s
```

```
learn: 7.8784532
198:
                                  total: 1.66s
                                                   remaining: 6.66s
199:
        learn: 7.8376696
                                  total: 1.66s
                                                   remaining: 6.63s
        learn: 7.8228342
                                  total: 1.66s
200:
                                                   remaining: 6.59s
201:
        learn: 7.7982275
                                  total: 1.74s
                                                   remaining: 6.88s
202:
        learn: 7.7850380
                                  total: 1.74s
                                                   remaining: 6.84s
        learn: 7.7695332
203:
                                  total: 1.74s
                                                   remaining: 6.8s
204:
        learn: 7.7592967
                                  total: 1.75s
                                                   remaining: 6.77s
205:
        learn: 7.7330290
                                  total: 1.75s
                                                   remaining: 6.73s
        learn: 7.7105852
                                  total: 1.75s
                                                   remaining: 6.7s
206:
207:
        learn: 7.6961429
                                  total: 1.75s
                                                   remaining: 6.66s
208:
        learn: 7.6605375
                                  total: 1.75s
                                                   remaining: 6.62s
209:
        learn: 7.6311431
                                                   remaining: 6.59s
                                  total: 1.75s
210:
        learn: 7.6137556
                                  total: 1.75s
                                                   remaining: 6.55s
        learn: 7.6109665
                                  total: 1.75s
211:
                                                   remaining: 6.52s
212:
        learn: 7.5695957
                                  total: 1.75s
                                                   remaining: 6.48s
213:
        learn: 7.5544821
                                  total: 1.75s
                                                   remaining: 6.45s
214:
        learn: 7.5392682
                                  total: 1.76s
                                                   remaining: 6.41s
215:
        learn: 7.5179733
                                  total: 1.84s
                                                   remaining: 6.67s
216:
        learn: 7.4908043
                                  total: 1.84s
                                                   remaining: 6.63s
217:
        learn: 7.4816350
                                  total: 1.84s
                                                   remaining: 6.6s
218:
        learn: 7.4789176
                                  total: 1.84s
                                                   remaining: 6.57s
219:
        learn: 7.4628741
                                  total: 1.84s
                                                   remaining: 6.54s
220:
        learn: 7.4172151
                                  total: 1.84s
                                                   remaining: 6.51s
221:
        learn: 7.4036497
                                  total: 1.85s
                                                   remaining: 6.47s
222:
        learn: 7.3744615
                                  total: 1.85s
                                                   remaining: 6.44s
223:
        learn: 7.3624788
                                  total: 1.85s
                                                   remaining: 6.41s
224:
        learn: 7.3538243
                                  total: 1.93s
                                                   remaining: 6.66s
225:
        learn: 7.3517896
                                  total: 1.93s
                                                   remaining: 6.62s
226:
        learn: 7.3408931
                                  total: 1.94s
                                                   remaining: 6.59s
227:
        learn: 7.3241053
                                  total: 1.94s
                                                   remaining: 6.56s
228:
        learn: 7.3024972
                                  total: 1.94s
                                                   remaining: 6.52s
        learn: 7.2919119
229:
                                  total: 1.94s
                                                   remaining: 6.49s
230:
        learn: 7.2641231
                                  total: 1.94s
                                                   remaining: 6.46s
231:
        learn: 7.2455415
                                  total: 1.94s
                                                   remaining: 6.42s
232:
        learn: 7.2272454
                                  total: 1.94s
                                                   remaining: 6.39s
233:
        learn: 7.2177800
                                  total: 1.94s
                                                   remaining: 6.36s
234:
        learn: 7.1944124
                                  total: 1.94s
                                                   remaining: 6.33s
235:
        learn: 7.1796311
                                  total: 2.03s
                                                   remaining: 6.57s
236:
        learn: 7.1701978
                                  total: 2.03s
                                                   remaining: 6.54s
                                                   remaining: 6.5s
237:
        learn: 7.1593391
                                  total: 2.03s
238:
        learn: 7.1455914
                                  total: 2.03s
                                                   remaining: 6.47s
239:
        learn: 7.1343974
                                  total: 2.03s
                                                   remaining: 6.44s
240:
        learn: 7.1142131
                                  total: 2.04s
                                                   remaining: 6.41s
        learn: 7.0566855
241:
                                  total: 2.04s
                                                   remaining: 6.38s
                                                   remaining: 6.35s
242:
        learn: 7.0262879
                                  total: 2.04s
243:
        learn: 7.0125184
                                  total: 2.04s
                                                   remaining: 6.34s
244:
        learn: 7.0034864
                                  total: 2.12s
                                                   remaining: 6.54s
                                  total: 2.13s
                                                   remaining: 6.51s
245:
        learn: 6.9900872
246:
        learn: 6.9788193
                                  total: 2.13s
                                                   remaining: 6.48s
247:
        learn: 6.9692604
                                  total: 2.13s
                                                   remaining: 6.45s
248:
        learn: 6.9568606
                                  total: 2.13s
                                                   remaining: 6.42s
249:
        learn: 6.9279564
                                  total: 2.13s
                                                   remaining: 6.39s
250:
        learn: 6.9252756
                                                   remaining: 6.36s
                                  total: 2.13s
251:
        learn: 6.9181231
                                  total: 2.13s
                                                   remaining: 6.33s
252:
        learn: 6.9044618
                                  total: 2.13s
                                                   remaining: 6.3s
253:
        learn: 6.8954861
                                  total: 2.13s
                                                   remaining: 6.27s
254:
        learn: 6.8839367
                                  total: 2.14s
                                                   remaining: 6.24s
255:
        learn: 6.8785020
                                  total: 2.14s
                                                   remaining: 6.21s
256:
        learn: 6.8624574
                                  total: 2.22s
                                                   remaining: 6.42s
257:
        learn: 6.8524901
                                  total: 2.22s
                                                   remaining: 6.39s
        learn: 6.8412731
258:
                                  total: 2.22s
                                                   remaining: 6.36s
```

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259:
        learn: 6.8260266
                                  total: 2.22s
                                                   remaining: 6.33s
260:
        learn: 6.8170463
                                  total: 2.22s
                                                   remaining: 6.3s
                                  total: 2.23s
261:
        learn: 6.8099544
                                                   remaining: 6.27s
262:
        learn: 6.7890299
                                  total: 2.23s
                                                   remaining: 6.24s
263:
        learn: 6.7753940
                                  total: 2.23s
                                                   remaining: 6.21s
264:
        learn: 6.7591287
                                  total: 2.23s
                                                   remaining: 6.18s
265:
        learn: 6.7566725
                                  total: 2.31s
                                                   remaining: 6.39s
        learn: 6.7371204
                                  total: 2.32s
                                                   remaining: 6.36s
266:
267:
        learn: 6.6976000
                                  total: 2.32s
                                                   remaining: 6.33s
        learn: 6.6823953
                                  total: 2.32s
268:
                                                   remaining: 6.3s
269:
        learn: 6.6627489
                                  total: 2.32s
                                                   remaining: 6.27s
270:
        learn: 6.6311980
                                                   remaining: 6.24s
                                  total: 2.32s
271:
        learn: 6.6245791
                                  total: 2.32s
                                                   remaining: 6.21s
                                  total: 2.32s
272:
        learn: 6.6092998
                                                   remaining: 6.19s
273:
        learn: 6.5783946
                                  total: 2.32s
                                                   remaining: 6.16s
274:
        learn: 6.5530986
                                  total: 2.33s
                                                   remaining: 6.13s
275:
        learn: 6.5491687
                                  total: 2.33s
                                                   remaining: 6.1s
276:
        learn: 6.5310434
                                  total: 2.41s
                                                   remaining: 6.29s
                                  total: 2.41s
277:
        learn: 6.5078658
                                                   remaining: 6.26s
278:
        learn: 6.4854615
                                  total: 2.41s
                                                   remaining: 6.24s
        learn: 6.4654185
279:
                                  total: 2.41s
                                                   remaining: 6.21s
280:
        learn: 6.4595098
                                  total: 2.42s
                                                   remaining: 6.18s
281:
        learn: 6.4464503
                                  total: 2.42s
                                                   remaining: 6.15s
282:
        learn: 6.4400554
                                  total: 2.42s
                                                   remaining: 6.13s
283:
        learn: 6.4313629
                                  total: 2.42s
                                                   remaining: 6.1s
284:
        learn: 6.4104771
                                  total: 2.42s
                                                   remaining: 6.07s
285:
        learn: 6.4053418
                                  total: 2.42s
                                                   remaining: 6.05s
286:
        learn: 6.3989296
                                  total: 2.51s
                                                   remaining: 6.23s
287:
        learn: 6.3834557
                                  total: 2.51s
                                                   remaining: 6.2s
        learn: 6.3755827
288.
                                  total: 2.51s
                                                   remaining: 6.17s
289:
        learn: 6.3580964
                                  total: 2.51s
                                                   remaining: 6.14s
290:
        learn: 6.3320610
                                  total: 2.51s
                                                   remaining: 6.12s
291:
        learn: 6.3239770
                                  total: 2.51s
                                                   remaining: 6.09s
292:
        learn: 6.3069362
                                  total: 2.51s
                                                   remaining: 6.07s
293:
        learn: 6.2862795
                                  total: 2.51s
                                                   remaining: 6.04s
294:
        learn: 6.2735539
                                  total: 2.52s
                                                   remaining: 6.01s
295:
        learn: 6.2662630
                                  total: 2.52s
                                                   remaining: 5.99s
296:
        learn: 6.2315368
                                  total: 2.52s
                                                   remaining: 5.96s
297:
        learn: 6.2101270
                                  total: 2.6s
                                                   remaining: 6.13s
298:
        learn: 6.2067531
                                  total: 2.6s
                                                   remaining: 6.1s
299:
        learn: 6.1995423
                                                   remaining: 6.08s
                                  total: 2.6s
300:
        learn: 6.1768089
                                  total: 2.6s
                                                   remaining: 6.05s
301:
        learn: 6.1552811
                                  total: 2.61s
                                                   remaining: 6.02s
        learn: 6.1500469
302:
                                  total: 2.61s
                                                   remaining: 6s
303:
        learn: 6.1387531
                                                   remaining: 5.97s
                                  total: 2.61s
304:
        learn: 6.1320427
                                  total: 2.61s
                                                   remaining: 5.95s
305:
        learn: 6.1135704
                                  total: 2.61s
                                                   remaining: 5.92s
306:
        learn: 6.1022865
                                  total: 2.61s
                                                   remaining: 5.9s
307:
        learn: 6.0819048
                                  total: 2.61s
                                                   remaining: 5.87s
308:
        learn: 6.0710627
                                  total: 2.7s
                                                   remaining: 6.03s
309:
        learn: 6.0471422
                                  total: 2.7s
                                                   remaining: 6s
310:
        learn: 6.0451676
                                  total: 2.7s
                                                   remaining: 5.98s
311:
        learn: 6.0344121
                                                   remaining: 5.95s
                                  total: 2.7s
312:
        learn: 6.0094880
                                  total: 2.7s
                                                   remaining: 5.93s
        learn: 5.9983030
313:
                                  total: 2.7s
                                                   remaining: 5.9s
314:
        learn: 5.9892737
                                                   remaining: 5.88s
                                  total: 2.7s
315:
        learn: 5.9662024
                                  total: 2.7s
                                                   remaining: 5.85s
        learn: 5.9589393
                                  total: 2.71s
316:
                                                   remaining: 5.83s
317:
        learn: 5.9493913
                                  total: 2.71s
                                                   remaining: 5.8s
318:
        learn: 5.9316758
                                  total: 2.71s
                                                   remaining: 5.78s
319:
        learn: 5.9097395
                                  total: 2.79s
                                                   remaining: 5.93s
```

```
320:
        learn: 5.8929910
                                  total: 2.79s
                                                   remaining: 5.91s
321:
        learn: 5.8805346
                                  total: 2.79s
                                                   remaining: 5.88s
        learn: 5.8718537
                                  total: 2.8s
322:
                                                   remaining: 5.86s
323:
        learn: 5.8363512
                                  total: 2.8s
                                                   remaining: 5.84s
324:
        learn: 5.8264517
                                  total: 2.8s
                                                   remaining: 5.81s
        learn: 5.8179105
325:
                                  total: 2.8s
                                                   remaining: 5.79s
326:
        learn: 5.8066006
                                  total: 2.8s
                                                   remaining: 5.76s
327:
        learn: 5.8010800
                                                   remaining: 5.74s
                                  total: 2.8s
328:
        learn: 5.7867579
                                  total: 2.89s
                                                   remaining: 5.89s
329:
        learn: 5.7682647
                                  total: 2.89s
                                                   remaining: 5.87s
        learn: 5.7449832
330:
                                  total: 2.89s
                                                   remaining: 5.84s
331:
        learn: 5.7312622
                                  total: 2.89s
                                                   remaining: 5.82s
332:
        learn: 5.7294666
                                  total: 2.89s
                                                   remaining: 5.79s
        learn: 5.7192564
                                  total: 2.89s
333:
                                                   remaining: 5.77s
334:
        learn: 5.7057727
                                  total: 2.9s
                                                   remaining: 5.75s
335:
        learn: 5.6876398
                                  total: 2.9s
                                                   remaining: 5.72s
336:
        learn: 5.6865134
                                  total: 2.9s
                                                   remaining: 5.7s
337:
        learn: 5.6743352
                                  total: 2.9s
                                                   remaining: 5.68s
                                  total: 2.9s
338:
        learn: 5.6582989
                                                   remaining: 5.66s
339:
        learn: 5.6468766
                                  total: 2.98s
                                                   remaining: 5.79s
340:
        learn: 5.6305040
                                  total: 2.98s
                                                   remaining: 5.77s
341:
        learn: 5.6282273
                                  total: 2.99s
                                                   remaining: 5.75s
342:
        learn: 5.6114740
                                  total: 2.99s
                                                   remaining: 5.72s
343:
        learn: 5.5820173
                                  total: 2.99s
                                                   remaining: 5.7s
                                  total: 2.99s
344:
        learn: 5.5674911
                                                   remaining: 5.68s
345:
        learn: 5.5607265
                                  total: 2.99s
                                                   remaining: 5.65s
346:
        learn: 5.5488196
                                  total: 2.99s
                                                   remaining: 5.63s
347:
        learn: 5.5353744
                                  total: 2.99s
                                                   remaining: 5.61s
348:
        learn: 5.5228082
                                  total: 3s
                                                   remaining: 5.59s
349:
        learn: 5.5162806
                                  total: 3.08s
                                                   remaining: 5.72s
350:
        learn: 5.5054124
                                  total: 3.08s
                                                   remaining: 5.7s
                                  total: 3.08s
351:
        learn: 5.4791634
                                                   remaining: 5.67s
352:
        learn: 5.4663902
                                  total: 3.08s
                                                   remaining: 5.65s
        learn: 5.4616409
353:
                                  total: 3.08s
                                                   remaining: 5.63s
        learn: 5.4457998
354:
                                  total: 3.09s
                                                   remaining: 5.61s
                                                   remaining: 5.58s
355:
        learn: 5.4313530
                                  total: 3.09s
356:
        learn: 5.4119972
                                  total: 3.09s
                                                   remaining: 5.56s
357:
        learn: 5.3942753
                                  total: 3.09s
                                                   remaining: 5.54s
358:
        learn: 5.3923329
                                  total: 3.09s
                                                   remaining: 5.52s
                                                   remaining: 5.5s
359:
        learn: 5.3881578
                                  total: 3.09s
360:
        learn: 5.3836202
                                                   remaining: 5.47s
                                  total: 3.09s
        learn: 5.3692107
361:
                                  total: 3.18s
                                                   remaining: 5.6s
        learn: 5.3545567
                                  total: 3.18s
362:
                                                   remaining: 5.58s
        learn: 5.3518166
363:
                                  total: 3.18s
                                                   remaining: 5.55s
364:
        learn: 5.3445606
                                  total: 3.18s
                                                   remaining: 5.53s
365:
        learn: 5.3394968
                                  total: 3.18s
                                                   remaining: 5.51s
        learn: 5.3267708
                                  total: 3.18s
366:
                                                   remaining: 5.49s
                                                   remaining: 5.47s
367:
        learn: 5.3160222
                                  total: 3.18s
368:
        learn: 5.3082813
                                  total: 3.19s
                                                   remaining: 5.45s
369:
        learn: 5.3006485
                                  total: 3.2s
                                                   remaining: 5.44s
370:
        learn: 5.2871307
                                  total: 3.27s
                                                   remaining: 5.55s
        learn: 5.2781948
371:
                                  total: 3.27s
                                                   remaining: 5.53s
372:
        learn: 5.2701073
                                  total: 3.27s
                                                   remaining: 5.5s
        learn: 5.2540939
373:
                                  total: 3.27s
                                                   remaining: 5.48s
374:
        learn: 5.2528245
                                  total: 3.28s
                                                   remaining: 5.46s
375:
        learn: 5.2331768
                                  total: 3.28s
                                                   remaining: 5.44s
376:
        learn: 5.2220853
                                  total: 3.28s
                                                   remaining: 5.42s
377:
        learn: 5.2144848
                                  total: 3.28s
                                                   remaining: 5.4s
378:
        learn: 5.1974088
                                  total: 3.28s
                                                   remaining: 5.38s
379:
        learn: 5.1938563
                                  total: 3.28s
                                                   remaining: 5.36s
        learn: 5.1832497
380:
                                  total: 3.28s
                                                   remaining: 5.34s
```

```
learn: 5.1713579
381:
                                  total: 3.37s
                                                   remaining: 5.45s
382:
        learn: 5.1665596
                                  total: 3.37s
                                                   remaining: 5.43s
        learn: 5.1486857
383:
                                  total: 3.37s
                                                   remaining: 5.41s
384:
        learn: 5.1396983
                                  total: 3.37s
                                                   remaining: 5.38s
385:
        learn: 5.1264246
                                  total: 3.37s
                                                   remaining: 5.37s
        learn: 5.1121842
386:
                                  total: 3.37s
                                                   remaining: 5.34s
387:
        learn: 5.0971340
                                  total: 3.38s
                                                   remaining: 5.32s
388:
        learn: 5.0943941
                                                   remaining: 5.3s
                                  total: 3.38s
389:
        learn: 5.0769075
                                  total: 3.38s
                                                   remaining: 5.28s
390:
        learn: 5.0684652
                                  total: 3.38s
                                                   remaining: 5.26s
391:
        learn: 5.0550413
                                  total: 3.46s
                                                   remaining: 5.37s
392:
        learn: 5.0448083
                                                   remaining: 5.35s
                                  total: 3.46s
393:
        learn: 5.0369303
                                  total: 3.47s
                                                   remaining: 5.33s
394:
        learn: 5.0336950
                                  total: 3.47s
                                                   remaining: 5.31s
395:
        learn: 5.0206376
                                  total: 3.47s
                                                   remaining: 5.29s
396:
        learn: 5.0067705
                                  total: 3.47s
                                                   remaining: 5.27s
397:
        learn: 4.9863681
                                  total: 3.47s
                                                   remaining: 5.25s
398:
        learn: 4.9772580
                                  total: 3.47s
                                                   remaining: 5.23s
                                  total: 3.47s
399:
        learn: 4.9754763
                                                   remaining: 5.21s
400:
        learn: 4.9656266
                                  total: 3.47s
                                                   remaining: 5.19s
401:
        learn: 4.9571393
                                  total: 3.48s
                                                   remaining: 5.17s
402:
        learn: 4.9330464
                                  total: 3.48s
                                                   remaining: 5.15s
403:
        learn: 4.9179646
                                  total: 3.56s
                                                   remaining: 5.25s
404:
        learn: 4.9102636
                                  total: 3.56s
                                                   remaining: 5.23s
405:
        learn: 4.8991417
                                  total: 3.56s
                                                   remaining: 5.21s
406:
        learn: 4.8955104
                                  total: 3.56s
                                                   remaining: 5.19s
407:
        learn: 4.8829346
                                  total: 3.56s
                                                   remaining: 5.17s
408:
        learn: 4.8766446
                                  total: 3.56s
                                                   remaining: 5.15s
409:
        learn: 4.8677487
                                  total: 3.57s
                                                   remaining: 5.13s
410:
        learn: 4.8559418
                                  total: 3.57s
                                                   remaining: 5.11s
411:
        learn: 4.8504079
                                  total: 3.57s
                                                   remaining: 5.09s
412:
        learn: 4.8464521
                                  total: 3.57s
                                                   remaining: 5.07s
413:
        learn: 4.8354373
                                  total: 3.65s
                                                   remaining: 5.17s
414:
        learn: 4.8264697
                                  total: 3.66s
                                                   remaining: 5.16s
415:
        learn: 4.8167416
                                  total: 3.66s
                                                   remaining: 5.13s
                                  total: 3.66s
416:
        learn: 4.8056483
                                                   remaining: 5.12s
417:
        learn: 4.7843846
                                  total: 3.66s
                                                   remaining: 5.1s
418:
        learn: 4.7654474
                                  total: 3.66s
                                                   remaining: 5.08s
419:
        learn: 4.7517544
                                  total: 3.66s
                                                   remaining: 5.06s
420:
        learn: 4.7466365
                                  total: 3.66s
                                                   remaining: 5.04s
421:
        learn: 4.7424480
                                                   remaining: 5.02s
                                  total: 3.67s
422:
        learn: 4.7312648
                                  total: 3.67s
                                                   remaining: 5s
        learn: 4.7196004
423:
                                  total: 3.67s
                                                   remaining: 4.98s
424:
        learn: 4.7051032
                                  total: 3.75s
                                                   remaining: 5.07s
425:
        learn: 4.6983898
                                                   remaining: 5.05s
                                  total: 3.75s
426:
        learn: 4.6919356
                                  total: 3.75s
                                                   remaining: 5.04s
427:
        learn: 4.6909305
                                  total: 3.75s
                                                   remaining: 5.02s
428:
        learn: 4.6770143
                                  total: 3.75s
                                                   remaining: 5s
429:
        learn: 4.6648236
                                  total: 3.76s
                                                   remaining: 4.98s
430:
        learn: 4.6585528
                                  total: 3.76s
                                                   remaining: 4.96s
431:
        learn: 4.6456715
                                  total: 3.76s
                                                   remaining: 4.94s
432:
        learn: 4.6332355
                                  total: 3.76s
                                                   remaining: 4.92s
433:
        learn: 4.6138288
                                  total: 3.76s
                                                   remaining: 4.91s
434:
        learn: 4.6033527
                                  total: 3.76s
                                                   remaining: 4.89s
435:
        learn: 4.5975011
                                  total: 3.85s
                                                   remaining: 4.97s
436:
        learn: 4.5919151
                                                   remaining: 4.96s
                                  total: 3.85s
437:
        learn: 4.5891583
                                  total: 3.85s
                                                   remaining: 4.94s
438:
                                  total: 3.85s
        learn: 4.5669812
                                                   remaining: 4.92s
439:
        learn: 4.5525985
                                  total: 3.85s
                                                   remaining: 4.9s
440:
        learn: 4.5398732
                                  total: 3.85s
                                                   remaining: 4.88s
441:
        learn: 4.5340647
                                  total: 3.85s
                                                   remaining: 4.87s
```

442:	learn:	4.5250897	total: 3.85s	remaining:	4.85s
443:	learn:	4.5197569	total: 3.86s	remaining:	4.83s
444:	learn:	4.5069172	total: 3.86s	remaining:	4.81s
445:	learn:	4.4980813	total: 3.94s	remaining:	4.89s
446:	learn:	4.4898992	total: 3.94s	remaining:	4.88s
447:	learn:	4.4792559	total: 3.94s	remaining:	
448:	learn:	4.4598608	total: 3.94s	remaining:	
449:	learn:	4.4485233	total: 3.95s	remaining:	
450:		4.4428503	total: 3.95s	remaining:	
451:		4.4317609	total: 3.95s	remaining:	
452:		4.4231811	total: 3.95s	remaining:	
453:		4.4169160	total: 3.95s	remaining:	
454:		4.4072925	total: 3.95s	remaining:	
455:		4.3939058	total: 4.04s	remaining:	
456:		4.3821406	total: 4.04s	remaining:	
450: 457:		4.3744610	total: 4.04s	remaining:	
457: 458:		4.3728542	total: 4.04s	remaining:	
458. 459:		4.3589053	total: 4.04s		
				remaining:	
460:		4.3580553	total: 4.05s	remaining:	
461:		4.3510403	total: 4.05s	remaining:	
462:		4.3450939	total: 4.05s	remaining:	
463:		4.3443100	total: 4.05s	remaining:	
464:		4.3436234	total: 4.06s	remaining:	
465:		4.3375758	total: 4.13s	remaining:	
466:		4.3262122	total: 4.13s	remaining:	
467:		4.3183707	total: 4.13s	remaining:	
468:		4.3121903	total: 4.14s	remaining:	
469:		4.3067365	total: 4.14s	remaining:	
470:		4.3011738	total: 4.14s	remaining:	
471:	learn:	4.2957972	total: 4.14s	remaining:	
472:	learn:	4.2872299	total: 4.14s	remaining:	
473:	learn:	4.2804596	total: 4.14s	remaining:	4.6s
474:	learn:	4.2752200	total: 4.14s	remaining:	4.58s
475:	learn:	4.2731759	total: 4.14s	remaining:	4.56s
476:	learn:	4.2670721	total: 4.14s	remaining:	4.54s
477:	learn:	4.2625024	total: 4.23s	remaining:	4.62s
478:	learn:	4.2512193	total: 4.23s	remaining:	4.6s
479:	learn:	4.2371169	total: 4.23s	remaining:	4.58s
480:	learn:	4.2267721	total: 4.23s	remaining:	4.57s
481:		4.2157894	total: 4.23s	remaining:	
482:		4.2122864	total: 4.24s	remaining:	
483:		4.2088316	total: 4.24s	remaining:	
484:		4.2071482	total: 4.24s	remaining:	
485:		4.2020380	total: 4.24s	remaining:	
486:		4.1867676	total: 4.32s	remaining:	
487:		4.1827234	total: 4.33s	remaining:	
488:		4.1703167	total: 4.33s	remaining:	
489:		4.1602121	total: 4.33s	remaining:	
		4.1539423	total: 4.33s	_	
490:				remaining:	
491:		4.1371793	total: 4.33s	remaining:	
492:		4.1304497	total: 4.33s	remaining:	
493:		4.1296251	total: 4.33s	remaining:	
494:		4.1226265	total: 4.33s	remaining:	
495:		4.1097912	total: 4.34s	remaining:	
496:		4.1060669	total: 4.34s	remaining:	
497:		4.1000673	total: 4.42s	remaining:	
498:		4.0907281	total: 4.42s	remaining:	
499:		4.0852208	total: 4.42s	remaining:	
500:		4.0771960	total: 4.42s	remaining:	
501:		4.0634878	total: 4.43s	remaining:	
502:	learn:	4.0540138	total: 4.43s	remaining:	4.37s

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503:
        learn: 4.0394084
                                  total: 4.43s
                                                   remaining: 4.36s
504:
        learn: 4.0305881
                                  total: 4.43s
                                                   remaining: 4.34s
505:
        learn: 4.0265091
                                  total: 4.43s
                                                   remaining: 4.33s
506:
        learn: 4.0226224
                                  total: 4.52s
                                                   remaining: 4.39s
507:
        learn: 4.0115725
                                  total: 4.52s
                                                   remaining: 4.38s
                                                   remaining: 4.36s
508:
        learn: 4.0041879
                                  total: 4.52s
509:
        learn: 3.9880060
                                  total: 4.52s
                                                   remaining: 4.34s
510:
        learn: 3.9857895
                                  total: 4.52s
                                                   remaining: 4.33s
511:
        learn: 3.9728100
                                  total: 4.52s
                                                   remaining: 4.31s
512:
        learn: 3.9686222
                                  total: 4.52s
                                                   remaining: 4.29s
513:
        learn: 3.9581535
                                  total: 4.52s
                                                   remaining: 4.28s
514:
        learn: 3.9502587
                                  total: 4.53s
                                                   remaining: 4.26s
515:
        learn: 3.9432346
                                  total: 4.53s
                                                   remaining: 4.25s
        learn: 3.9379659
516:
                                  total: 4.53s
                                                   remaining: 4.23s
517:
        learn: 3.9328944
                                  total: 4.61s
                                                   remaining: 4.29s
518:
        learn: 3.9264523
                                  total: 4.61s
                                                   remaining: 4.27s
519:
        learn: 3.9233899
                                  total: 4.61s
                                                   remaining: 4.26s
520:
        learn: 3.9145251
                                  total: 4.61s
                                                   remaining: 4.24s
521:
        learn: 3.9119932
                                  total: 4.62s
                                                   remaining: 4.23s
522:
        learn: 3.8946984
                                  total: 4.62s
                                                   remaining: 4.21s
523:
        learn: 3.8846620
                                  total: 4.62s
                                                   remaining: 4.2s
524:
        learn: 3.8826911
                                  total: 4.62s
                                                   remaining: 4.18s
525:
        learn: 3.8744430
                                  total: 4.62s
                                                   remaining: 4.16s
526:
        learn: 3.8627132
                                  total: 4.62s
                                                   remaining: 4.15s
527:
        learn: 3.8572500
                                  total: 4.71s
                                                   remaining: 4.21s
528:
        learn: 3.8452508
                                  total: 4.71s
                                                   remaining: 4.19s
529:
        learn: 3.8414034
                                  total: 4.71s
                                                   remaining: 4.18s
                                                   remaining: 4.16s
530:
        learn: 3.8350526
                                  total: 4.71s
531:
        learn: 3.8338308
                                  total: 4.71s
                                                   remaining: 4.14s
532:
                                  total: 4.71s
        learn: 3.8248980
                                                   remaining: 4.13s
533:
        learn: 3.8196088
                                  total: 4.71s
                                                   remaining: 4.11s
534:
        learn: 3.8110947
                                  total: 4.71s
                                                   remaining: 4.1s
535:
        learn: 3.8007241
                                  total: 4.72s
                                                   remaining: 4.08s
                                  total: 4.72s
536:
        learn: 3.7926424
                                                   remaining: 4.07s
537:
        learn: 3.7841711
                                  total: 4.72s
                                                   remaining: 4.05s
                                                   remaining: 4.04s
538:
        learn: 3.7681969
                                  total: 4.72s
539:
        learn: 3.7594819
                                  total: 4.8s
                                                   remaining: 4.09s
540:
        learn: 3.7524748
                                  total: 4.8s
                                                   remaining: 4.08s
541:
        learn: 3.7457481
                                  total: 4.8s
                                                   remaining: 4.06s
        learn: 3.7424700
542:
                                  total: 4.81s
                                                   remaining: 4.04s
543:
        learn: 3.7384302
                                  total: 4.81s
                                                   remaining: 4.03s
544:
        learn: 3.7315456
                                  total: 4.81s
                                                   remaining: 4.01s
545:
        learn: 3.7250057
                                  total: 4.81s
                                                   remaining: 4s
        learn: 3.7125472
546:
                                  total: 4.81s
                                                   remaining: 3.98s
547:
        learn: 3.7082867
                                  total: 4.81s
                                                   remaining: 3.97s
548:
        learn: 3.7067683
                                  total: 4.9s
                                                   remaining: 4.02s
549:
        learn: 3.7062671
                                  total: 4.9s
                                                   remaining: 4.01s
                                                   remaining: 3.99s
550:
        learn: 3.7050249
                                  total: 4.9s
551:
        learn: 3.6949553
                                  total: 4.9s
                                                   remaining: 3.98s
552:
        learn: 3.6875616
                                  total: 4.9s
                                                   remaining: 3.96s
553:
        learn: 3.6801875
                                  total: 4.9s
                                                   remaining: 3.95s
554:
        learn: 3.6756512
                                  total: 4.9s
                                                   remaining: 3.93s
555:
        learn: 3.6715359
                                  total: 4.9s
                                                   remaining: 3.92s
556:
        learn: 3.6599029
                                  total: 4.91s
                                                   remaining: 3.9s
557:
        learn: 3.6512971
                                  total: 4.99s
                                                   remaining: 3.95s
558:
        learn: 3.6423842
                                  total: 4.99s
                                                   remaining: 3.94s
559:
        learn: 3.6318927
                                  total: 4.99s
                                                   remaining: 3.92s
560:
        learn: 3.6221929
                                  total: 5s
                                                   remaining: 3.91s
561:
        learn: 3.6206078
                                  total: 5s
                                                   remaining: 3.89s
562:
        learn: 3.6155291
                                  total: 5s
                                                   remaining: 3.88s
        learn: 3.6054673
563:
                                  total: 5s
                                                   remaining: 3.86s
```

```
564:
        learn: 3.5972902
                                  total: 5s
                                                   remaining: 3.85s
565:
        learn: 3.5869879
                                  total: 5s
                                                   remaining: 3.83s
        learn: 3.5823035
566:
                                  total: 5s
                                                   remaining: 3.82s
567:
        learn: 3.5748631
                                  total: 5s
                                                   remaining: 3.81s
568:
        learn: 3.5681567
                                  total: 5s
                                                   remaining: 3.79s
        learn: 3.5582543
                                  total: 5.09s
569:
                                                   remaining: 3.84s
570:
        learn: 3.5541022
                                  total: 5.09s
                                                   remaining: 3.82s
        learn: 3.5477360
                                  total: 5.09s
                                                   remaining: 3.81s
571:
572:
        learn: 3.5464868
                                  total: 5.09s
                                                   remaining: 3.79s
573:
        learn: 3.5413559
                                  total: 5.09s
                                                   remaining: 3.78s
574:
        learn: 3.5286460
                                  total: 5.09s
                                                   remaining: 3.77s
575:
        learn: 3.5212839
                                                   remaining: 3.75s
                                  total: 5.1s
576:
        learn: 3.5206968
                                  total: 5.1s
                                                   remaining: 3.74s
        learn: 3.5122569
                                  total: 5.1s
                                                   remaining: 3.72s
577:
578:
        learn: 3.5101541
                                  total: 5.1s
                                                   remaining: 3.71s
579:
        learn: 3.5015816
                                  total: 5.18s
                                                   remaining: 3.75s
580:
        learn: 3.4948381
                                  total: 5.18s
                                                   remaining: 3.74s
581:
        learn: 3.4815225
                                  total: 5.19s
                                                   remaining: 3.73s
582:
        learn: 3.4748795
                                  total: 5.19s
                                                   remaining: 3.71s
583:
        learn: 3.4732549
                                  total: 5.19s
                                                   remaining: 3.7s
584:
        learn: 3.4638920
                                  total: 5.19s
                                                   remaining: 3.68s
585:
        learn: 3.4493825
                                  total: 5.19s
                                                   remaining: 3.67s
586:
        learn: 3.4447028
                                  total: 5.19s
                                                   remaining: 3.65s
587:
        learn: 3.4370370
                                  total: 5.2s
                                                   remaining: 3.64s
                                                   remaining: 3.63s
588:
        learn: 3.4342784
                                  total: 5.2s
589:
        learn: 3.4269216
                                  total: 5.2s
                                                   remaining: 3.61s
590:
        learn: 3.4251897
                                  total: 5.28s
                                                   remaining: 3.65s
591:
        learn: 3.4224704
                                  total: 5.28s
                                                   remaining: 3.64s
592:
        learn: 3.4163227
                                  total: 5.28s
                                                   remaining: 3.63s
593:
                                  total: 5.28s
        learn: 3.4114087
                                                   remaining: 3.61s
594:
        learn: 3.4003819
                                  total: 5.28s
                                                   remaining: 3.6s
595:
        learn: 3.3928514
                                  total: 5.29s
                                                   remaining: 3.58s
596:
        learn: 3.3832349
                                  total: 5.29s
                                                   remaining: 3.57s
597:
        learn: 3.3755629
                                  total: 5.29s
                                                   remaining: 3.56s
598:
        learn: 3.3668094
                                  total: 5.29s
                                                   remaining: 3.54s
                                                   remaining: 3.53s
599:
        learn: 3.3625511
                                  total: 5.29s
600:
        learn: 3.3561281
                                  total: 5.29s
                                                   remaining: 3.51s
601:
        learn: 3.3473518
                                  total: 5.37s
                                                   remaining: 3.55s
602:
        learn: 3.3454617
                                  total: 5.38s
                                                   remaining: 3.54s
603:
        learn: 3.3434557
                                  total: 5.38s
                                                   remaining: 3.52s
604:
        learn: 3.3348566
                                  total: 5.38s
                                                   remaining: 3.51s
        learn: 3.3321693
605:
                                  total: 5.38s
                                                   remaining: 3.5s
        learn: 3.3287939
606:
                                  total: 5.38s
                                                   remaining: 3.48s
        learn: 3.3247455
                                  total: 5.38s
607:
                                                   remaining: 3.47s
608:
        learn: 3.3191334
                                  total: 5.38s
                                                   remaining: 3.46s
609:
        learn: 3.3183642
                                  total: 5.38s
                                                   remaining: 3.44s
        learn: 3.3131194
                                  total: 5.38s
610:
                                                   remaining: 3.43s
                                                   remaining: 3.41s
611:
        learn: 3.3073263
                                  total: 5.38s
612:
        learn: 3.3029462
                                  total: 5.39s
                                                   remaining: 3.4s
613:
        learn: 3.2972730
                                  total: 5.47s
                                                   remaining: 3.44s
614:
        learn: 3.2934218
                                  total: 5.47s
                                                   remaining: 3.42s
615:
        learn: 3.2843923
                                  total: 5.47s
                                                   remaining: 3.41s
616:
        learn: 3.2732478
                                  total: 5.47s
                                                   remaining: 3.4s
617:
        learn: 3.2679134
                                  total: 5.47s
                                                   remaining: 3.38s
        learn: 3.2593592
618:
                                  total: 5.48s
                                                   remaining: 3.37s
619:
        learn: 3.2543047
                                  total: 5.48s
                                                   remaining: 3.36s
620:
        learn: 3.2504325
                                  total: 5.48s
                                                   remaining: 3.34s
621:
        learn: 3.2430458
                                  total: 5.48s
                                                   remaining: 3.33s
622:
        learn: 3.2382418
                                  total: 5.57s
                                                   remaining: 3.37s
623:
        learn: 3.2353030
                                  total: 5.57s
                                                   remaining: 3.35s
        learn: 3.2327743
624:
                                  total: 5.57s
                                                   remaining: 3.34s
```

```
625:
        learn: 3.2265438
                                  total: 5.57s
                                                   remaining: 3.33s
626:
        learn: 3.2249443
                                  total: 5.57s
                                                   remaining: 3.31s
627:
        learn: 3.2196436
                                  total: 5.57s
                                                   remaining: 3.3s
628:
        learn: 3.2171251
                                  total: 5.57s
                                                   remaining: 3.29s
629:
        learn: 3.2165616
                                  total: 5.57s
                                                   remaining: 3.27s
        learn: 3.2090909
630:
                                  total: 5.58s
                                                   remaining: 3.26s
631:
        learn: 3.2044825
                                  total: 5.58s
                                                   remaining: 3.25s
632:
        learn: 3.1982833
                                                   remaining: 3.23s
                                  total: 5.58s
633:
        learn: 3.1975655
                                  total: 5.58s
                                                   remaining: 3.22s
634:
        learn: 3.1959893
                                  total: 5.66s
                                                   remaining: 3.25s
635:
        learn: 3.1887666
                                  total: 5.66s
                                                   remaining: 3.24s
        learn: 3.1862206
                                                   remaining: 3.23s
636:
                                  total: 5.66s
637:
        learn: 3.1824610
                                  total: 5.67s
                                                   remaining: 3.21s
        learn: 3.1692227
                                  total: 5.67s
638:
                                                   remaining: 3.2s
639:
        learn: 3.1645418
                                  total: 5.67s
                                                   remaining: 3.19s
640:
        learn: 3.1597432
                                  total: 5.67s
                                                   remaining: 3.17s
641:
        learn: 3.1482732
                                  total: 5.67s
                                                   remaining: 3.16s
642:
        learn: 3.1427656
                                  total: 5.67s
                                                   remaining: 3.15s
643:
        learn: 3.1297269
                                  total: 5.67s
                                                   remaining: 3.14s
644:
        learn: 3.1231938
                                  total: 5.67s
                                                   remaining: 3.12s
645:
        learn: 3.1169390
                                  total: 5.76s
                                                   remaining: 3.15s
646:
        learn: 3.1162929
                                  total: 5.76s
                                                   remaining: 3.14s
647:
        learn: 3.1096867
                                  total: 5.76s
                                                   remaining: 3.13s
648:
        learn: 3.1062276
                                  total: 5.76s
                                                   remaining: 3.12s
649:
        learn: 3.1019685
                                  total: 5.76s
                                                   remaining: 3.1s
650:
        learn: 3.0926484
                                  total: 5.76s
                                                   remaining: 3.09s
651:
        learn: 3.0889716
                                  total: 5.76s
                                                   remaining: 3.08s
652:
        learn: 3.0842529
                                  total: 5.77s
                                                   remaining: 3.06s
653:
        learn: 3.0802334
                                  total: 5.77s
                                                   remaining: 3.05s
654:
        learn: 3.0702607
                                  total: 5.77s
                                                   remaining: 3.04s
655:
        learn: 3.0656985
                                  total: 5.85s
                                                   remaining: 3.07s
                                  total: 5.85s
656:
        learn: 3.0641057
                                                   remaining: 3.06s
657:
        learn: 3.0587648
                                  total: 5.86s
                                                   remaining: 3.04s
658:
        learn: 3.0548483
                                  total: 5.86s
                                                   remaining: 3.03s
659:
        learn: 3.0537124
                                  total: 5.86s
                                                   remaining: 3.02s
        learn: 3.0523681
660:
                                  total: 5.86s
                                                   remaining: 3s
661:
        learn: 3.0483751
                                  total: 5.86s
                                                   remaining: 2.99s
662:
        learn: 3.0478345
                                  total: 5.86s
                                                   remaining: 2.98s
663:
        learn: 3.0376395
                                  total: 5.86s
                                                   remaining: 2.97s
664:
        learn: 3.0341525
                                  total: 5.86s
                                                   remaining: 2.95s
665:
        learn: 3.0247433
                                                   remaining: 2.94s
                                  total: 5.87s
        learn: 3.0174800
                                                   remaining: 2.97s
666:
                                  total: 5.95s
        learn: 3.0090626
667:
                                  total: 5.95s
                                                   remaining: 2.96s
        learn: 3.0020348
668:
                                  total: 5.95s
                                                   remaining: 2.94s
        learn: 2.9999338
                                                   remaining: 2.93s
669:
                                  total: 5.95s
670:
        learn: 2.9916767
                                  total: 5.95s
                                                   remaining: 2.92s
        learn: 2.9912968
                                  total: 5.95s
671:
                                                   remaining: 2.91s
                                                   remaining: 2.89s
        learn: 2.9904944
                                  total: 5.96s
672:
673:
        learn: 2.9862379
                                  total: 5.96s
                                                   remaining: 2.88s
674:
        learn: 2.9852064
                                  total: 5.96s
                                                   remaining: 2.87s
675:
        learn: 2.9816672
                                  total: 5.96s
                                                   remaining: 2.85s
676:
        learn: 2.9807584
                                  total: 5.96s
                                                   remaining: 2.84s
677:
        learn: 2.9796246
                                  total: 6.04s
                                                   remaining: 2.87s
678:
        learn: 2.9752317
                                  total: 6.04s
                                                   remaining: 2.86s
        learn: 2.9715643
679:
                                  total: 6.05s
                                                   remaining: 2.85s
        learn: 2.9671776
                                  total: 6.05s
                                                   remaining: 2.83s
680:
681:
        learn: 2.9551635
                                  total: 6.05s
                                                   remaining: 2.82s
        learn: 2.9470239
                                  total: 6.05s
682:
                                                   remaining: 2.81s
683:
        learn: 2.9447569
                                  total: 6.05s
                                                   remaining: 2.79s
684:
        learn: 2.9427685
                                  total: 6.05s
                                                   remaining: 2.78s
        learn: 2.9383376
685:
                                  total: 6.05s
                                                   remaining: 2.77s
```

```
learn: 2.9339862
686:
                                  total: 6.05s
                                                   remaining: 2.76s
687:
        learn: 2.9301755
                                  total: 6.14s
                                                   remaining: 2.78s
        learn: 2.9250607
688:
                                  total: 6.14s
                                                   remaining: 2.77s
689:
        learn: 2.9149932
                                  total: 6.14s
                                                   remaining: 2.76s
690:
        learn: 2.9102582
                                  total: 6.14s
                                                   remaining: 2.75s
691:
        learn: 2.9071970
                                  total: 6.14s
                                                   remaining: 2.73s
692:
        learn: 2.9021388
                                  total: 6.15s
                                                   remaining: 2.72s
693:
        learn: 2.8960928
                                  total: 6.15s
                                                   remaining: 2.71s
694:
        learn: 2.8878147
                                  total: 6.15s
                                                   remaining: 2.7s
695:
        learn: 2.8818309
                                  total: 6.15s
                                                   remaining: 2.69s
696:
        learn: 2.8785784
                                  total: 6.16s
                                                   remaining: 2.68s
697:
        learn: 2.8783397
                                                   remaining: 2.7s
                                  total: 6.24s
698:
        learn: 2.8758475
                                  total: 6.24s
                                                   remaining: 2.69s
699:
        learn: 2.8716626
                                  total: 6.24s
                                                   remaining: 2.67s
700:
        learn: 2.8630826
                                  total: 6.24s
                                                   remaining: 2.66s
701:
        learn: 2.8582742
                                  total: 6.24s
                                                   remaining: 2.65s
702:
        learn: 2.8545652
                                  total: 6.24s
                                                   remaining: 2.64s
703:
        learn: 2.8473564
                                  total: 6.24s
                                                   remaining: 2.63s
704:
        learn: 2.8401302
                                  total: 6.25s
                                                   remaining: 2.61s
705:
        learn: 2.8339942
                                  total: 6.25s
                                                   remaining: 2.6s
706:
        learn: 2.8306942
                                  total: 6.33s
                                                   remaining: 2.62s
707:
        learn: 2.8266787
                                  total: 6.33s
                                                   remaining: 2.61s
708:
        learn: 2.8207995
                                  total: 6.33s
                                                   remaining: 2.6s
709:
        learn: 2.8147343
                                  total: 6.34s
                                                   remaining: 2.59s
710:
        learn: 2.8105254
                                  total: 6.34s
                                                   remaining: 2.58s
711:
        learn: 2.8069842
                                  total: 6.34s
                                                   remaining: 2.56s
712:
        learn: 2.8046128
                                  total: 6.34s
                                                   remaining: 2.55s
                                                   remaining: 2.54s
713:
        learn: 2.8027491
                                  total: 6.34s
        learn: 2.7995703
714:
                                  total: 6.34s
                                                   remaining: 2.53s
715:
        learn: 2.7986695
                                  total: 6.34s
                                                   remaining: 2.52s
716:
        learn: 2.7943104
                                  total: 6.34s
                                                   remaining: 2.5s
        learn: 2.7907555
717:
                                  total: 6.43s
                                                   remaining: 2.52s
718:
        learn: 2.7811150
                                  total: 6.43s
                                                   remaining: 2.51s
719:
        learn: 2.7771554
                                  total: 6.43s
                                                   remaining: 2.5s
720:
        learn: 2.7727764
                                  total: 6.43s
                                                   remaining: 2.49s
721:
                                  total: 6.43s
        learn: 2.7708093
                                                   remaining: 2.48s
722:
        learn: 2.7695358
                                  total: 6.43s
                                                   remaining: 2.46s
723:
        learn: 2.7627812
                                  total: 6.43s
                                                   remaining: 2.45s
724:
        learn: 2.7614535
                                  total: 6.44s
                                                   remaining: 2.44s
725:
        learn: 2.7561905
                                  total: 6.44s
                                                   remaining: 2.43s
726:
        learn: 2.7521863
                                  total: 6.44s
                                                   remaining: 2.42s
727:
        learn: 2.7477690
                                  total: 6.44s
                                                   remaining: 2.41s
728:
        learn: 2.7434561
                                  total: 6.44s
                                                   remaining: 2.39s
729:
        learn: 2.7372977
                                  total: 6.52s
                                                   remaining: 2.41s
730:
        learn: 2.7347877
                                  total: 6.52s
                                                   remaining: 2.4s
731:
        learn: 2.7312083
                                  total: 6.53s
                                                   remaining: 2.39s
732:
        learn: 2.7288029
                                  total: 6.53s
                                                   remaining: 2.38s
                                                   remaining: 2.37s
733:
        learn: 2.7219112
                                  total: 6.53s
734:
        learn: 2.7179177
                                  total: 6.53s
                                                   remaining: 2.35s
735:
        learn: 2.7162938
                                  total: 6.53s
                                                   remaining: 2.34s
736:
        learn: 2.7152834
                                  total: 6.53s
                                                   remaining: 2.33s
737:
        learn: 2.7126795
                                  total: 6.53s
                                                   remaining: 2.32s
738:
        learn: 2.7116182
                                  total: 6.54s
                                                   remaining: 2.31s
739:
        learn: 2.7111358
                                  total: 6.62s
                                                   remaining: 2.33s
740:
        learn: 2.7066419
                                  total: 6.62s
                                                   remaining: 2.31s
741:
        learn: 2.7002570
                                                   remaining: 2.3s
                                  total: 6.62s
742:
        learn: 2.6975648
                                  total: 6.62s
                                                   remaining: 2.29s
743:
        learn: 2.6943904
                                  total: 6.62s
                                                   remaining: 2.28s
744:
        learn: 2.6868735
                                  total: 6.63s
                                                   remaining: 2.27s
745:
        learn: 2.6820636
                                  total: 6.63s
                                                   remaining: 2.26s
        learn: 2.6811229
746:
                                  total: 6.63s
                                                   remaining: 2.24s
```

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747:
        learn: 2.6808345
                                  total: 6.63s
                                                   remaining: 2.23s
748:
        learn: 2.6772869
                                  total: 6.63s
                                                   remaining: 2.22s
749:
        learn: 2.6764416
                                  total: 6.71s
                                                   remaining: 2.24s
750:
        learn: 2.6737343
                                  total: 6.72s
                                                   remaining: 2.23s
751:
        learn: 2.6687140
                                  total: 6.72s
                                                   remaining: 2.21s
752:
        learn: 2.6648177
                                  total: 6.72s
                                                   remaining: 2.2s
753:
        learn: 2.6642367
                                  total: 6.72s
                                                   remaining: 2.19s
754:
        learn: 2.6614574
                                  total: 6.72s
                                                   remaining: 2.18s
755:
        learn: 2.6547143
                                  total: 6.72s
                                                   remaining: 2.17s
756:
        learn: 2.6511875
                                  total: 6.72s
                                                   remaining: 2.16s
757:
                                  total: 6.72s
        learn: 2.6488263
                                                   remaining: 2.15s
758:
        learn: 2.6475833
                                  total: 6.72s
                                                   remaining: 2.13s
759:
        learn: 2.6442720
                                  total: 6.73s
                                                   remaining: 2.12s
760:
        learn: 2.6413620
                                  total: 6.73s
                                                   remaining: 2.11s
761:
        learn: 2.6362002
                                  total: 6.73s
                                                   remaining: 2.1s
762:
        learn: 2.6310377
                                  total: 6.81s
                                                   remaining: 2.12s
763:
        learn: 2.6268841
                                  total: 6.81s
                                                   remaining: 2.1s
764:
        learn: 2.6207236
                                  total: 6.81s
                                                   remaining: 2.09s
765:
        learn: 2.6184227
                                  total: 6.82s
                                                   remaining: 2.08s
766:
        learn: 2.6146851
                                  total: 6.82s
                                                   remaining: 2.07s
767:
        learn: 2.6134413
                                  total: 6.82s
                                                   remaining: 2.06s
768:
        learn: 2.6103532
                                  total: 6.82s
                                                   remaining: 2.05s
769:
        learn: 2.6051564
                                  total: 6.82s
                                                   remaining: 2.04s
770:
        learn: 2.6039631
                                  total: 6.82s
                                                   remaining: 2.03s
                                                   remaining: 2.01s
771:
        learn: 2.6016195
                                  total: 6.82s
772:
        learn: 2.5949587
                                  total: 6.91s
                                                   remaining: 2.03s
773:
        learn: 2.5891357
                                  total: 6.91s
                                                   remaining: 2.02s
774:
        learn: 2.5799643
                                  total: 6.91s
                                                   remaining: 2s
775:
        learn: 2.5768630
                                  total: 6.91s
                                                   remaining: 1.99s
776:
        learn: 2.5743773
                                  total: 6.91s
                                                   remaining: 1.98s
777:
        learn: 2.5741180
                                  total: 6.91s
                                                   remaining: 1.97s
                                  total: 6.91s
778:
        learn: 2.5718268
                                                   remaining: 1.96s
779:
        learn: 2.5633668
                                  total: 6.91s
                                                   remaining: 1.95s
780:
        learn: 2.5562395
                                                   remaining: 1.94s
                                  total: 6.92s
        learn: 2.5511567
781:
                                  total: 6.92s
                                                   remaining: 1.93s
782:
                                  total: 6.92s
                                                   remaining: 1.92s
        learn: 2.5490925
783:
        learn: 2.5420323
                                  total: 7s
                                                   remaining: 1.93s
784:
        learn: 2.5386732
                                  total: 7s
                                                   remaining: 1.92s
785:
        learn: 2.5344860
                                  total: 7s
                                                   remaining: 1.91s
786:
        learn: 2.5327366
                                  total: 7s
                                                   remaining: 1.9s
                                  total: 7.01s
787:
        learn: 2.5282270
                                                   remaining: 1.88s
788:
        learn: 2.5249361
                                  total: 7.01s
                                                   remaining: 1.87s
789:
        learn: 2.5176984
                                  total: 7.01s
                                                   remaining: 1.86s
790:
        learn: 2.5144584
                                  total: 7.01s
                                                   remaining: 1.85s
791:
                                                   remaining: 1.84s
        learn: 2.5127131
                                  total: 7.01s
792:
        learn: 2.5077070
                                  total: 7.01s
                                                   remaining: 1.83s
793:
        learn: 2.5041537
                                  total: 7.01s
                                                   remaining: 1.82s
                                                   remaining: 1.83s
794:
        learn: 2.5019485
                                  total: 7.1s
795:
        learn: 2.5000798
                                  total: 7.1s
                                                   remaining: 1.82s
796:
        learn: 2.4947596
                                  total: 7.1s
                                                   remaining: 1.81s
797:
        learn: 2.4898628
                                  total: 7.1s
                                                   remaining: 1.8s
798:
        learn: 2.4860214
                                  total: 7.1s
                                                   remaining: 1.79s
799:
        learn: 2.4834282
                                  total: 7.1s
                                                   remaining: 1.77s
800:
        learn: 2.4789319
                                  total: 7.1s
                                                   remaining: 1.76s
801:
        learn: 2.4763297
                                  total: 7.1s
                                                   remaining: 1.75s
802:
        learn: 2.4706437
                                                   remaining: 1.74s
                                  total: 7.11s
803:
        learn: 2.4702406
                                  total: 7.11s
                                                   remaining: 1.73s
804:
        learn: 2.4676216
                                  total: 7.19s
                                                   remaining: 1.74s
805:
        learn: 2.4611970
                                  total: 7.19s
                                                   remaining: 1.73s
806:
        learn: 2.4594871
                                  total: 7.2s
                                                   remaining: 1.72s
        learn: 2.4556366
807:
                                  total: 7.2s
                                                   remaining: 1.71s
```

```
808:
        learn: 2.4458923
                                  total: 7.2s
                                                   remaining: 1.7s
809:
        learn: 2.4412604
                                  total: 7.2s
                                                   remaining: 1.69s
        learn: 2.4377191
                                  total: 7.2s
810:
                                                   remaining: 1.68s
811:
        learn: 2.4333613
                                  total: 7.2s
                                                   remaining: 1.67s
812:
        learn: 2.4275581
                                  total: 7.2s
                                                   remaining: 1.66s
        learn: 2.4218743
                                  total: 7.2s
813:
                                                   remaining: 1.65s
814:
        learn: 2.4161780
                                  total: 7.2s
                                                   remaining: 1.64s
815:
        learn: 2.4112979
                                  total: 7.21s
                                                   remaining: 1.62s
816:
        learn: 2.4055964
                                  total: 7.29s
                                                   remaining: 1.63s
817:
        learn: 2.4026326
                                  total: 7.29s
                                                   remaining: 1.62s
        learn: 2.4019930
818:
                                  total: 7.29s
                                                   remaining: 1.61s
819:
        learn: 2.3971023
                                                   remaining: 1.6s
                                  total: 7.29s
820:
        learn: 2.3946173
                                  total: 7.29s
                                                   remaining: 1.59s
821:
        learn: 2.3910442
                                  total: 7.29s
                                                   remaining: 1.58s
822:
        learn: 2.3908206
                                  total: 7.3s
                                                   remaining: 1.57s
823:
        learn: 2.3879761
                                  total: 7.3s
                                                   remaining: 1.56s
824:
        learn: 2.3866054
                                  total: 7.3s
                                                   remaining: 1.55s
825:
        learn: 2.3830829
                                  total: 7.3s
                                                   remaining: 1.54s
826:
        learn: 2.3809383
                                  total: 7.38s
                                                   remaining: 1.54s
827:
        learn: 2.3723107
                                  total: 7.38s
                                                   remaining: 1.53s
828:
        learn: 2.3703448
                                  total: 7.39s
                                                   remaining: 1.52s
829:
        learn: 2.3651730
                                  total: 7.39s
                                                   remaining: 1.51s
830:
        learn: 2.3594616
                                  total: 7.39s
                                                   remaining: 1.5s
831:
        learn: 2.3536519
                                  total: 7.39s
                                                   remaining: 1.49s
                                  total: 7.39s
832:
        learn: 2.3518505
                                                   remaining: 1.48s
833:
        learn: 2.3506017
                                  total: 7.39s
                                                   remaining: 1.47s
834:
        learn: 2.3453663
                                  total: 7.39s
                                                   remaining: 1.46s
835:
        learn: 2.3415339
                                  total: 7.39s
                                                   remaining: 1.45s
836:
        learn: 2.3411565
                                  total: 7.39s
                                                   remaining: 1.44s
837:
        learn: 2.3355384
                                  total: 7.48s
                                                   remaining: 1.45s
838:
        learn: 2.3277195
                                  total: 7.48s
                                                   remaining: 1.44s
839:
        learn: 2.3270251
                                  total: 7.48s
                                                   remaining: 1.43s
840:
        learn: 2.3202668
                                  total: 7.48s
                                                   remaining: 1.42s
841:
                                  total: 7.49s
        learn: 2.3173010
                                                   remaining: 1.4s
        learn: 2.3124242
842:
                                  total: 7.49s
                                                   remaining: 1.39s
                                  total: 7.49s
843:
        learn: 2.3048048
                                                   remaining: 1.38s
844:
        learn: 2.3037293
                                  total: 7.49s
                                                   remaining: 1.37s
845:
        learn: 2.3016218
                                  total: 7.49s
                                                   remaining: 1.36s
846:
        learn: 2.2994327
                                  total: 7.49s
                                                   remaining: 1.35s
847:
        learn: 2.2969955
                                  total: 7.49s
                                                   remaining: 1.34s
848:
        learn: 2.2910488
                                  total: 7.57s
                                                   remaining: 1.35s
849:
        learn: 2.2898680
                                  total: 7.58s
                                                   remaining: 1.34s
        learn: 2.2885432
                                  total: 7.58s
850:
                                                   remaining: 1.33s
        learn: 2.2865085
851:
                                  total: 7.58s
                                                   remaining: 1.32s
852:
        learn: 2.2800220
                                                   remaining: 1.31s
                                  total: 7.58s
853:
        learn: 2.2744774
                                  total: 7.58s
                                                   remaining: 1.29s
854:
        learn: 2.2742059
                                  total: 7.58s
                                                   remaining: 1.28s
                                                   remaining: 1.27s
855:
        learn: 2.2719259
                                  total: 7.58s
856:
        learn: 2.2678437
                                  total: 7.58s
                                                   remaining: 1.26s
857:
        learn: 2.2657946
                                  total: 7.58s
                                                   remaining: 1.25s
858:
        learn: 2.2600590
                                  total: 7.59s
                                                   remaining: 1.25s
859:
        learn: 2.2573941
                                  total: 7.67s
                                                   remaining: 1.25s
860:
        learn: 2.2531241
                                  total: 7.67s
                                                   remaining: 1.24s
861:
        learn: 2.2484317
                                  total: 7.67s
                                                   remaining: 1.23s
862:
        learn: 2.2477012
                                  total: 7.67s
                                                   remaining: 1.22s
863:
        learn: 2.2443046
                                                   remaining: 1.21s
                                  total: 7.67s
864:
        learn: 2.2438547
                                  total: 7.68s
                                                   remaining: 1.2s
865:
        learn: 2.2435805
                                  total: 7.68s
                                                   remaining: 1.19s
866:
        learn: 2.2431579
                                  total: 7.68s
                                                   remaining: 1.18s
867:
        learn: 2.2392388
                                  total: 7.68s
                                                   remaining: 1.17s
        learn: 2.2357060
868:
                                  total: 7.68s
                                                   remaining: 1.16s
```

```
learn: 2.2353804
869:
                                  total: 7.68s
                                                   remaining: 1.15s
870:
        learn: 2.2298267
                                  total: 7.68s
                                                   remaining: 1.14s
        learn: 2.2283428
                                  total: 7.77s
871:
                                                   remaining: 1.14s
872:
        learn: 2.2234547
                                  total: 7.77s
                                                   remaining: 1.13s
873:
        learn: 2.2199382
                                  total: 7.77s
                                                   remaining: 1.12s
874:
        learn: 2.2160458
                                  total: 7.77s
                                                   remaining: 1.11s
875:
        learn: 2.2113419
                                  total: 7.77s
                                                   remaining: 1.1s
        learn: 2.2076582
                                  total: 7.77s
                                                   remaining: 1.09s
876:
877:
        learn: 2.2036034
                                  total: 7.77s
                                                   remaining: 1.08s
878:
        learn: 2.1991262
                                  total: 7.77s
                                                   remaining: 1.07s
        learn: 2.1944610
                                  total: 7.78s
879:
                                                   remaining: 1.06s
        learn: 2.1883668
                                  total: 7.78s
                                                   remaining: 1.05s
880:
881:
        learn: 2.1857142
                                  total: 7.78s
                                                   remaining: 1.04s
        learn: 2.1840486
                                  total: 7.86s
882:
                                                   remaining: 1.04s
883:
        learn: 2.1838690
                                  total: 7.86s
                                                   remaining: 1.03s
884:
        learn: 2.1821469
                                  total: 7.86s
                                                   remaining: 1.02s
885:
        learn: 2.1797711
                                  total: 7.87s
                                                   remaining: 1.01s
886:
        learn: 2.1742097
                                  total: 7.87s
                                                   remaining: 1s
887:
        learn: 2.1697891
                                  total: 7.87s
                                                   remaining: 992ms
888:
        learn: 2.1662264
                                  total: 7.87s
                                                   remaining: 983ms
        learn: 2.1599692
889:
                                  total: 7.87s
                                                   remaining: 973ms
890:
        learn: 2.1593107
                                  total: 7.87s
                                                   remaining: 963ms
891:
        learn: 2.1568876
                                  total: 7.87s
                                                   remaining: 953ms
892:
        learn: 2.1544822
                                  total: 7.96s
                                                   remaining: 953ms
                                  total: 7.96s
893:
        learn: 2.1515540
                                                   remaining: 944ms
894:
        learn: 2.1476471
                                  total: 7.96s
                                                   remaining: 934ms
895:
        learn: 2.1456089
                                  total: 7.96s
                                                   remaining: 924ms
896:
        learn: 2.1422193
                                  total: 7.96s
                                                   remaining: 914ms
897:
        learn: 2.1410976
                                  total: 7.96s
                                                   remaining: 905ms
898:
        learn: 2.1363614
                                  total: 7.96s
                                                   remaining: 895ms
899:
        learn: 2.1313548
                                  total: 7.97s
                                                   remaining: 885ms
                                  total: 7.97s
900:
        learn: 2.1270665
                                                   remaining: 876ms
901:
        learn: 2.1235722
                                  total: 7.97s
                                                   remaining: 866ms
902:
                                                   remaining: 865ms
        learn: 2.1232869
                                  total: 8.05s
903:
        learn: 2.1199278
                                  total: 8.05s
                                                   remaining: 855ms
904:
        learn: 2.1168112
                                  total: 8.05s
                                                   remaining: 846ms
905:
        learn: 2.1146257
                                  total: 8.06s
                                                   remaining: 836ms
                                                   remaining: 826ms
906:
        learn: 2.1128834
                                  total: 8.06s
907:
        learn: 2.1080462
                                  total: 8.06s
                                                   remaining: 817ms
908:
        learn: 2.1030560
                                  total: 8.06s
                                                   remaining: 807ms
909:
        learn: 2.1025184
                                  total: 8.06s
                                                   remaining: 797ms
910:
        learn: 2.1005363
                                                   remaining: 788ms
                                  total: 8.06s
911:
        learn: 2.0984966
                                  total: 8.06s
                                                   remaining: 778ms
        learn: 2.0918496
912:
                                  total: 8.06s
                                                   remaining: 769ms
913:
        learn: 2.0892201
                                                   remaining: 767ms
                                  total: 8.15s
914:
        learn: 2.0861018
                                  total: 8.15s
                                                   remaining: 757ms
915:
        learn: 2.0816995
                                  total: 8.15s
                                                   remaining: 748ms
                                                   remaining: 738ms
916:
        learn: 2.0780192
                                  total: 8.15s
917:
        learn: 2.0756640
                                  total: 8.15s
                                                   remaining: 728ms
918:
        learn: 2.0742358
                                  total: 8.15s
                                                   remaining: 719ms
919:
        learn: 2.0707251
                                  total: 8.16s
                                                   remaining: 709ms
920:
        learn: 2.0697376
                                  total: 8.16s
                                                   remaining: 700ms
921:
        learn: 2.0634870
                                  total: 8.16s
                                                   remaining: 690ms
922:
        learn: 2.0595242
                                  total: 8.16s
                                                   remaining: 681ms
923:
        learn: 2.0568179
                                  total: 8.16s
                                                   remaining: 671ms
924:
        learn: 2.0537613
                                                   remaining: 668ms
                                  total: 8.24s
925:
        learn: 2.0514722
                                  total: 8.24s
                                                   remaining: 659ms
926:
        learn: 2.0464700
                                  total: 8.25s
                                                   remaining: 649ms
927:
        learn: 2.0426057
                                  total: 8.25s
                                                   remaining: 640ms
928:
        learn: 2.0390628
                                  total: 8.25s
                                                   remaining: 631ms
        learn: 2.0379946
929:
                                  total: 8.25s
                                                   remaining: 621ms
```

```
930:
        learn: 2.0374615
                                  total: 8.25s
                                                   remaining: 612ms
931:
        learn: 2.0346404
                                  total: 8.26s
                                                   remaining: 602ms
932:
        learn: 2.0323591
                                  total: 8.26s
                                                   remaining: 593ms
933:
        learn: 2.0303403
                                  total: 8.26s
                                                   remaining: 584ms
934:
        learn: 2.0272123
                                  total: 8.34s
                                                   remaining: 580ms
935:
        learn: 2.0268714
                                  total: 8.34s
                                                   remaining: 570ms
936:
        learn: 2.0206912
                                  total: 8.34s
                                                   remaining: 561ms
937:
        learn: 2.0170303
                                  total: 8.34s
                                                   remaining: 552ms
938:
        learn: 2.0134925
                                  total: 8.35s
                                                   remaining: 542ms
939:
        learn: 2.0073479
                                  total: 8.35s
                                                   remaining: 533ms
940:
        learn: 2.0048241
                                  total: 8.35s
                                                   remaining: 523ms
941:
        learn: 2.0043598
                                                   remaining: 514ms
                                  total: 8.35s
942:
        learn: 2.0016294
                                  total: 8.35s
                                                   remaining: 505ms
943:
        learn: 2.0014643
                                  total: 8.35s
                                                   remaining: 496ms
944:
        learn: 1.9997222
                                  total: 8.44s
                                                   remaining: 491ms
945:
        learn: 1.9967951
                                  total: 8.44s
                                                   remaining: 482ms
946:
        learn: 1.9934871
                                  total: 8.44s
                                                   remaining: 472ms
947:
        learn: 1.9911485
                                  total: 8.44s
                                                   remaining: 463ms
948:
        learn: 1.9860815
                                  total: 8.45s
                                                   remaining: 454ms
949:
        learn: 1.9853217
                                  total: 8.45s
                                                   remaining: 445ms
950:
        learn: 1.9795413
                                  total: 8.45s
                                                   remaining: 435ms
951:
        learn: 1.9756486
                                  total: 8.45s
                                                   remaining: 426ms
952:
        learn: 1.9725706
                                  total: 8.45s
                                                   remaining: 417ms
953:
        learn: 1.9669824
                                  total: 8.53s
                                                   remaining: 411ms
                                                   remaining: 402ms
954:
        learn: 1.9650611
                                  total: 8.53s
955:
        learn: 1.9619818
                                  total: 8.53s
                                                   remaining: 393ms
956:
        learn: 1.9595431
                                  total: 8.54s
                                                   remaining: 384ms
957:
        learn: 1.9552620
                                  total: 8.54s
                                                   remaining: 374ms
958:
        learn: 1.9528791
                                  total: 8.54s
                                                   remaining: 365ms
959:
        learn: 1.9511054
                                  total: 8.54s
                                                   remaining: 356ms
960:
        learn: 1.9494867
                                  total: 8.54s
                                                   remaining: 347ms
                                  total: 8.54s
961:
        learn: 1.9474794
                                                   remaining: 337ms
                                                   remaining: 328ms
962:
        learn: 1.9448311
                                  total: 8.55s
        learn: 1.9397172
963:
                                  total: 8.63s
                                                   remaining: 322ms
        learn: 1.9369555
964:
                                  total: 8.63s
                                                   remaining: 313ms
965:
        learn: 1.9326268
                                  total: 8.63s
                                                   remaining: 304ms
966:
        learn: 1.9278666
                                  total: 8.63s
                                                   remaining: 295ms
967:
        learn: 1.9257450
                                  total: 8.63s
                                                   remaining: 285ms
968:
        learn: 1.9241446
                                  total: 8.63s
                                                   remaining: 276ms
969:
        learn: 1.9196358
                                  total: 8.64s
                                                   remaining: 267ms
970:
        learn: 1.9150977
                                                   remaining: 258ms
                                  total: 8.64s
971:
        learn: 1.9098860
                                                   remaining: 249ms
                                  total: 8.64s
972:
        learn: 1.9088018
                                  total: 8.64s
                                                   remaining: 240ms
                                  total: 8.72s
973:
        learn: 1.9070636
                                                   remaining: 233ms
974:
        learn: 1.9053965
                                  total: 8.72s
                                                   remaining: 224ms
975:
        learn: 1.9026251
                                  total: 8.73s
                                                   remaining: 215ms
976:
        learn: 1.9014060
                                  total: 8.73s
                                                   remaining: 205ms
                                                   remaining: 196ms
977:
        learn: 1.9009528
                                  total: 8.73s
978:
        learn: 1.8980057
                                  total: 8.73s
                                                   remaining: 187ms
979:
        learn: 1.8966413
                                  total: 8.73s
                                                   remaining: 178ms
980:
        learn: 1.8943792
                                  total: 8.73s
                                                   remaining: 169ms
981:
        learn: 1.8921152
                                  total: 8.73s
                                                   remaining: 160ms
982:
        learn: 1.8892373
                                  total: 8.73s
                                                   remaining: 151ms
        learn: 1.8840314
983:
                                  total: 8.73s
                                                   remaining: 142ms
984:
        learn: 1.8812901
                                  total: 8.82s
                                                   remaining: 134ms
985:
        learn: 1.8792807
                                  total: 8.82s
                                                   remaining: 125ms
986:
        learn: 1.8756614
                                  total: 8.82s
                                                   remaining: 116ms
987:
        learn: 1.8747293
                                  total: 8.82s
                                                   remaining: 107ms
988:
        learn: 1.8734715
                                  total: 8.82s
                                                   remaining: 98.1ms
989:
        learn: 1.8717417
                                  total: 8.82s
                                                   remaining: 89.1ms
        learn: 1.8682815
990:
                                  total: 8.82s
                                                   remaining: 80.2ms
```

```
991:
        learn: 1.8652881
                                  total: 8.83s
                                                   remaining: 71.2ms
992:
        learn: 1.8628822
                                  total: 8.83s
                                                   remaining: 62.2ms
        learn: 1.8611084
                                  total: 8.83s
993:
                                                   remaining: 53.3ms
994:
        learn: 1.8583827
                                  total: 8.83s
                                                   remaining: 44.4ms
995:
        learn: 1.8562465
                                  total: 8.83s
                                                   remaining: 35.5ms
        learn: 1.8530267
                                  total: 8.91s
996:
                                                   remaining: 26.8ms
997:
        learn: 1.8486696
                                  total: 8.91s
                                                   remaining: 17.9ms
998:
        learn: 1.8447427
                                  total: 8.92s
                                                   remaining: 8.93ms
999:
        learn: 1.8426193
                                  total: 8.92s
                                                   remaining: Ous
        learn: 14.6811921
                                  total: 4.71ms
0:
                                                   remaining: 4.71s
        learn: 14.5549625
                                  total: 9.38ms
1:
                                                   remaining: 4.68s
2:
        learn: 14.4401382
                                  total: 19ms
                                                   remaining: 6.31s
3:
        learn: 14.3227671
                                  total: 81ms
                                                   remaining: 20.2s
4:
        learn: 14.2061840
                                  total: 85.2ms
                                                   remaining: 17s
5:
        learn: 14.0999994
                                  total: 89.3ms
                                                   remaining: 14.8s
6:
        learn: 13.9947643
                                  total: 178ms
                                                   remaining: 25.3s
7:
        learn: 13.8972070
                                  total: 183ms
                                                   remaining: 22.6s
8:
        learn: 13.8175193
                                  total: 187ms
                                                   remaining: 20.6s
9:
        learn: 13.7241064
                                  total: 275ms
                                                   remaining: 27.2s
10:
        learn: 13.6247007
                                  total: 279ms
                                                   remaining: 25.1s
        learn: 13.5269049
                                  total: 283ms
                                                   remaining: 23.3s
11:
12:
        learn: 13.4319398
                                  total: 372ms
                                                   remaining: 28.3s
13:
        learn: 13.3571603
                                                   remaining: 26.5s
                                  total: 377ms
14:
        learn: 13.2565286
                                  total: 381ms
                                                   remaining: 25s
                                                   remaining: 28.9s
        learn: 13.1753227
                                  total: 470ms
15:
16:
        learn: 13.1113991
                                  total: 475ms
                                                   remaining: 27.5s
17:
        learn: 13.0389010
                                  total: 480ms
                                                   remaining: 26.2s
18:
        learn: 12.9629856
                                  total: 484ms
                                                   remaining: 25s
        learn: 12.8948944
19:
                                  total: 571ms
                                                   remaining: 28s
        learn: 12.8153752
20:
                                  total: 575ms
                                                   remaining: 26.8s
21:
        learn: 12.7432534
                                  total: 579ms
                                                   remaining: 25.7s
        learn: 12.6837401
22:
                                  total: 666ms
                                                   remaining: 28.3s
                                                   remaining: 27.3s
        learn: 12.6127357
                                  total: 670ms
23:
24:
        learn: 12.5520840
                                  total: 675ms
                                                   remaining: 26.3s
        learn: 12.4852773
25:
                                  total: 764ms
                                                   remaining: 28.6s
        learn: 12.4254815
                                  total: 766ms
26:
                                                   remaining: 27.6s
27:
        learn: 12.3796906
                                  total: 770ms
                                                   remaining: 26.7s
28:
        learn: 12.3223847
                                  total: 775ms
                                                   remaining: 25.9s
29:
        learn: 12.2672856
                                  total: 864ms
                                                   remaining: 27.9s
30:
        learn: 12.2153378
                                  total: 868ms
                                                   remaining: 27.1s
31:
        learn: 12.1768236
                                                   remaining: 26.4s
                                  total: 873ms
32:
        learn: 12.1270249
                                  total: 962ms
                                                   remaining: 28.2s
        learn: 12.0726855
                                  total: 966ms
33:
                                                   remaining: 27.4s
        learn: 12.0281027
34:
                                  total: 972ms
                                                   remaining: 26.8s
35:
        learn: 11.9792222
                                                   remaining: 28.4s
                                  total: 1.06s
36:
        learn: 11.9244552
                                  total: 1.06s
                                                   remaining: 27.7s
37:
        learn: 11.8711333
                                  total: 1.07s
                                                   remaining: 27s
                                                   remaining: 28.5s
38:
        learn: 11.8234031
                                  total: 1.16s
39:
        learn: 11.7711590
                                  total: 1.16s
                                                   remaining: 27.9s
40:
        learn: 11.7229338
                                  total: 1.17s
                                                   remaining: 27.3s
41:
        learn: 11.6835749
                                  total: 1.25s
                                                   remaining: 28.6s
42:
        learn: 11.6424295
                                  total: 1.26s
                                                   remaining: 28s
43:
        learn: 11.5887573
                                  total: 1.26s
                                                   remaining: 27.5s
44:
        learn: 11.5455545
                                  total: 1.27s
                                                   remaining: 26.9s
45:
        learn: 11.5066377
                                  total: 1.36s
                                                   remaining: 28.2s
46:
        learn: 11.4576158
                                                   remaining: 27.6s
                                  total: 1.36s
47:
        learn: 11.4294157
                                  total: 1.36s
                                                   remaining: 27.1s
48:
        learn: 11.3826131
                                  total: 1.45s
                                                   remaining: 28.2s
49:
        learn: 11.3492999
                                  total: 1.46s
                                                   remaining: 27.7s
50:
        learn: 11.3063212
                                  total: 1.46s
                                                   remaining: 27.2s
        learn: 11.2644897
51:
                                  total: 1.55s
                                                   remaining: 28.3s
```

```
52:
        learn: 11.2343570
                                  total: 1.55s
                                                   remaining: 27.8s
53:
        learn: 11.2045750
                                  total: 1.56s
                                                   remaining: 27.3s
        learn: 11.1710245
                                  total: 1.65s
54:
                                                   remaining: 28.3s
55:
        learn: 11.1409074
                                  total: 1.65s
                                                   remaining: 27.9s
56:
        learn: 11.1018929
                                  total: 1.66s
                                                   remaining: 27.4s
57:
        learn: 11.0729639
                                  total: 1.75s
                                                   remaining: 28.3s
58:
        learn: 11.0386755
                                  total: 1.75s
                                                   remaining: 27.9s
59:
        learn: 11.0034550
                                                   remaining: 27.5s
                                  total: 1.75s
        learn: 10.9736261
                                  total: 1.84s
                                                   remaining: 28.4s
60:
        learn: 10.9485170
                                  total: 1.85s
61:
                                                   remaining: 28s
62:
        learn: 10.9188204
                                  total: 1.85s
                                                   remaining: 27.6s
        learn: 10.8879165
                                                   remaining: 28.4s
63:
                                  total: 1.94s
64:
        learn: 10.8445773
                                  total: 1.95s
                                                   remaining: 28s
        learn: 10.8113839
65:
                                  total: 1.95s
                                                   remaining: 27.6s
        learn: 10.7834909
                                  total: 2.04s
                                                   remaining: 28.4s
66:
67:
        learn: 10.7632953
                                  total: 2.04s
                                                   remaining: 28s
68:
        learn: 10.7355340
                                  total: 2.05s
                                                   remaining: 27.7s
69:
        learn: 10.7047437
                                  total: 2.05s
                                                   remaining: 27.3s
70:
        learn: 10.6746831
                                  total: 2.14s
                                                   remaining: 28s
71:
        learn: 10.6461754
                                                   remaining: 27.7s
                                  total: 2.15s
72:
        learn: 10.6170161
                                  total: 2.15s
                                                   remaining: 27.3s
73:
        learn: 10.5878560
                                  total: 2.24s
                                                   remaining: 28s
74:
        learn: 10.5690273
                                  total: 2.24s
                                                   remaining: 27.7s
75:
        learn: 10.5288502
                                  total: 2.25s
                                                   remaining: 27.3s
76:
        learn: 10.5121840
                                  total: 2.34s
                                                   remaining: 28s
77:
        learn: 10.4893038
                                  total: 2.34s
                                                   remaining: 27.7s
78:
        learn: 10.4750611
                                  total: 2.35s
                                                   remaining: 27.3s
79:
        learn: 10.4551313
                                  total: 2.44s
                                                   remaining: 28s
80:
        learn: 10.4336199
                                  total: 2.44s
                                                   remaining: 27.7s
        learn: 10.4069707
81:
                                  total: 2.44s
                                                   remaining: 27.4s
82:
        learn: 10.3681150
                                  total: 2.53s
                                                   remaining: 28s
        learn: 10.3485065
83:
                                  total: 2.54s
                                                   remaining: 27.7s
84:
        learn: 10.3270004
                                  total: 2.54s
                                                   remaining: 27.4s
85:
        learn: 10.3131063
                                  total: 2.63s
                                                   remaining: 28s
86:
        learn: 10.2899548
                                  total: 2.63s
                                                   remaining: 27.7s
                                                   remaining: 27.4s
87:
        learn: 10.2658041
                                  total: 2.64s
88:
        learn: 10.2415782
                                  total: 2.73s
                                                   remaining: 27.9s
89:
        learn: 10.2184981
                                  total: 2.73s
                                                   remaining: 27.6s
90:
        learn: 10.1929136
                                  total: 2.74s
                                                   remaining: 27.4s
        learn: 10.1690925
91:
                                  total: 2.83s
                                                   remaining: 27.9s
92:
        learn: 10.1480632
                                  total: 2.83s
                                                   remaining: 27.6s
93:
        learn: 10.1331714
                                  total: 2.83s
                                                   remaining: 27.3s
94:
        learn: 10.1078048
                                  total: 2.92s
                                                   remaining: 27.9s
        learn: 10.0937354
95:
                                  total: 2.93s
                                                   remaining: 27.6s
        learn: 10.0756686
                                                   remaining: 27.3s
96:
                                  total: 2.93s
97:
        learn: 10.0514089
                                  total: 3.02s
                                                   remaining: 27.8s
98:
        learn: 10.0275232
                                  total: 3.03s
                                                   remaining: 27.6s
                                  total: 3.03s
                                                   remaining: 27.3s
99:
        learn: 10.0087290
100:
        learn: 9.9927064
                                  total: 3.12s
                                                   remaining: 27.8s
                                  total: 3.13s
101:
        learn: 9.9763104
                                                   remaining: 27.5s
102:
        learn: 9.9575479
                                  total: 3.13s
                                                   remaining: 27.3s
103:
        learn: 9.9380375
                                  total: 3.22s
                                                   remaining: 27.7s
        learn: 9.9237860
                                  total: 3.22s
                                                   remaining: 27.5s
104:
105:
        learn: 9.9053652
                                  total: 3.23s
                                                   remaining: 27.2s
        learn: 9.8908093
106:
                                  total: 3.23s
                                                   remaining: 27s
107:
        learn: 9.8739091
                                                   remaining: 27.4s
                                  total: 3.32s
108:
        learn: 9.8610223
                                  total: 3.32s
                                                   remaining: 27.2s
109:
        learn: 9.8421344
                                  total: 3.33s
                                                   remaining: 26.9s
110:
        learn: 9.8278697
                                  total: 3.42s
                                                   remaining: 27.4s
111:
        learn: 9.8039594
                                  total: 3.42s
                                                   remaining: 27.1s
        learn: 9.7862316
112:
                                  total: 3.42s
                                                   remaining: 26.9s
```

113:	learn:	9.7628746	total: 3.51s	remaining:	27.3s
114:	learn:	9.7425300	total: 3.52s	remaining:	27.1s
115:		9.7260327	total: 3.52s	remaining:	
116:		9.7119986	total: 3.61s	remaining:	
117:		9.6904298	total: 3.62s	•	
				remaining:	
118:		9.6766517	total: 3.62s	remaining:	
119:		9.6631246	total: 3.71s	remaining:	
120:	learn:	9.6408150	total: 3.71s	remaining:	27s
121:	learn:	9.6284135	total: 3.72s	remaining:	26.8s
122:	learn:	9.6103467	total: 3.81s	remaining:	
123:		9.5910675	total: 3.81s	remaining:	
124:		9.5636020	total: 3.82s	remaining:	
125:		9.5459362	total: 3.91s		
				remaining:	
126:		9.5301214	total: 3.91s	remaining:	
127:		9.5177756	total: 3.92s	remaining:	
128:	learn:	9.5103381	total: 3.92s	remaining:	26.5s
129:	learn:	9.5003442	total: 4.01s	remaining:	26.8s
130:	learn:	9.4756391	total: 4.01s	remaining:	26.6s
131:	learn:	9.4556030	total: 4.02s	remaining:	
132:		9.4339458	total: 4.11s	remaining:	
133:		9.4180767	total: 4.11s	remaining:	
				•	
134:		9.3869510	total: 4.11s	remaining:	
135:		9.3653832	total: 4.21s	remaining:	
136:	learn:	9.3517660	total: 4.21s	remaining:	26.5s
137:	learn:	9.3351168	total: 4.21s	remaining:	26.3s
138:	learn:	9.3120085	total: 4.3s	remaining:	26.6s
139:	learn:	9.3009600	total: 4.3s	remaining:	26.4s
140:	learn:	9.2879247	total: 4.31s	remaining:	
141:		9.2735023	total: 4.31s	remaining:	
142:		9.2663041	total: 4.4s	remaining:	
143:		9.2520684	total: 4.4s	remaining:	
144:		9.2454099	total: 4.41s	remaining:	
145:		9.2321574	total: 4.5s	remaining:	
146:		9.2057785	total: 4.5s	remaining:	26.1s
147:	learn:	9.1961745	total: 4.5s	remaining:	25.9s
148:		9.1858393	total: 4.59s	remaining:	26.2s
149:	learn:	9.1656653	total: 4.6s	remaining:	
150:		9.1541371	total: 4.6s	remaining:	
151:		9.1458134	total: 4.61s	remaining:	
152:		9.1323218	total: 4.69s	_	
				remaining:	
153:		9.1216359	total: 4.7s	remaining:	
154:		9.1018525	total: 4.7s	remaining:	
155:		9.0940148	total: 4.79s	remaining:	
156:	learn:	9.0703789	total: 4.8s	remaining:	25.8s
157:	learn:	9.0574355	total: 4.8s	remaining:	25.6s
158:	learn:	9.0451843	total: 4.89s	remaining:	25.9s
159:	learn:	9.0361331	total: 4.89s	remaining:	
160:		9.0291348	total: 4.9s	remaining:	
161:		9.0149437	total: 4.9s	remaining:	
		8.9929284			
162:			total: 4.99s	remaining:	
163:		8.9713533	total: 4.99s	remaining:	
164:		8.9608889	total: 5s	remaining:	
165:		8.9515992	total: 5.09s	remaining:	
166:	learn:	8.9419995	total: 5.09s	remaining:	
167:	learn:	8.9312574	total: 5.1s	remaining:	25.2s
168:	learn:	8.9255253	total: 5.19s	remaining:	25.5s
169:		8.9152933	total: 5.19s	remaining:	
170:		8.8927612	total: 5.19s	remaining:	
170. 171:		8.8764705	total: 5.28s	remaining:	
172:		8.8672237	total: 5.29s	remaining:	
173:	rearn:	8.8584966	total: 5.29s	remaining:	25.TS

```
174:
        learn: 8.8425717
                                  total: 5.38s
                                                   remaining: 25.4s
175:
        learn: 8.8265780
                                  total: 5.38s
                                                   remaining: 25.2s
176:
        learn: 8.8164699
                                  total: 5.39s
                                                   remaining: 25.1s
177:
        learn: 8.8019437
                                  total: 5.48s
                                                   remaining: 25.3s
178:
        learn: 8.7876311
                                  total: 5.48s
                                                   remaining: 25.1s
        learn: 8.7771716
                                  total: 5.49s
179:
                                                   remaining: 25s
180:
        learn: 8.7707475
                                  total: 5.57s
                                                   remaining: 25.2s
        learn: 8.7661443
                                                   remaining: 25.1s
181:
                                  total: 5.58s
        learn: 8.7577063
                                  total: 5.58s
                                                   remaining: 24.9s
182:
183:
        learn: 8.7485790
                                  total: 5.59s
                                                   remaining: 24.8s
184:
        learn: 8.7294656
                                  total: 5.68s
                                                   remaining: 25s
        learn: 8.7109276
                                                   remaining: 24.9s
185:
                                  total: 5.68s
186:
        learn: 8.6988497
                                  total: 5.68s
                                                   remaining: 24.7s
        learn: 8.6846924
                                  total: 5.77s
187:
                                                   remaining: 24.9s
188:
        learn: 8.6800783
                                  total: 5.78s
                                                   remaining: 24.8s
189:
        learn: 8.6731965
                                  total: 5.78s
                                                   remaining: 24.7s
190:
        learn: 8.6626102
                                  total: 5.87s
                                                   remaining: 24.9s
191:
        learn: 8.6492973
                                  total: 5.88s
                                                   remaining: 24.7s
192:
        learn: 8.6369898
                                  total: 5.88s
                                                   remaining: 24.6s
193:
        learn: 8.6300548
                                  total: 5.97s
                                                   remaining: 24.8s
        learn: 8.6192036
194:
                                  total: 5.97s
                                                   remaining: 24.7s
195:
        learn: 8.6105680
                                  total: 5.98s
                                                   remaining: 24.5s
196:
        learn: 8.6040654
                                  total: 6.07s
                                                   remaining: 24.7s
197:
        learn: 8.5908923
                                  total: 6.07s
                                                   remaining: 24.6s
198:
        learn: 8.5854072
                                  total: 6.07s
                                                   remaining: 24.4s
199:
        learn: 8.5758405
                                  total: 6.08s
                                                   remaining: 24.3s
200:
        learn: 8.5595139
                                  total: 6.17s
                                                   remaining: 24.5s
                                                   remaining: 24.4s
201:
        learn: 8.5510567
                                  total: 6.17s
202:
        learn: 8.5401125
                                  total: 6.17s
                                                   remaining: 24.2s
203:
        learn: 8.5334558
                                  total: 6.26s
                                                   remaining: 24.4s
204:
        learn: 8.5277236
                                  total: 6.27s
                                                   remaining: 24.3s
                                  total: 6.27s
205:
        learn: 8.5105170
                                                   remaining: 24.2s
        learn: 8.4929949
                                  total: 6.36s
206:
                                                   remaining: 24.4s
207:
        learn: 8.4795837
                                  total: 6.37s
                                                   remaining: 24.2s
208:
        learn: 8.4655555
                                  total: 6.37s
                                                   remaining: 24.1s
                                                   remaining: 24.3s
209:
        learn: 8.4539404
                                  total: 6.46s
210:
        learn: 8.4435466
                                  total: 6.46s
                                                   remaining: 24.2s
211:
        learn: 8.4318754
                                  total: 6.47s
                                                   remaining: 24s
212:
        learn: 8.4207238
                                  total: 6.56s
                                                   remaining: 24.2s
213:
        learn: 8.4019197
                                  total: 6.56s
                                                   remaining: 24.1s
214:
        learn: 8.3935946
                                  total: 6.57s
                                                   remaining: 24s
215:
        learn: 8.3819854
                                                   remaining: 23.8s
                                  total: 6.57s
        learn: 8.3673001
216:
                                  total: 6.66s
                                                   remaining: 24s
        learn: 8.3561296
217:
                                  total: 6.66s
                                                   remaining: 23.9s
218:
        learn: 8.3456027
                                                   remaining: 23.8s
                                  total: 6.67s
219:
        learn: 8.3388483
                                  total: 6.76s
                                                   remaining: 24s
220:
        learn: 8.3241471
                                  total: 6.76s
                                                   remaining: 23.8s
                                                   remaining: 23.7s
221:
        learn: 8.3151650
                                  total: 6.76s
222:
        learn: 8.2970264
                                  total: 6.85s
                                                   remaining: 23.9s
223:
        learn: 8.2809992
                                  total: 6.86s
                                                   remaining: 23.8s
224:
        learn: 8.2672431
                                  total: 6.86s
                                                   remaining: 23.6s
225:
        learn: 8.2517356
                                  total: 6.95s
                                                   remaining: 23.8s
226:
        learn: 8.2416410
                                  total: 6.96s
                                                   remaining: 23.7s
227:
        learn: 8.2268481
                                  total: 6.96s
                                                   remaining: 23.6s
        learn: 8.2090944
228:
                                  total: 7.05s
                                                   remaining: 23.7s
229:
        learn: 8.1943121
                                                   remaining: 23.6s
                                  total: 7.05s
230:
        learn: 8.1809709
                                  total: 7.06s
                                                   remaining: 23.5s
231:
        learn: 8.1760361
                                  total: 7.15s
                                                   remaining: 23.7s
232:
        learn: 8.1677869
                                  total: 7.15s
                                                   remaining: 23.5s
233:
        learn: 8.1559229
                                  total: 7.16s
                                                   remaining: 23.4s
234:
        learn: 8.1413083
                                  total: 7.25s
                                                   remaining: 23.6s
```

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235:
        learn: 8.1254846
                                  total: 7.25s
                                                   remaining: 23.5s
236:
        learn: 8.1068383
                                  total: 7.25s
                                                   remaining: 23.4s
237:
        learn: 8.1011888
                                  total: 7.34s
                                                   remaining: 23.5s
238:
        learn: 8.0897074
                                  total: 7.35s
                                                   remaining: 23.4s
239:
        learn: 8.0683115
                                  total: 7.35s
                                                   remaining: 23.3s
240:
        learn: 8.0636987
                                  total: 7.44s
                                                   remaining: 23.4s
241:
        learn: 8.0584061
                                  total: 7.45s
                                                   remaining: 23.3s
242:
        learn: 8.0462090
                                  total: 7.45s
                                                   remaining: 23.2s
243:
        learn: 8.0328586
                                  total: 7.46s
                                                   remaining: 23.1s
244:
        learn: 8.0158829
                                  total: 7.54s
                                                   remaining: 23.2s
245:
        learn: 8.0077986
                                  total: 7.55s
                                                   remaining: 23.1s
246:
        learn: 7.9824941
                                                   remaining: 23s
                                  total: 7.55s
247:
        learn: 7.9684251
                                  total: 7.64s
                                                   remaining: 23.2s
248:
        learn: 7.9500935
                                  total: 7.64s
                                                   remaining: 23.1s
249:
        learn: 7.9317285
                                  total: 7.65s
                                                   remaining: 22.9s
250:
        learn: 7.9208411
                                  total: 7.74s
                                                   remaining: 23.1s
251:
        learn: 7.9045322
                                  total: 7.74s
                                                   remaining: 23s
252:
        learn: 7.8983400
                                  total: 7.75s
                                                   remaining: 22.9s
253:
        learn: 7.8764893
                                  total: 7.84s
                                                   remaining: 23s
254:
        learn: 7.8640750
                                  total: 7.84s
                                                   remaining: 22.9s
255:
        learn: 7.8502762
                                  total: 7.84s
                                                   remaining: 22.8s
        learn: 7.8436224
256:
                                  total: 7.93s
                                                   remaining: 22.9s
257:
        learn: 7.8354076
                                  total: 7.94s
                                                   remaining: 22.8s
258:
        learn: 7.8295397
                                  total: 7.95s
                                                   remaining: 22.7s
                                                   remaining: 22.9s
259:
        learn: 7.8063165
                                  total: 8.03s
260:
        learn: 7.7878580
                                  total: 8.04s
                                                   remaining: 22.8s
261:
        learn: 7.7651699
                                  total: 8.04s
                                                   remaining: 22.6s
                                                   remaining: 22.8s
262:
        learn: 7.7488385
                                  total: 8.13s
263:
        learn: 7.7351400
                                  total: 8.13s
                                                   remaining: 22.7s
264:
        learn: 7.7233450
                                  total: 8.14s
                                                   remaining: 22.6s
265:
        learn: 7.7188080
                                  total: 8.22s
                                                   remaining: 22.7s
        learn: 7.7075946
                                  total: 8.23s
266:
                                                   remaining: 22.6s
267:
        learn: 7.6939006
                                  total: 8.23s
                                                   remaining: 22.5s
268:
        learn: 7.6839715
                                  total: 8.32s
                                                   remaining: 22.6s
269:
        learn: 7.6795822
                                  total: 8.33s
                                                   remaining: 22.5s
                                                   remaining: 22.4s
270:
        learn: 7.6680449
                                  total: 8.33s
271:
        learn: 7.6589139
                                  total: 8.34s
                                                   remaining: 22.3s
272:
        learn: 7.6480261
                                  total: 8.42s
                                                   remaining: 22.4s
273:
        learn: 7.6360695
                                  total: 8.43s
                                                   remaining: 22.3s
274:
        learn: 7.6236179
                                  total: 8.43s
                                                   remaining: 22.2s
275:
        learn: 7.6089643
                                  total: 8.52s
                                                   remaining: 22.4s
276:
        learn: 7.6043764
                                  total: 8.53s
                                                   remaining: 22.3s
277:
        learn: 7.6000986
                                  total: 8.53s
                                                   remaining: 22.2s
278:
        learn: 7.5895916
                                  total: 8.62s
                                                   remaining: 22.3s
279:
        learn: 7.5720817
                                                   remaining: 22.2s
                                  total: 8.62s
280:
        learn: 7.5634040
                                  total: 8.63s
                                                   remaining: 22.1s
281:
        learn: 7.5573196
                                  total: 8.71s
                                                   remaining: 22.2s
282:
        learn: 7.5423678
                                  total: 8.72s
                                                   remaining: 22.1s
283:
        learn: 7.5308409
                                  total: 8.72s
                                                   remaining: 22s
284:
        learn: 7.5250831
                                  total: 8.81s
                                                   remaining: 22.1s
285:
        learn: 7.5120635
                                  total: 8.82s
                                                   remaining: 22s
286:
        learn: 7.4984360
                                  total: 8.82s
                                                   remaining: 21.9s
287:
        learn: 7.4719502
                                                   remaining: 22s
                                  total: 8.9s
288:
        learn: 7.4679930
                                  total: 8.91s
                                                   remaining: 21.9s
        learn: 7.4518467
289:
                                  total: 8.91s
                                                   remaining: 21.8s
290:
        learn: 7.4435254
                                  total: 8.92s
                                                   remaining: 21.7s
291:
        learn: 7.4280925
                                  total: 9s
                                                   remaining: 21.8s
292:
        learn: 7.4234831
                                  total: 9.01s
                                                   remaining: 21.7s
293:
        learn: 7.4025838
                                  total: 9.01s
                                                   remaining: 21.6s
294:
        learn: 7.3888273
                                  total: 9.1s
                                                   remaining: 21.8s
295:
        learn: 7.3651418
                                  total: 9.11s
                                                   remaining: 21.7s
```

```
296:
        learn: 7.3507654
                                  total: 9.11s
                                                   remaining: 21.6s
297:
        learn: 7.3406411
                                  total: 9.2s
                                                   remaining: 21.7s
        learn: 7.3263923
298:
                                  total: 9.2s
                                                   remaining: 21.6s
299:
        learn: 7.3199040
                                  total: 9.21s
                                                   remaining: 21.5s
300:
        learn: 7.3129723
                                  total: 9.3s
                                                   remaining: 21.6s
        learn: 7.3075430
                                  total: 9.3s
301:
                                                   remaining: 21.5s
302:
        learn: 7.2883889
                                  total: 9.3s
                                                   remaining: 21.4s
303:
        learn: 7.2797975
                                  total: 9.39s
                                                   remaining: 21.5s
        learn: 7.2703760
                                  total: 9.4s
                                                   remaining: 21.4s
304:
305:
        learn: 7.2574371
                                  total: 9.4s
                                                   remaining: 21.3s
                                  total: 9.49s
306:
        learn: 7.2475718
                                                   remaining: 21.4s
307:
        learn: 7.2440702
                                                   remaining: 21.3s
                                  total: 9.5s
308:
        learn: 7.2378493
                                  total: 9.5s
                                                   remaining: 21.2s
        learn: 7.2336785
309:
                                  total: 9.59s
                                                   remaining: 21.3s
310:
        learn: 7.2270872
                                  total: 9.6s
                                                   remaining: 21.3s
311:
        learn: 7.2162962
                                  total: 9.6s
                                                   remaining: 21.2s
312:
        learn: 7.2138018
                                  total: 9.69s
                                                   remaining: 21.3s
313:
        learn: 7.2114845
                                  total: 9.69s
                                                   remaining: 21.2s
314:
        learn: 7.1998552
                                  total: 9.7s
                                                   remaining: 21.1s
315:
        learn: 7.1974577
                                  total: 9.71s
                                                   remaining: 21s
316:
        learn: 7.1808105
                                  total: 9.79s
                                                   remaining: 21.1s
317:
        learn: 7.1765245
                                  total: 9.79s
                                                   remaining: 21s
318:
        learn: 7.1632613
                                  total: 9.8s
                                                   remaining: 20.9s
319:
        learn: 7.1358768
                                  total: 9.89s
                                                   remaining: 21s
        learn: 7.1223158
                                                   remaining: 20.9s
320:
                                  total: 9.89s
321:
        learn: 7.1059099
                                  total: 9.89s
                                                   remaining: 20.8s
322:
        learn: 7.0954899
                                  total: 9.98s
                                                   remaining: 20.9s
323:
        learn: 7.0855439
                                  total: 9.99s
                                                   remaining: 20.8s
324:
        learn: 7.0730131
                                  total: 9.99s
                                                   remaining: 20.8s
325:
        learn: 7.0707601
                                  total: 10.1s
                                                   remaining: 20.8s
326:
        learn: 7.0435475
                                  total: 10.1s
                                                   remaining: 20.8s
        learn: 7.0406408
                                  total: 10.1s
327:
                                                   remaining: 20.7s
328:
        learn: 7.0297174
                                  total: 10.2s
                                                   remaining: 20.8s
329:
        learn: 7.0240300
                                  total: 10.2s
                                                   remaining: 20.7s
330:
        learn: 7.0160351
                                  total: 10.2s
                                                   remaining: 20.6s
                                  total: 10.3s
331:
        learn: 7.0104721
                                                   remaining: 20.7s
332:
        learn: 6.9956812
                                  total: 10.3s
                                                   remaining: 20.6s
333:
        learn: 6.9841197
                                  total: 10.3s
                                                   remaining: 20.5s
334:
        learn: 6.9673955
                                  total: 10.4s
                                                   remaining: 20.6s
335:
        learn: 6.9638112
                                  total: 10.4s
                                                   remaining: 20.5s
336:
        learn: 6.9594452
                                  total: 10.4s
                                                   remaining: 20.4s
337:
        learn: 6.9504034
                                  total: 10.5s
                                                   remaining: 20.5s
        learn: 6.9395704
                                  total: 10.5s
338:
                                                   remaining: 20.4s
        learn: 6.9279142
339:
                                  total: 10.5s
                                                   remaining: 20.4s
340:
        learn: 6.9170509
                                                   remaining: 20.4s
                                  total: 10.6s
341:
        learn: 6.9071453
                                  total: 10.6s
                                                   remaining: 20.4s
342:
        learn: 6.8965379
                                  total: 10.6s
                                                   remaining: 20.3s
                                                   remaining: 20.4s
343:
        learn: 6.8814420
                                  total: 10.7s
344:
        learn: 6.8756073
                                  total: 10.7s
                                                   remaining: 20.3s
345:
        learn: 6.8692483
                                  total: 10.7s
                                                   remaining: 20.2s
346:
        learn: 6.8599971
                                  total: 10.8s
                                                   remaining: 20.3s
347:
        learn: 6.8454405
                                  total: 10.8s
                                                   remaining: 20.2s
348:
        learn: 6.8316573
                                  total: 10.8s
                                                   remaining: 20.1s
349:
        learn: 6.8298712
                                  total: 10.9s
                                                   remaining: 20.2s
350:
        learn: 6.8229056
                                  total: 10.9s
                                                   remaining: 20.1s
351:
        learn: 6.8176070
                                  total: 10.9s
                                                   remaining: 20s
352:
        learn: 6.7989433
                                  total: 11s
                                                   remaining: 20.1s
353:
        learn: 6.7930557
                                  total: 11s
                                                   remaining: 20s
354:
        learn: 6.7839561
                                  total: 11s
                                                   remaining: 19.9s
355:
        learn: 6.7741902
                                  total: 11.1s
                                                   remaining: 20s
        learn: 6.7591968
356:
                                  total: 11.1s
                                                   remaining: 19.9s
```

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357:
        learn: 6.7488314
                                  total: 11.1s
                                                   remaining: 19.9s
358:
        learn: 6.7471246
                                  total: 11.1s
                                                   remaining: 19.8s
                                  total: 11.2s
359:
        learn: 6.7339457
                                                   remaining: 19.8s
360:
        learn: 6.7320694
                                  total: 11.2s
                                                   remaining: 19.8s
361:
        learn: 6.7301575
                                  total: 11.3s
                                                   remaining: 19.8s
                                  total: 11.3s
362:
        learn: 6.7156501
                                                   remaining: 19.8s
363:
        learn: 6.7035347
                                  total: 11.3s
                                                   remaining: 19.7s
364:
        learn: 6.6899009
                                                   remaining: 19.8s
                                  total: 11.4s
365:
        learn: 6.6873074
                                  total: 11.4s
                                                   remaining: 19.7s
        learn: 6.6787176
                                  total: 11.4s
366:
                                                   remaining: 19.6s
367:
        learn: 6.6770977
                                  total: 11.5s
                                                   remaining: 19.7s
        learn: 6.6636983
                                                   remaining: 19.6s
368:
                                  total: 11.5s
369:
        learn: 6.6602886
                                  total: 11.5s
                                                   remaining: 19.5s
        learn: 6.6588430
                                  total: 11.6s
370:
                                                   remaining: 19.6s
371:
        learn: 6.6532885
                                  total: 11.6s
                                                   remaining: 19.5s
372:
        learn: 6.6430265
                                  total: 11.6s
                                                   remaining: 19.4s
        learn: 6.6400290
373:
                                  total: 11.6s
                                                   remaining: 19.4s
374:
        learn: 6.6293326
                                  total: 11.7s
                                                   remaining: 19.4s
375:
        learn: 6.6217839
                                  total: 11.7s
                                                   remaining: 19.3s
376:
        learn: 6.6201599
                                  total: 11.7s
                                                   remaining: 19.3s
377:
        learn: 6.6056295
                                  total: 11.8s
                                                   remaining: 19.3s
378:
        learn: 6.6041225
                                  total: 11.8s
                                                   remaining: 19.3s
379:
        learn: 6.5871077
                                  total: 11.8s
                                                   remaining: 19.2s
380:
        learn: 6.5708883
                                  total: 11.8s
                                                   remaining: 19.2s
                                  total: 11.9s
381:
        learn: 6.5565788
                                                   remaining: 19.2s
382:
        learn: 6.5454057
                                  total: 11.9s
                                                   remaining: 19.1s
383:
        learn: 6.5437141
                                  total: 11.9s
                                                   remaining: 19.2s
384:
        learn: 6.5282076
                                  total: 12s
                                                   remaining: 19.1s
385:
        learn: 6.5246410
                                  total: 12s
                                                   remaining: 19s
        learn: 6.5105655
386:
                                  total: 12s
                                                   remaining: 19.1s
387:
        learn: 6.5004289
                                  total: 12s
                                                   remaining: 19s
        learn: 6.4834302
                                  total: 12.1s
388:
                                                   remaining: 18.9s
389:
        learn: 6.4763537
                                  total: 12.1s
                                                   remaining: 19s
390:
        learn: 6.4742179
                                  total: 12.1s
                                                   remaining: 18.9s
391:
        learn: 6.4561774
                                  total: 12.1s
                                                   remaining: 18.8s
                                  total: 12.2s
392:
        learn: 6.4450705
                                                   remaining: 18.9s
393:
        learn: 6.4436155
                                  total: 12.2s
                                                   remaining: 18.8s
394:
        learn: 6.4325895
                                  total: 12.2s
                                                   remaining: 18.8s
395:
        learn: 6.4201071
                                  total: 12.3s
                                                   remaining: 18.8s
396:
        learn: 6.4183904
                                  total: 12.3s
                                                   remaining: 18.7s
397:
        learn: 6.3999249
                                                   remaining: 18.7s
                                  total: 12.3s
        learn: 6.3988133
398:
                                  total: 12.4s
                                                   remaining: 18.7s
        learn: 6.3915696
                                  total: 12.4s
399:
                                                   remaining: 18.7s
        learn: 6.3826642
400:
                                  total: 12.4s
                                                   remaining: 18.6s
401:
        learn: 6.3747501
                                                   remaining: 18.6s
                                  total: 12.5s
402:
        learn: 6.3686822
                                  total: 12.5s
                                                   remaining: 18.6s
403:
        learn: 6.3573190
                                  total: 12.5s
                                                   remaining: 18.5s
                                                   remaining: 18.6s
404:
        learn: 6.3460982
                                  total: 12.6s
405:
        learn: 6.3447635
                                  total: 12.6s
                                                   remaining: 18.5s
406:
        learn: 6.3304235
                                  total: 12.6s
                                                   remaining: 18.4s
407:
        learn: 6.3208614
                                  total: 12.7s
                                                   remaining: 18.5s
408:
        learn: 6.3118060
                                  total: 12.7s
                                                   remaining: 18.4s
409:
        learn: 6.2987535
                                  total: 12.7s
                                                   remaining: 18.3s
410:
        learn: 6.2831969
                                  total: 12.7s
                                                   remaining: 18.3s
411:
        learn: 6.2818119
                                  total: 12.8s
                                                   remaining: 18.3s
412:
        learn: 6.2644598
                                                   remaining: 18.2s
                                  total: 12.8s
413:
        learn: 6.2569685
                                  total: 12.8s
                                                   remaining: 18.2s
414:
        learn: 6.2486480
                                  total: 12.9s
                                                   remaining: 18.2s
415:
        learn: 6.2362176
                                  total: 12.9s
                                                   remaining: 18.2s
416:
        learn: 6.2288569
                                  total: 12.9s
                                                   remaining: 18.1s
        learn: 6.2177061
417:
                                  total: 13s
                                                   remaining: 18.1s
```

```
418:
        learn: 6.2036716
                                  total: 13s
                                                   remaining: 18.1s
419:
        learn: 6.1953340
                                  total: 13s
                                                   remaining: 18s
420:
                                  total: 13.1s
        learn: 6.1858842
                                                   remaining: 18s
421:
        learn: 6.1844580
                                  total: 13.1s
                                                   remaining: 18s
422:
        learn: 6.1759144
                                  total: 13.1s
                                                   remaining: 17.9s
        learn: 6.1658152
423:
                                  total: 13.1s
                                                   remaining: 17.8s
424:
        learn: 6.1502436
                                  total: 13.2s
                                                   remaining: 17.9s
425:
        learn: 6.1453253
                                                   remaining: 17.8s
                                  total: 13.2s
426:
        learn: 6.1372862
                                  total: 13.3s
                                                   remaining: 17.9s
427:
        learn: 6.1261313
                                  total: 13.3s
                                                   remaining: 17.8s
428:
        learn: 6.1161995
                                  total: 13.3s
                                                   remaining: 17.7s
429:
        learn: 6.1086652
                                                   remaining: 17.7s
                                  total: 13.3s
430:
        learn: 6.1073836
                                  total: 13.4s
                                                   remaining: 17.7s
        learn: 6.0964596
                                  total: 13.4s
431:
                                                   remaining: 17.6s
432:
        learn: 6.0859252
                                  total: 13.4s
                                                   remaining: 17.6s
433:
        learn: 6.0736340
                                  total: 13.5s
                                                   remaining: 17.6s
                                                   remaining: 17.6s
434:
        learn: 6.0658527
                                  total: 13.5s
435:
        learn: 6.0554778
                                  total: 13.5s
                                                   remaining: 17.5s
436:
        learn: 6.0414998
                                  total: 13.6s
                                                   remaining: 17.5s
437:
        learn: 6.0342390
                                  total: 13.6s
                                                   remaining: 17.5s
438:
        learn: 6.0269727
                                  total: 13.6s
                                                   remaining: 17.4s
439:
        learn: 6.0147496
                                  total: 13.7s
                                                   remaining: 17.4s
440:
        learn: 6.0026701
                                  total: 13.7s
                                                   remaining: 17.4s
441:
        learn: 6.0014754
                                  total: 13.7s
                                                   remaining: 17.3s
442:
                                  total: 13.8s
        learn: 5.9929452
                                                   remaining: 17.4s
443:
        learn: 5.9788962
                                  total: 13.8s
                                                   remaining: 17.3s
444:
        learn: 5.9635281
                                  total: 13.8s
                                                   remaining: 17.2s
445:
        learn: 5.9623293
                                  total: 13.9s
                                                   remaining: 17.3s
                                  total: 13.9s
446:
        learn: 5.9519885
                                                   remaining: 17.2s
447:
        learn: 5.9381886
                                  total: 13.9s
                                                   remaining: 17.1s
448:
        learn: 5.9265758
                                  total: 14s
                                                   remaining: 17.2s
                                  total: 14s
        learn: 5.9120730
449:
                                                   remaining: 17.1s
450:
        learn: 5.9003585
                                  total: 14s
                                                   remaining: 17.1s
451:
        learn: 5.8897517
                                  total: 14.1s
                                                   remaining: 17.1s
452:
        learn: 5.8829624
                                  total: 14.1s
                                                   remaining: 17s
                                  total: 14.1s
453:
        learn: 5.8630854
                                                   remaining: 17s
454:
        learn: 5.8470568
                                  total: 14.2s
                                                   remaining: 17s
455:
        learn: 5.8326043
                                  total: 14.2s
                                                   remaining: 16.9s
456:
        learn: 5.8248998
                                  total: 14.2s
                                                   remaining: 16.9s
457:
        learn: 5.8127884
                                  total: 14.3s
                                                   remaining: 16.9s
458:
        learn: 5.8065214
                                  total: 14.3s
                                                   remaining: 16.9s
459:
        learn: 5.8048663
                                  total: 14.3s
                                                   remaining: 16.8s
        learn: 5.7959530
                                  total: 14.4s
460:
                                                   remaining: 16.8s
        learn: 5.7839287
461:
                                  total: 14.4s
                                                   remaining: 16.8s
        learn: 5.7725005
                                  total: 14.4s
462:
                                                   remaining: 16.7s
463:
        learn: 5.7545015
                                  total: 14.4s
                                                   remaining: 16.6s
        learn: 5.7475543
                                  total: 14.5s
464:
                                                   remaining: 16.7s
465:
        learn: 5.7351543
                                  total: 14.5s
                                                   remaining: 16.6s
466:
        learn: 5.7244054
                                  total: 14.5s
                                                   remaining: 16.6s
467:
        learn: 5.7105423
                                  total: 14.6s
                                                   remaining: 16.6s
468:
        learn: 5.6985978
                                  total: 14.6s
                                                   remaining: 16.5s
469:
        learn: 5.6867188
                                  total: 14.7s
                                                   remaining: 16.6s
470:
        learn: 5.6782319
                                  total: 14.7s
                                                   remaining: 16.5s
471:
        learn: 5.6760368
                                  total: 14.7s
                                                   remaining: 16.4s
        learn: 5.6631797
472:
                                  total: 14.7s
                                                   remaining: 16.4s
473:
        learn: 5.6613579
                                                   remaining: 16.4s
                                  total: 14.8s
474:
        learn: 5.6606279
                                  total: 14.8s
                                                   remaining: 16.4s
475:
        learn: 5.6542933
                                  total: 14.8s
                                                   remaining: 16.3s
476:
        learn: 5.6450757
                                  total: 14.9s
                                                   remaining: 16.3s
477:
        learn: 5.6262133
                                  total: 14.9s
                                                   remaining: 16.3s
478:
        learn: 5.6251355
                                  total: 14.9s
                                                   remaining: 16.2s
```

```
479:
        learn: 5.6128207
                                  total: 15s
                                                   remaining: 16.2s
480:
        learn: 5.6034835
                                  total: 15s
                                                   remaining: 16.2s
        learn: 5.5971759
                                  total: 15s
481:
                                                   remaining: 16.1s
482:
        learn: 5.5911987
                                  total: 15.1s
                                                   remaining: 16.1s
483:
        learn: 5.5782539
                                  total: 15.1s
                                                   remaining: 16.1s
        learn: 5.5664765
                                  total: 15.1s
484:
                                                   remaining: 16s
485:
        learn: 5.5543532
                                  total: 15.2s
                                                   remaining: 16.1s
486:
        learn: 5.5439493
                                                   remaining: 16s
                                  total: 15.2s
487:
        learn: 5.5322751
                                  total: 15.2s
                                                   remaining: 15.9s
488:
        learn: 5.5183088
                                  total: 15.3s
                                                   remaining: 16s
489:
        learn: 5.5109349
                                  total: 15.3s
                                                   remaining: 15.9s
490:
        learn: 5.5032560
                                                   remaining: 15.8s
                                  total: 15.3s
491:
        learn: 5.4935521
                                  total: 15.4s
                                                   remaining: 15.9s
                                  total: 15.4s
492:
        learn: 5.4840576
                                                   remaining: 15.8s
493:
        learn: 5.4736066
                                  total: 15.4s
                                                   remaining: 15.8s
494:
        learn: 5.4632293
                                  total: 15.4s
                                                   remaining: 15.7s
495:
        learn: 5.4560987
                                  total: 15.5s
                                                   remaining: 15.7s
496:
        learn: 5.4473116
                                  total: 15.5s
                                                   remaining: 15.7s
497:
        learn: 5.4356290
                                  total: 15.5s
                                                   remaining: 15.6s
498:
        learn: 5.4284653
                                  total: 15.6s
                                                   remaining: 15.6s
499:
        learn: 5.4218555
                                  total: 15.6s
                                                   remaining: 15.6s
500:
        learn: 5.4179872
                                  total: 15.6s
                                                   remaining: 15.5s
501:
        learn: 5.4104905
                                  total: 15.6s
                                                   remaining: 15.5s
502:
        learn: 5.4005709
                                  total: 15.7s
                                                   remaining: 15.5s
                                  total: 15.7s
503:
        learn: 5.3920294
                                                   remaining: 15.4s
504:
        learn: 5.3818098
                                  total: 15.7s
                                                   remaining: 15.4s
505:
        learn: 5.3758263
                                  total: 15.8s
                                                   remaining: 15.4s
506:
        learn: 5.3689609
                                  total: 15.8s
                                                   remaining: 15.3s
507:
        learn: 5.3583475
                                  total: 15.8s
                                                   remaining: 15.3s
        learn: 5.3489397
508:
                                  total: 15.9s
                                                   remaining: 15.3s
509:
        learn: 5.3478906
                                  total: 15.9s
                                                   remaining: 15.3s
        learn: 5.3405650
                                  total: 15.9s
510:
                                                   remaining: 15.2s
511:
        learn: 5.3335775
                                  total: 16s
                                                   remaining: 15.2s
512:
        learn: 5.3234241
                                  total: 16s
                                                   remaining: 15.2s
513:
        learn: 5.3222024
                                  total: 16s
                                                   remaining: 15.1s
                                  total: 16.1s
514:
        learn: 5.3082840
                                                   remaining: 15.1s
515:
        learn: 5.3017697
                                  total: 16.1s
                                                   remaining: 15.1s
516:
        learn: 5.3008024
                                  total: 16.1s
                                                   remaining: 15s
517:
        learn: 5.2859399
                                  total: 16.2s
                                                   remaining: 15s
                                                   remaining: 15s
518:
        learn: 5.2774783
                                  total: 16.2s
519:
        learn: 5.2705891
                                                   remaining: 14.9s
                                  total: 16.2s
520:
        learn: 5.2697159
                                  total: 16.3s
                                                   remaining: 14.9s
521:
        learn: 5.2613074
                                  total: 16.3s
                                                   remaining: 14.9s
        learn: 5.2544555
522:
                                  total: 16.3s
                                                   remaining: 14.8s
523:
        learn: 5.2425497
                                                   remaining: 14.8s
                                  total: 16.3s
524:
        learn: 5.2340164
                                  total: 16.4s
                                                   remaining: 14.8s
525:
        learn: 5.2302098
                                  total: 16.4s
                                                   remaining: 14.7s
                                                   remaining: 14.7s
526:
        learn: 5.2187460
                                  total: 16.4s
527:
        learn: 5.2108126
                                  total: 16.5s
                                                   remaining: 14.7s
528:
        learn: 5.2072692
                                  total: 16.5s
                                                   remaining: 14.7s
529:
        learn: 5.1976820
                                  total: 16.5s
                                                   remaining: 14.6s
530:
        learn: 5.1861727
                                  total: 16.6s
                                                   remaining: 14.6s
531:
        learn: 5.1761475
                                  total: 16.6s
                                                   remaining: 14.6s
532:
        learn: 5.1711172
                                  total: 16.6s
                                                   remaining: 14.5s
        learn: 5.1637511
533:
                                  total: 16.7s
                                                   remaining: 14.5s
534:
        learn: 5.1520894
                                                   remaining: 14.5s
                                  total: 16.7s
535:
        learn: 5.1414041
                                  total: 16.7s
                                                   remaining: 14.4s
536:
        learn: 5.1303989
                                  total: 16.7s
                                                   remaining: 14.4s
537:
        learn: 5.1295847
                                  total: 16.8s
                                                   remaining: 14.4s
538:
        learn: 5.1205501
                                  total: 16.8s
                                                   remaining: 14.3s
539:
        learn: 5.1108136
                                  total: 16.8s
                                                   remaining: 14.3s
```

```
540:
        learn: 5.0988301
                                  total: 16.9s
                                                   remaining: 14.3s
541:
        learn: 5.0884211
                                  total: 16.9s
                                                   remaining: 14.2s
        learn: 5.0800236
                                  total: 16.9s
542:
                                                   remaining: 14.3s
543:
        learn: 5.0731867
                                  total: 16.9s
                                                   remaining: 14.2s
544:
        learn: 5.0608875
                                  total: 17s
                                                   remaining: 14.2s
                                  total: 17s
545:
        learn: 5.0600976
                                                   remaining: 14.2s
546:
        learn: 5.0544753
                                  total: 17s
                                                   remaining: 14.1s
547:
        learn: 5.0460172
                                                   remaining: 14.1s
                                  total: 17.1s
548:
        learn: 5.0405734
                                  total: 17.1s
                                                   remaining: 14s
549:
        learn: 5.0306982
                                  total: 17.1s
                                                   remaining: 14s
        learn: 5.0233354
550:
                                  total: 17.1s
                                                   remaining: 14s
551:
        learn: 5.0166760
                                                   remaining: 13.9s
                                  total: 17.2s
552:
        learn: 5.0032628
                                  total: 17.2s
                                                   remaining: 13.9s
        learn: 4.9903066
                                  total: 17.2s
553:
                                                   remaining: 13.9s
554:
        learn: 4.9849551
                                  total: 17.2s
                                                   remaining: 13.8s
555:
        learn: 4.9842385
                                  total: 17.3s
                                                   remaining: 13.8s
556:
        learn: 4.9736154
                                  total: 17.3s
                                                   remaining: 13.8s
557:
        learn: 4.9728417
                                  total: 17.3s
                                                   remaining: 13.7s
558:
        learn: 4.9671194
                                  total: 17.3s
                                                   remaining: 13.7s
559:
        learn: 4.9609767
                                  total: 17.4s
                                                   remaining: 13.7s
        learn: 4.9527134
560:
                                  total: 17.4s
                                                   remaining: 13.6s
561:
        learn: 4.9461592
                                  total: 17.4s
                                                   remaining: 13.6s
562:
        learn: 4.9401004
                                  total: 17.5s
                                                   remaining: 13.6s
563:
        learn: 4.9313848
                                  total: 17.5s
                                                   remaining: 13.6s
                                  total: 17.5s
564:
        learn: 4.9254836
                                                   remaining: 13.5s
565:
        learn: 4.9140610
                                  total: 17.6s
                                                   remaining: 13.5s
566:
        learn: 4.9074991
                                  total: 17.6s
                                                   remaining: 13.5s
567:
        learn: 4.9006309
                                  total: 17.6s
                                                   remaining: 13.4s
                                  total: 17.7s
568:
        learn: 4.8950737
                                                   remaining: 13.4s
        learn: 4.8836697
569:
                                  total: 17.7s
                                                   remaining: 13.4s
570:
        learn: 4.8747439
                                  total: 17.7s
                                                   remaining: 13.3s
                                  total: 17.8s
571:
        learn: 4.8691933
                                                   remaining: 13.3s
572:
        learn: 4.8623272
                                  total: 17.8s
                                                   remaining: 13.3s
573:
        learn: 4.8569463
                                  total: 17.8s
                                                   remaining: 13.2s
574:
        learn: 4.8500926
                                  total: 17.9s
                                                   remaining: 13.2s
                                  total: 17.9s
575:
        learn: 4.8398039
                                                   remaining: 13.2s
576:
        learn: 4.8341493
                                  total: 17.9s
                                                   remaining: 13.1s
577:
        learn: 4.8248280
                                  total: 18s
                                                   remaining: 13.2s
                                  total: 18s
578:
        learn: 4.8241722
                                                   remaining: 13.1s
579:
        learn: 4.8161326
                                  total: 18s
                                                   remaining: 13.1s
580:
        learn: 4.8101768
                                                   remaining: 13.1s
                                  total: 18.1s
581:
        learn: 4.8005298
                                  total: 18.1s
                                                   remaining: 13s
        learn: 4.7923621
                                  total: 18.1s
582:
                                                   remaining: 13s
        learn: 4.7819385
583:
                                  total: 18.2s
                                                   remaining: 13s
584:
        learn: 4.7686405
                                                   remaining: 12.9s
                                  total: 18.2s
585:
        learn: 4.7591067
                                  total: 18.2s
                                                   remaining: 12.9s
586:
        learn: 4.7540715
                                  total: 18.2s
                                                   remaining: 12.8s
                                                   remaining: 12.8s
587:
        learn: 4.7534773
                                  total: 18.3s
588:
        learn: 4.7492111
                                  total: 18.3s
                                                   remaining: 12.8s
        learn: 4.7484510
589:
                                  total: 18.3s
                                                   remaining: 12.7s
590:
        learn: 4.7449078
                                  total: 18.4s
                                                   remaining: 12.7s
591:
        learn: 4.7371564
                                  total: 18.4s
                                                   remaining: 12.7s
592:
        learn: 4.7282338
                                  total: 18.4s
                                                   remaining: 12.6s
593:
        learn: 4.7221142
                                  total: 18.5s
                                                   remaining: 12.7s
594:
        learn: 4.7163460
                                  total: 18.5s
                                                   remaining: 12.6s
595:
        learn: 4.7085953
                                                   remaining: 12.6s
                                  total: 18.5s
596:
        learn: 4.6954535
                                  total: 18.6s
                                                   remaining: 12.6s
597:
        learn: 4.6905944
                                  total: 18.6s
                                                   remaining: 12.5s
598:
        learn: 4.6821265
                                  total: 18.6s
                                                   remaining: 12.5s
599:
        learn: 4.6772203
                                  total: 18.7s
                                                   remaining: 12.5s
600:
        learn: 4.6658754
                                  total: 18.7s
                                                   remaining: 12.4s
```

```
601:
        learn: 4.6594836
                                  total: 18.7s
                                                   remaining: 12.4s
602:
        learn: 4.6490270
                                  total: 18.8s
                                                   remaining: 12.4s
                                  total: 18.8s
603:
        learn: 4.6369854
                                                   remaining: 12.3s
604:
        learn: 4.6296037
                                  total: 18.8s
                                                   remaining: 12.3s
605:
        learn: 4.6203373
                                  total: 18.9s
                                                   remaining: 12.3s
                                  total: 18.9s
606:
        learn: 4.6152126
                                                   remaining: 12.2s
607:
        learn: 4.6064921
                                  total: 18.9s
                                                   remaining: 12.2s
608:
        learn: 4.5957357
                                                   remaining: 12.2s
                                  total: 19s
609:
        learn: 4.5877873
                                  total: 19s
                                                   remaining: 12.2s
        learn: 4.5827702
                                  total: 19s
610:
                                                   remaining: 12.1s
                                  total: 19.1s
611:
        learn: 4.5736543
                                                   remaining: 12.1s
612:
        learn: 4.5682395
                                                   remaining: 12.1s
                                  total: 19.1s
613:
        learn: 4.5584147
                                  total: 19.1s
                                                   remaining: 12s
        learn: 4.5511482
                                  total: 19.2s
614:
                                                   remaining: 12s
615:
        learn: 4.5452284
                                  total: 19.2s
                                                   remaining: 12s
616:
        learn: 4.5350718
                                  total: 19.2s
                                                   remaining: 11.9s
617:
        learn: 4.5289704
                                  total: 19.3s
                                                   remaining: 11.9s
618:
        learn: 4.5210230
                                  total: 19.3s
                                                   remaining: 11.9s
619:
        learn: 4.5204716
                                  total: 19.3s
                                                   remaining: 11.8s
620:
        learn: 4.5122828
                                  total: 19.3s
                                                   remaining: 11.8s
621:
        learn: 4.5039050
                                  total: 19.4s
                                                   remaining: 11.8s
622:
        learn: 4.4949333
                                  total: 19.4s
                                                   remaining: 11.7s
623:
        learn: 4.4872937
                                  total: 19.4s
                                                   remaining: 11.7s
624:
        learn: 4.4825795
                                  total: 19.5s
                                                   remaining: 11.7s
625:
        learn: 4.4757284
                                  total: 19.5s
                                                   remaining: 11.7s
626:
        learn: 4.4681282
                                  total: 19.5s
                                                   remaining: 11.6s
627:
        learn: 4.4621119
                                  total: 19.6s
                                                   remaining: 11.6s
628:
        learn: 4.4580331
                                  total: 19.6s
                                                   remaining: 11.6s
                                  total: 19.6s
629:
        learn: 4.4500217
                                                   remaining: 11.5s
630:
        learn: 4.4442383
                                  total: 19.7s
                                                   remaining: 11.5s
631:
        learn: 4.4341868
                                  total: 19.7s
                                                   remaining: 11.5s
                                  total: 19.7s
632:
        learn: 4.4265138
                                                   remaining: 11.4s
633:
        learn: 4.4230695
                                  total: 19.8s
                                                   remaining: 11.4s
        learn: 4.4174474
634:
                                  total: 19.8s
                                                   remaining: 11.4s
        learn: 4.4068278
635:
                                  total: 19.8s
                                                   remaining: 11.3s
                                  total: 19.9s
636:
        learn: 4.4060501
                                                   remaining: 11.3s
637:
        learn: 4.3973992
                                  total: 19.9s
                                                   remaining: 11.3s
638:
        learn: 4.3909766
                                  total: 19.9s
                                                   remaining: 11.2s
639:
        learn: 4.3850193
                                  total: 19.9s
                                                   remaining: 11.2s
640:
        learn: 4.3791385
                                  total: 20s
                                                   remaining: 11.2s
641:
        learn: 4.3752682
                                                   remaining: 11.1s
                                  total: 20s
642:
        learn: 4.3677816
                                  total: 20s
                                                   remaining: 11.1s
        learn: 4.3535719
                                  total: 20.1s
643:
                                                   remaining: 11.1s
        learn: 4.3492629
                                  total: 20.1s
644:
                                                   remaining: 11.1s
645:
        learn: 4.3403040
                                  total: 20.1s
                                                   remaining: 11s
646:
        learn: 4.3392855
                                  total: 20.2s
                                                   remaining: 11s
647:
        learn: 4.3271639
                                  total: 20.2s
                                                   remaining: 11s
                                                   remaining: 10.9s
648:
        learn: 4.3228599
                                  total: 20.2s
649:
        learn: 4.3169086
                                  total: 20.3s
                                                   remaining: 10.9s
650:
        learn: 4.3118243
                                  total: 20.3s
                                                   remaining: 10.9s
651:
        learn: 4.3009481
                                  total: 20.3s
                                                   remaining: 10.8s
652:
        learn: 4.2927207
                                  total: 20.4s
                                                   remaining: 10.8s
653:
        learn: 4.2849868
                                  total: 20.4s
                                                   remaining: 10.8s
654:
        learn: 4.2778347
                                  total: 20.4s
                                                   remaining: 10.7s
655:
        learn: 4.2733093
                                  total: 20.5s
                                                   remaining: 10.7s
656:
        learn: 4.2668522
                                  total: 20.5s
                                                   remaining: 10.7s
657:
        learn: 4.2634155
                                  total: 20.5s
                                                   remaining: 10.6s
658:
        learn: 4.2577947
                                  total: 20.6s
                                                   remaining: 10.6s
659:
        learn: 4.2511579
                                  total: 20.6s
                                                   remaining: 10.6s
660:
        learn: 4.2429505
                                  total: 20.6s
                                                   remaining: 10.6s
661:
        learn: 4.2404972
                                  total: 20.6s
                                                   remaining: 10.5s
```

```
learn: 4.2319449
662:
                                  total: 20.7s
                                                   remaining: 10.5s
663:
        learn: 4.2218497
                                  total: 20.7s
                                                   remaining: 10.5s
                                  total: 20.7s
664:
        learn: 4.2114825
                                                   remaining: 10.4s
665:
        learn: 4.2047752
                                  total: 20.8s
                                                   remaining: 10.4s
666:
        learn: 4.1971192
                                  total: 20.8s
                                                   remaining: 10.4s
        learn: 4.1918711
                                  total: 20.8s
667:
                                                   remaining: 10.3s
668:
        learn: 4.1786856
                                  total: 20.9s
                                                   remaining: 10.3s
        learn: 4.1729770
                                  total: 20.9s
                                                   remaining: 10.3s
669:
670:
        learn: 4.1649330
                                  total: 20.9s
                                                   remaining: 10.2s
        learn: 4.1602272
                                  total: 21s
671:
                                                   remaining: 10.2s
672:
        learn: 4.1595642
                                  total: 21s
                                                   remaining: 10.2s
        learn: 4.1513769
                                  total: 21s
                                                   remaining: 10.1s
673:
674:
        learn: 4.1461117
                                  total: 21.1s
                                                   remaining: 10.1s
        learn: 4.1414119
                                  total: 21.1s
675:
                                                   remaining: 10.1s
676:
        learn: 4.1374931
                                  total: 21.1s
                                                   remaining: 10.1s
677:
        learn: 4.1310597
                                  total: 21.2s
                                                   remaining: 10.1s
678:
        learn: 4.1245188
                                  total: 21.2s
                                                   remaining: 10s
679:
        learn: 4.1193066
                                  total: 21.2s
                                                   remaining: 9.96s
680:
        learn: 4.1084466
                                  total: 21.2s
                                                   remaining: 9.92s
681:
        learn: 4.1061798
                                  total: 21.3s
                                                   remaining: 9.91s
682:
        learn: 4.0970231
                                  total: 21.3s
                                                   remaining: 9.87s
683:
        learn: 4.0913557
                                  total: 21.3s
                                                   remaining: 9.83s
684:
        learn: 4.0827776
                                  total: 21.4s
                                                   remaining: 9.82s
685:
        learn: 4.0750275
                                  total: 21.4s
                                                   remaining: 9.78s
                                  total: 21.4s
        learn: 4.0649254
686:
                                                   remaining: 9.73s
687:
        learn: 4.0579368
                                  total: 21.5s
                                                   remaining: 9.73s
688:
        learn: 4.0512920
                                  total: 21.5s
                                                   remaining: 9.69s
689:
        learn: 4.0500318
                                  total: 21.5s
                                                   remaining: 9.64s
                                  total: 21.6s
690:
        learn: 4.0437714
                                                   remaining: 9.64s
        learn: 4.0322026
                                  total: 21.6s
691:
                                                   remaining: 9.6s
692:
        learn: 4.0235941
                                  total: 21.6s
                                                   remaining: 9.55s
                                  total: 21.7s
693:
        learn: 4.0197406
                                                   remaining: 9.55s
694:
        learn: 4.0131383
                                  total: 21.7s
                                                   remaining: 9.5s
695:
        learn: 4.0111697
                                  total: 21.7s
                                                   remaining: 9.46s
        learn: 4.0031809
696:
                                  total: 21.7s
                                                   remaining: 9.42s
        learn: 3.9956297
                                  total: 21.8s
697:
                                                   remaining: 9.41s
698:
        learn: 3.9901476
                                  total: 21.8s
                                                   remaining: 9.37s
699:
        learn: 3.9852033
                                  total: 21.8s
                                                   remaining: 9.33s
700:
        learn: 3.9771696
                                  total: 21.9s
                                                   remaining: 9.32s
701:
        learn: 3.9700789
                                  total: 21.9s
                                                   remaining: 9.28s
702:
        learn: 3.9644944
                                  total: 21.9s
                                                   remaining: 9.23s
703:
        learn: 3.9584184
                                  total: 21.9s
                                                   remaining: 9.23s
704:
        learn: 3.9483988
                                  total: 22s
                                                   remaining: 9.19s
        learn: 3.9420244
705:
                                  total: 22s
                                                   remaining: 9.14s
                                                   remaining: 9.13s
706:
        learn: 3.9367045
                                  total: 22s
707:
        learn: 3.9300854
                                  total: 22s
                                                   remaining: 9.09s
708:
        learn: 3.9216183
                                  total: 22.1s
                                                   remaining: 9.05s
709:
        learn: 3.9192156
                                  total: 22.1s
                                                   remaining: 9.04s
710:
        learn: 3.9075398
                                  total: 22.1s
                                                   remaining: 9s
711:
        learn: 3.9014906
                                  total: 22.2s
                                                   remaining: 8.96s
712:
        learn: 3.8937647
                                  total: 22.2s
                                                   remaining: 8.95s
713:
        learn: 3.8869508
                                  total: 22.2s
                                                   remaining: 8.91s
714:
        learn: 3.8795089
                                  total: 22.3s
                                                   remaining: 8.87s
715:
        learn: 3.8745418
                                  total: 22.3s
                                                   remaining: 8.86s
716:
        learn: 3.8707664
                                  total: 22.3s
                                                   remaining: 8.82s
717:
        learn: 3.8676771
                                  total: 22.3s
                                                   remaining: 8.78s
718:
        learn: 3.8618511
                                  total: 22.4s
                                                   remaining: 8.73s
                                  total: 22.4s
719:
        learn: 3.8567824
                                                   remaining: 8.73s
720:
        learn: 3.8481294
                                  total: 22.4s
                                                   remaining: 8.69s
721:
        learn: 3.8389229
                                  total: 22.4s
                                                   remaining: 8.64s
        learn: 3.8313953
722:
                                  total: 22.5s
                                                   remaining: 8.63s
```

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723:
        learn: 3.8251813
                                  total: 22.5s
                                                   remaining: 8.59s
724:
        learn: 3.8180663
                                  total: 22.5s
                                                   remaining: 8.55s
725:
        learn: 3.8130950
                                  total: 22.6s
                                                   remaining: 8.54s
726:
        learn: 3.8078430
                                  total: 22.6s
                                                   remaining: 8.5s
727:
        learn: 3.8073841
                                  total: 22.6s
                                                   remaining: 8.46s
        learn: 3.8018612
728:
                                  total: 22.7s
                                                   remaining: 8.45s
729:
        learn: 3.7935979
                                  total: 22.7s
                                                   remaining: 8.41s
730:
        learn: 3.7874809
                                  total: 22.7s
                                                   remaining: 8.37s
731:
        learn: 3.7819043
                                  total: 22.8s
                                                   remaining: 8.36s
732:
        learn: 3.7754515
                                  total: 22.8s
                                                   remaining: 8.32s
        learn: 3.7712035
                                  total: 22.8s
733:
                                                   remaining: 8.28s
734:
        learn: 3.7650117
                                  total: 22.9s
                                                   remaining: 8.27s
735:
        learn: 3.7585399
                                  total: 22.9s
                                                   remaining: 8.23s
736:
        learn: 3.7493530
                                  total: 22.9s
                                                   remaining: 8.19s
737:
        learn: 3.7420446
                                  total: 23s
                                                   remaining: 8.17s
738:
        learn: 3.7357064
                                  total: 23s
                                                   remaining: 8.13s
739:
        learn: 3.7274247
                                  total: 23s
                                                   remaining: 8.09s
740:
        learn: 3.7221956
                                  total: 23.1s
                                                   remaining: 8.08s
741:
        learn: 3.7155650
                                  total: 23.1s
                                                   remaining: 8.04s
742:
        learn: 3.7108727
                                  total: 23.1s
                                                   remaining: 8s
743:
        learn: 3.7043749
                                  total: 23.1s
                                                   remaining: 7.96s
744:
        learn: 3.7012322
                                  total: 23.2s
                                                   remaining: 7.95s
745:
        learn: 3.6949574
                                  total: 23.2s
                                                   remaining: 7.91s
746:
        learn: 3.6885604
                                  total: 23.2s
                                                   remaining: 7.87s
                                  total: 23.3s
                                                   remaining: 7.86s
747:
        learn: 3.6868819
748:
        learn: 3.6827719
                                  total: 23.3s
                                                   remaining: 7.82s
749:
        learn: 3.6823697
                                  total: 23.3s
                                                   remaining: 7.78s
750:
        learn: 3.6795667
                                  total: 23.4s
                                                   remaining: 7.76s
                                  total: 23.4s
751:
        learn: 3.6700412
                                                   remaining: 7.72s
752:
        learn: 3.6633448
                                  total: 23.4s
                                                   remaining: 7.68s
753:
        learn: 3.6598856
                                  total: 23.4s
                                                   remaining: 7.64s
754:
        learn: 3.6559063
                                  total: 23.5s
                                                   remaining: 7.63s
                                                   remaining: 7.59s
755:
        learn: 3.6518202
                                  total: 23.5s
756:
        learn: 3.6437882
                                  total: 23.5s
                                                   remaining: 7.55s
        learn: 3.6404395
757:
                                  total: 23.6s
                                                   remaining: 7.54s
        learn: 3.6364018
                                  total: 23.6s
                                                   remaining: 7.5s
758:
759:
        learn: 3.6293015
                                  total: 23.6s
                                                   remaining: 7.46s
760:
        learn: 3.6261404
                                  total: 23.7s
                                                   remaining: 7.45s
761:
        learn: 3.6229793
                                  total: 23.7s
                                                   remaining: 7.41s
762:
        learn: 3.6158755
                                  total: 23.7s
                                                   remaining: 7.37s
763:
        learn: 3.6086547
                                  total: 23.8s
                                                   remaining: 7.36s
764:
        learn: 3.6028908
                                  total: 23.8s
                                                   remaining: 7.32s
765:
        learn: 3.5955625
                                  total: 23.8s
                                                   remaining: 7.28s
        learn: 3.5924302
                                  total: 23.8s
766:
                                                   remaining: 7.24s
767:
        learn: 3.5875190
                                  total: 23.9s
                                                   remaining: 7.22s
768:
        learn: 3.5826606
                                  total: 23.9s
                                                   remaining: 7.18s
769:
        learn: 3.5758720
                                  total: 23.9s
                                                   remaining: 7.14s
                                                   remaining: 7.13s
770:
        learn: 3.5690023
                                  total: 24s
771:
        learn: 3.5644109
                                  total: 24s
                                                   remaining: 7.09s
772:
        learn: 3.5614028
                                  total: 24s
                                                   remaining: 7.05s
773:
        learn: 3.5573256
                                  total: 24.1s
                                                   remaining: 7.04s
774:
        learn: 3.5504916
                                  total: 24.1s
                                                   remaining: 7s
775:
        learn: 3.5425285
                                  total: 24.1s
                                                   remaining: 6.96s
776:
        learn: 3.5379537
                                  total: 24.2s
                                                   remaining: 6.95s
777:
        learn: 3.5319114
                                  total: 24.2s
                                                   remaining: 6.91s
778:
        learn: 3.5250463
                                  total: 24.2s
                                                   remaining: 6.87s
779:
        learn: 3.5209834
                                  total: 24.3s
                                                   remaining: 6.85s
780:
        learn: 3.5151796
                                  total: 24.3s
                                                   remaining: 6.82s
781:
        learn: 3.5112212
                                  total: 24.3s
                                                   remaining: 6.78s
782:
        learn: 3.5081943
                                  total: 24.3s
                                                   remaining: 6.74s
        learn: 3.5035707
                                  total: 24.4s
783:
                                                   remaining: 6.72s
```

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784:
        learn: 3.5009337
                                  total: 24.4s
                                                   remaining: 6.69s
785:
        learn: 3.4960603
                                  total: 24.5s
                                                   remaining: 6.67s
        learn: 3.4895561
                                  total: 24.5s
786:
                                                   remaining: 6.63s
787:
        learn: 3.4821703
                                  total: 24.5s
                                                   remaining: 6.59s
788:
        learn: 3.4816972
                                  total: 24.5s
                                                   remaining: 6.55s
789:
        learn: 3.4772426
                                  total: 24.6s
                                                   remaining: 6.54s
790:
        learn: 3.4751662
                                  total: 24.6s
                                                   remaining: 6.5s
791:
        learn: 3.4719041
                                  total: 24.6s
                                                   remaining: 6.46s
792:
        learn: 3.4714503
                                  total: 24.7s
                                                   remaining: 6.45s
793:
        learn: 3.4670792
                                  total: 24.7s
                                                   remaining: 6.41s
        learn: 3.4643128
794:
                                  total: 24.7s
                                                   remaining: 6.37s
795:
        learn: 3.4584701
                                  total: 24.8s
                                                   remaining: 6.35s
796:
        learn: 3.4549630
                                  total: 24.8s
                                                   remaining: 6.32s
797:
        learn: 3.4504252
                                  total: 24.8s
                                                   remaining: 6.28s
798:
        learn: 3.4445297
                                  total: 24.8s
                                                   remaining: 6.24s
799:
        learn: 3.4363682
                                  total: 24.9s
                                                   remaining: 6.22s
800:
        learn: 3.4305265
                                  total: 24.9s
                                                   remaining: 6.18s
                                  total: 24.9s
801:
        learn: 3.4250121
                                                   remaining: 6.15s
802:
        learn: 3.4193661
                                  total: 25s
                                                   remaining: 6.13s
803:
        learn: 3.4121550
                                  total: 25s
                                                   remaining: 6.09s
        learn: 3.4076731
                                  total: 25s
804:
                                                   remaining: 6.05s
805:
        learn: 3.4033265
                                  total: 25.1s
                                                   remaining: 6.04s
806:
        learn: 3.3958183
                                  total: 25.1s
                                                   remaining: 6s
807:
        learn: 3.3917121
                                  total: 25.1s
                                                   remaining: 5.96s
                                  total: 25.2s
808:
        learn: 3.3906515
                                                   remaining: 5.95s
809:
        learn: 3.3798919
                                  total: 25.2s
                                                   remaining: 5.91s
810:
        learn: 3.3738106
                                  total: 25.2s
                                                   remaining: 5.87s
811:
        learn: 3.3676073
                                  total: 25.3s
                                                   remaining: 5.85s
                                  total: 25.3s
812:
        learn: 3.3632855
                                                   remaining: 5.82s
813:
        learn: 3.3592262
                                  total: 25.3s
                                                   remaining: 5.78s
814:
        learn: 3.3532160
                                  total: 25.4s
                                                   remaining: 5.76s
                                  total: 25.4s
815:
        learn: 3.3479343
                                                   remaining: 5.72s
816:
        learn: 3.3406066
                                  total: 25.4s
                                                   remaining: 5.69s
817:
        learn: 3.3367984
                                  total: 25.4s
                                                   remaining: 5.65s
        learn: 3.3335923
818:
                                  total: 25.5s
                                                   remaining: 5.63s
                                  total: 25.5s
                                                   remaining: 5.59s
819:
        learn: 3.3299300
820:
        learn: 3.3251430
                                  total: 25.5s
                                                   remaining: 5.56s
821:
        learn: 3.3193948
                                  total: 25.6s
                                                   remaining: 5.54s
822:
        learn: 3.3134787
                                  total: 25.6s
                                                   remaining: 5.5s
823:
        learn: 3.3083823
                                  total: 25.6s
                                                   remaining: 5.46s
824:
        learn: 3.3052660
                                  total: 25.7s
                                                   remaining: 5.45s
825:
        learn: 3.3002709
                                  total: 25.7s
                                                   remaining: 5.41s
826:
        learn: 3.2951351
                                  total: 25.7s
                                                   remaining: 5.37s
        learn: 3.2872784
827:
                                  total: 25.8s
                                                   remaining: 5.35s
828:
        learn: 3.2818652
                                  total: 25.8s
                                                   remaining: 5.32s
829:
        learn: 3.2781747
                                  total: 25.8s
                                                   remaining: 5.28s
830:
        learn: 3.2720728
                                  total: 25.9s
                                                   remaining: 5.26s
                                                   remaining: 5.22s
831:
        learn: 3.2716459
                                  total: 25.9s
832:
        learn: 3.2683687
                                  total: 25.9s
                                                   remaining: 5.19s
833:
        learn: 3.2651818
                                  total: 26s
                                                   remaining: 5.17s
834:
        learn: 3.2644043
                                  total: 26s
                                                   remaining: 5.13s
835:
        learn: 3.2590787
                                  total: 26s
                                                   remaining: 5.1s
836:
        learn: 3.2519876
                                  total: 26s
                                                   remaining: 5.06s
837:
        learn: 3.2444402
                                  total: 26.1s
                                                   remaining: 5.04s
        learn: 3.2398968
838:
                                  total: 26.1s
                                                   remaining: 5s
839:
        learn: 3.2342607
                                  total: 26.1s
                                                   remaining: 4.97s
840:
        learn: 3.2325081
                                  total: 26.2s
                                                   remaining: 4.95s
841:
        learn: 3.2267092
                                  total: 26.2s
                                                   remaining: 4.91s
842:
        learn: 3.2231325
                                  total: 26.2s
                                                   remaining: 4.87s
843:
        learn: 3.2140017
                                  total: 26.3s
                                                   remaining: 4.85s
                                  total: 26.3s
844:
        learn: 3.2110863
                                                   remaining: 4.82s
```

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845:
        learn: 3.2039671
                                  total: 26.3s
                                                   remaining: 4.78s
846:
        learn: 3.1982949
                                  total: 26.4s
                                                   remaining: 4.76s
847:
        learn: 3.1914646
                                  total: 26.4s
                                                   remaining: 4.72s
848:
        learn: 3.1874744
                                  total: 26.4s
                                                   remaining: 4.69s
849:
        learn: 3.1830587
                                  total: 26.5s
                                                   remaining: 4.67s
        learn: 3.1754448
                                  total: 26.5s
850:
                                                   remaining: 4.63s
851:
        learn: 3.1749271
                                  total: 26.5s
                                                   remaining: 4.6s
852:
        learn: 3.1690868
                                  total: 26.5s
                                                   remaining: 4.56s
853:
        learn: 3.1639760
                                  total: 26.6s
                                                   remaining: 4.54s
854:
        learn: 3.1591575
                                  total: 26.6s
                                                   remaining: 4.5s
855:
        learn: 3.1545446
                                  total: 26.6s
                                                   remaining: 4.47s
856:
        learn: 3.1494235
                                  total: 26.7s
                                                   remaining: 4.45s
857:
        learn: 3.1490393
                                  total: 26.7s
                                                   remaining: 4.41s
858:
        learn: 3.1455466
                                  total: 26.7s
                                                   remaining: 4.38s
859:
        learn: 3.1421621
                                  total: 26.8s
                                                   remaining: 4.36s
860:
        learn: 3.1417270
                                  total: 26.8s
                                                   remaining: 4.32s
                                                   remaining: 4.28s
861:
        learn: 3.1365429
                                  total: 26.8s
862:
        learn: 3.1330385
                                  total: 26.9s
                                                   remaining: 4.26s
863:
        learn: 3.1278643
                                  total: 26.9s
                                                   remaining: 4.23s
864:
        learn: 3.1252888
                                  total: 26.9s
                                                   remaining: 4.19s
                                  total: 26.9s
        learn: 3.1202312
865:
                                                   remaining: 4.17s
866:
        learn: 3.1154028
                                  total: 27s
                                                   remaining: 4.13s
867:
        learn: 3.1110029
                                  total: 27s
                                                   remaining: 4.1s
868:
        learn: 3.1080521
                                  total: 27s
                                                   remaining: 4.06s
                                  total: 27.1s
869:
        learn: 3.1020963
                                                   remaining: 4.04s
870:
        learn: 3.0969963
                                  total: 27.1s
                                                   remaining: 4.01s
871:
        learn: 3.0913736
                                  total: 27.1s
                                                   remaining: 3.98s
                                                   remaining: 3.95s
872:
        learn: 3.0863825
                                  total: 27.1s
                                  total: 27.2s
873:
        learn: 3.0842315
                                                   remaining: 3.91s
874:
        learn: 3.0788784
                                  total: 27.3s
                                                   remaining: 3.89s
875:
        learn: 3.0758402
                                  total: 27.3s
                                                   remaining: 3.86s
                                  total: 27.3s
876:
        learn: 3.0744567
                                                   remaining: 3.83s
877:
        learn: 3.0681122
                                  total: 27.3s
                                                   remaining: 3.8s
878:
        learn: 3.0629900
                                  total: 27.3s
                                                   remaining: 3.76s
879:
        learn: 3.0602881
                                  total: 27.4s
                                                   remaining: 3.73s
        learn: 3.0567357
                                  total: 27.4s
                                                   remaining: 3.71s
880:
881:
        learn: 3.0538319
                                  total: 27.4s
                                                   remaining: 3.67s
882:
        learn: 3.0479970
                                  total: 27.4s
                                                   remaining: 3.64s
883:
        learn: 3.0442862
                                  total: 27.5s
                                                   remaining: 3.61s
884:
        learn: 3.0388430
                                  total: 27.5s
                                                   remaining: 3.58s
885:
        learn: 3.0359258
                                  total: 27.5s
                                                   remaining: 3.54s
        learn: 3.0307702
886:
                                  total: 27.6s
                                                   remaining: 3.52s
        learn: 3.0251620
                                  total: 27.6s
887:
                                                   remaining: 3.48s
        learn: 3.0211471
                                  total: 27.7s
888:
                                                   remaining: 3.45s
889:
        learn: 3.0157942
                                  total: 27.7s
                                                   remaining: 3.43s
890:
        learn: 3.0103213
                                  total: 27.7s
                                                   remaining: 3.39s
891:
        learn: 3.0071192
                                  total: 27.8s
                                                   remaining: 3.36s
                                                   remaining: 3.33s
892:
        learn: 3.0068955
                                  total: 27.8s
893:
        learn: 3.0029103
                                  total: 27.8s
                                                   remaining: 3.3s
894:
        learn: 2.9958998
                                  total: 27.8s
                                                   remaining: 3.27s
895:
        learn: 2.9955598
                                  total: 27.9s
                                                   remaining: 3.24s
896:
        learn: 2.9906574
                                  total: 27.9s
                                                   remaining: 3.21s
897:
        learn: 2.9846868
                                  total: 27.9s
                                                   remaining: 3.17s
898:
        learn: 2.9802567
                                  total: 28s
                                                   remaining: 3.15s
899:
        learn: 2.9769566
                                  total: 28s
                                                   remaining: 3.11s
900:
        learn: 2.9744640
                                  total: 28s
                                                   remaining: 3.08s
901:
        learn: 2.9693672
                                  total: 28.1s
                                                   remaining: 3.06s
902:
        learn: 2.9650233
                                  total: 28.1s
                                                   remaining: 3.02s
903:
        learn: 2.9585063
                                  total: 28.1s
                                                   remaining: 2.99s
904:
        learn: 2.9540745
                                  total: 28.2s
                                                   remaining: 2.96s
        learn: 2.9495581
                                  total: 28.2s
905:
                                                   remaining: 2.93s
```

```
906:
        learn: 2.9474471
                                  total: 28.2s
                                                   remaining: 2.89s
907:
        learn: 2.9434813
                                  total: 28.2s
                                                   remaining: 2.86s
        learn: 2.9383932
                                  total: 28.3s
908:
                                                   remaining: 2.83s
909:
        learn: 2.9364075
                                  total: 28.3s
                                                   remaining: 2.8s
910:
        learn: 2.9328957
                                  total: 28.3s
                                                   remaining: 2.77s
        learn: 2.9276222
                                  total: 28.4s
911:
                                                   remaining: 2.74s
912:
        learn: 2.9223090
                                  total: 28.4s
                                                   remaining: 2.71s
913:
        learn: 2.9179129
                                  total: 28.4s
                                                   remaining: 2.67s
914:
        learn: 2.9146262
                                  total: 28.5s
                                                   remaining: 2.65s
915:
        learn: 2.9103271
                                  total: 28.5s
                                                   remaining: 2.61s
        learn: 2.9049654
                                  total: 28.5s
916:
                                                   remaining: 2.58s
917:
        learn: 2.8978916
                                  total: 28.6s
                                                   remaining: 2.56s
918:
        learn: 2.8928424
                                  total: 28.6s
                                                   remaining: 2.52s
919:
        learn: 2.8883556
                                  total: 28.6s
                                                   remaining: 2.49s
920:
        learn: 2.8856145
                                  total: 28.7s
                                                   remaining: 2.46s
921:
        learn: 2.8796805
                                  total: 28.7s
                                                   remaining: 2.43s
922:
        learn: 2.8738604
                                  total: 28.8s
                                                   remaining: 2.4s
923:
        learn: 2.8693730
                                  total: 28.8s
                                                   remaining: 2.37s
924:
        learn: 2.8639008
                                  total: 28.8s
                                                   remaining: 2.34s
925:
        learn: 2.8635399
                                  total: 28.9s
                                                   remaining: 2.31s
926:
        learn: 2.8583431
                                  total: 28.9s
                                                   remaining: 2.28s
927:
        learn: 2.8580186
                                  total: 28.9s
                                                   remaining: 2.24s
928:
        learn: 2.8528104
                                  total: 29s
                                                   remaining: 2.22s
929:
        learn: 2.8453038
                                  total: 29s
                                                   remaining: 2.18s
                                                   remaining: 2.15s
930:
        learn: 2.8390751
                                  total: 29s
931:
        learn: 2.8354394
                                  total: 29.1s
                                                   remaining: 2.12s
932:
        learn: 2.8313750
                                  total: 29.1s
                                                   remaining: 2.09s
933:
        learn: 2.8254636
                                  total: 29.2s
                                                   remaining: 2.06s
                                  total: 29.2s
934:
        learn: 2.8206992
                                                   remaining: 2.03s
935:
        learn: 2.8177850
                                  total: 29.2s
                                                   remaining: 2s
936:
        learn: 2.8149882
                                  total: 29.3s
                                                   remaining: 1.97s
                                  total: 29.3s
937:
        learn: 2.8117635
                                                   remaining: 1.94s
938:
        learn: 2.8090302
                                  total: 29.3s
                                                   remaining: 1.9s
939:
        learn: 2.8064144
                                  total: 29.3s
                                                   remaining: 1.87s
940:
        learn: 2.7993680
                                  total: 29.4s
                                                   remaining: 1.84s
                                  total: 29.4s
941:
        learn: 2.7990060
                                                   remaining: 1.81s
942:
        learn: 2.7958806
                                  total: 29.4s
                                                   remaining: 1.78s
943:
        learn: 2.7915183
                                  total: 29.5s
                                                   remaining: 1.75s
                                  total: 29.5s
944:
        learn: 2.7886415
                                                   remaining: 1.72s
945:
        learn: 2.7883851
                                  total: 29.5s
                                                   remaining: 1.68s
946:
        learn: 2.7816115
                                  total: 29.6s
                                                   remaining: 1.66s
947:
        learn: 2.7767379
                                  total: 29.6s
                                                   remaining: 1.62s
948:
        learn: 2.7742162
                                  total: 29.6s
                                                   remaining: 1.59s
        learn: 2.7692360
                                  total: 29.7s
949:
                                                   remaining: 1.56s
950:
        learn: 2.7659843
                                  total: 29.7s
                                                   remaining: 1.53s
951:
        learn: 2.7631298
                                  total: 29.7s
                                                   remaining: 1.5s
952:
        learn: 2.7596705
                                  total: 29.8s
                                                   remaining: 1.47s
                                                   remaining: 1.44s
953:
        learn: 2.7547252
                                  total: 29.8s
954:
        learn: 2.7514569
                                  total: 29.9s
                                                   remaining: 1.41s
        learn: 2.7484674
955:
                                  total: 29.9s
                                                   remaining: 1.38s
                                  total: 29.9s
956:
        learn: 2.7482080
                                                   remaining: 1.34s
957:
        learn: 2.7462831
                                  total: 30s
                                                   remaining: 1.31s
958:
        learn: 2.7410828
                                  total: 30s
                                                   remaining: 1.28s
959:
        learn: 2.7377297
                                  total: 30.1s
                                                   remaining: 1.25s
960:
        learn: 2.7330470
                                  total: 30.1s
                                                   remaining: 1.22s
961:
        learn: 2.7273216
                                  total: 30.1s
                                                   remaining: 1.19s
962:
        learn: 2.7260400
                                  total: 30.2s
                                                   remaining: 1.16s
963:
        learn: 2.7217515
                                  total: 30.2s
                                                   remaining: 1.13s
964:
        learn: 2.7164168
                                  total: 30.2s
                                                   remaining: 1.09s
965:
        learn: 2.7122991
                                  total: 30.3s
                                                   remaining: 1.06s
        learn: 2.7108210
966:
                                  total: 30.3s
                                                   remaining: 1.03s
```

```
967:
        learn: 2.7043715
                                  total: 30.3s
                                                   remaining: 1s
968:
        learn: 2.7016297
                                  total: 30.4s
                                                   remaining: 972ms
        learn: 2.6995802
                                  total: 30.4s
969:
                                                   remaining: 940ms
970:
        learn: 2.6971132
                                  total: 30.4s
                                                   remaining: 907ms
971:
        learn: 2.6921054
                                  total: 30.5s
                                                   remaining: 878ms
        learn: 2.6901958
                                  total: 30.5s
972:
                                                   remaining: 846ms
973:
        learn: 2.6856002
                                  total: 30.5s
                                                   remaining: 814ms
974:
        learn: 2.6832148
                                  total: 30.6s
                                                   remaining: 784ms
975:
        learn: 2.6788140
                                  total: 30.6s
                                                   remaining: 752ms
976:
        learn: 2.6737057
                                  total: 30.6s
                                                   remaining: 720ms
                                  total: 30.7s
977:
        learn: 2.6734279
                                                   remaining: 690ms
978:
        learn: 2.6705309
                                  total: 30.7s
                                                   remaining: 658ms
979:
        learn: 2.6660377
                                  total: 30.7s
                                                   remaining: 626ms
980:
        learn: 2.6617230
                                  total: 30.8s
                                                   remaining: 596ms
981:
        learn: 2.6608284
                                  total: 30.8s
                                                   remaining: 564ms
982:
        learn: 2.6536288
                                  total: 30.8s
                                                   remaining: 532ms
                                                   remaining: 502ms
983:
        learn: 2.6512723
                                  total: 30.9s
984:
        learn: 2.6450037
                                  total: 30.9s
                                                   remaining: 470ms
985:
        learn: 2.6419277
                                  total: 30.9s
                                                   remaining: 438ms
986:
        learn: 2.6387790
                                  total: 30.9s
                                                   remaining: 407ms
987:
        learn: 2.6360853
                                  total: 31s
                                                   remaining: 376ms
988:
        learn: 2.6350931
                                  total: 31s
                                                   remaining: 344ms
989:
        learn: 2.6334994
                                                   remaining: 313ms
                                  total: 31s
990:
        learn: 2.6306097
                                  total: 31.1s
                                                   remaining: 282ms
                                  total: 31.1s
991:
        learn: 2.6247109
                                                   remaining: 251ms
992:
        learn: 2.6211289
                                  total: 31.1s
                                                   remaining: 219ms
993:
        learn: 2.6191846
                                  total: 31.2s
                                                   remaining: 188ms
994:
        learn: 2.6155697
                                  total: 31.2s
                                                   remaining: 157ms
995:
        learn: 2.6142894
                                  total: 31.2s
                                                   remaining: 125ms
996:
        learn: 2.6118347
                                  total: 31.3s
                                                   remaining: 94.1ms
997:
        learn: 2.6095910
                                  total: 31.3s
                                                   remaining: 62.6ms
                                  total: 31.3s
998:
        learn: 2.6049846
                                                   remaining: 31.3ms
999:
        learn: 2.6011145
                                  total: 31.4s
                                                   remaining: Ous
                                                   remaining: 4.15s
0:
        learn: 20.3924119
                                  total: 4.15ms
        learn: 20.3208264
1:
                                  total: 7.81ms
                                                   remaining: 3.9s
                                  total: 12ms
2:
        learn: 20.2500183
                                                   remaining: 3.97s
3:
        learn: 20.1831406
                                  total: 86.9ms
                                                   remaining: 21.6s
4:
        learn: 20.1127379
                                  total: 90.8ms
                                                   remaining: 18.1s
5:
        learn: 20.0341552
                                  total: 94.6ms
                                                   remaining: 15.7s
6:
        learn: 19.9121632
                                  total: 182ms
                                                   remaining: 25.8s
7:
        learn: 19.8437818
                                  total: 186ms
                                                   remaining: 23.1s
8:
        learn: 19.7750256
                                  total: 190ms
                                                   remaining: 20.9s
9:
        learn: 19.7028867
                                  total: 195ms
                                                   remaining: 19.3s
        learn: 19.6392197
10:
                                  total: 283ms
                                                   remaining: 25.4s
        learn: 19.5743618
                                                   remaining: 23.6s
11:
                                  total: 287ms
12:
        learn: 19.5101397
                                  total: 290ms
                                                   remaining: 22.1s
        learn: 19.4487670
                                  total: 380ms
13:
                                                   remaining: 26.7s
                                                   remaining: 25.2s
14:
        learn: 19.3876354
                                  total: 384ms
15:
        learn: 19.3238709
                                  total: 387ms
                                                   remaining: 23.8s
16:
        learn: 19.2655478
                                  total: 476ms
                                                   remaining: 27.6s
17:
        learn: 19.2082473
                                  total: 483ms
                                                   remaining: 26.3s
        learn: 19.1479439
18:
                                  total: 487ms
                                                   remaining: 25.1s
19:
        learn: 19.1023008
                                  total: 574ms
                                                   remaining: 28.1s
20:
        learn: 19.0340130
                                  total: 578ms
                                                   remaining: 26.9s
21:
        learn: 18.9707607
                                  total: 582ms
                                                   remaining: 25.9s
22:
        learn: 18.8945213
                                                   remaining: 24.9s
                                  total: 586ms
23:
        learn: 18.8381722
                                  total: 674ms
                                                   remaining: 27.4s
24:
        learn: 18.7827105
                                  total: 679ms
                                                   remaining: 26.5s
25:
        learn: 18.7192459
                                  total: 684ms
                                                   remaining: 25.6s
26:
        learn: 18.6583877
                                  total: 772ms
                                                   remaining: 27.8s
        learn: 18.6090481
27:
                                  total: 776ms
                                                   remaining: 26.9s
```

```
28:
        learn: 18.4847540
                                  total: 780ms
                                                   remaining: 26.1s
29:
        learn: 18.4272338
                                  total: 868ms
                                                   remaining: 28.1s
        learn: 18.2925277
                                  total: 872ms
30:
                                                   remaining: 27.3s
31:
        learn: 18.2373963
                                  total: 876ms
                                                   remaining: 26.5s
32:
        learn: 18.1914400
                                  total: 877ms
                                                   remaining: 25.7s
                                                   remaining: 27.5s
33:
        learn: 18.1378932
                                  total: 968ms
34:
        learn: 18.0863628
                                  total: 972ms
                                                   remaining: 26.8s
35:
        learn: 18.0344918
                                                   remaining: 26.1s
                                  total: 976ms
        learn: 17.9777442
                                  total: 1.06s
                                                   remaining: 27.7s
36:
37:
        learn: 17.8712918
                                  total: 1.07s
                                                   remaining: 27s
38:
        learn: 17.8074121
                                  total: 1.07s
                                                   remaining: 26.4s
39:
        learn: 17.7543202
                                                   remaining: 25.8s
                                  total: 1.07s
40:
        learn: 17.6643096
                                  total: 1.16s
                                                   remaining: 27.2s
        learn: 17.6237478
                                  total: 1.17s
41:
                                                   remaining: 26.6s
42:
        learn: 17.5684976
                                  total: 1.17s
                                                   remaining: 26s
43:
        learn: 17.5233471
                                  total: 1.18s
                                                   remaining: 25.6s
44:
        learn: 17.4784718
                                  total: 1.26s
                                                   remaining: 26.8s
45:
        learn: 17.4260558
                                  total: 1.26s
                                                   remaining: 26.2s
46:
        learn: 17.3820464
                                  total: 1.27s
                                                   remaining: 25.7s
47:
        learn: 17.3241918
                                  total: 1.36s
                                                   remaining: 27s
48:
        learn: 17.2766849
                                  total: 1.36s
                                                   remaining: 26.5s
        learn: 17.2362200
49:
                                  total: 1.37s
                                                   remaining: 26s
50:
        learn: 17.1949530
                                  total: 1.46s
                                                   remaining: 27.1s
51:
        learn: 17.1180155
                                  total: 1.46s
                                                   remaining: 26.6s
52:
        learn: 17.0782338
                                  total: 1.47s
                                                   remaining: 26.2s
53:
        learn: 17.0388168
                                  total: 1.55s
                                                   remaining: 27.2s
54:
        learn: 16.9940328
                                  total: 1.56s
                                                   remaining: 26.8s
55:
        learn: 16.9507560
                                  total: 1.56s
                                                   remaining: 26.3s
        learn: 16.8585607
56:
                                  total: 1.65s
                                                   remaining: 27.3s
57:
        learn: 16.8189462
                                  total: 1.66s
                                                   remaining: 26.9s
58:
        learn: 16.7507599
                                  total: 1.66s
                                                   remaining: 26.5s
        learn: 16.7141530
59:
                                  total: 1.67s
                                                   remaining: 26.2s
        learn: 16.6781313
                                  total: 1.75s
60:
                                                   remaining: 27s
        learn: 16.5669585
61:
                                  total: 1.75s
                                                   remaining: 26.6s
62:
        learn: 16.4521018
                                  total: 1.76s
                                                   remaining: 26.2s
63:
        learn: 16.3646285
                                  total: 1.85s
                                                   remaining: 27.1s
64:
        learn: 16.3287004
                                  total: 1.85s
                                                   remaining: 26.7s
65:
        learn: 16.2877473
                                  total: 1.86s
                                                   remaining: 26.3s
66:
        learn: 16.2546820
                                  total: 1.95s
                                                   remaining: 27.1s
67:
        learn: 16.1667376
                                  total: 1.95s
                                                   remaining: 26.7s
68:
        learn: 16.1303066
                                  total: 1.96s
                                                   remaining: 26.4s
69:
        learn: 16.0990163
                                                   remaining: 26s
                                  total: 1.96s
70:
        learn: 16.0329161
                                  total: 2.04s
                                                   remaining: 26.8s
71:
        learn: 15.9314104
                                  total: 2.05s
                                                   remaining: 26.4s
72:
        learn: 15.8880040
                                                   remaining: 26.1s
                                  total: 2.05s
73:
        learn: 15.8486768
                                  total: 2.14s
                                                   remaining: 26.8s
74:
        learn: 15.8140087
                                  total: 2.15s
                                                   remaining: 26.5s
                                                   remaining: 26.1s
75:
        learn: 15.7819902
                                  total: 2.15s
76:
        learn: 15.7428112
                                  total: 2.24s
                                                   remaining: 26.8s
77:
        learn: 15.6728676
                                  total: 2.24s
                                                   remaining: 26.5s
78:
        learn: 15.5981001
                                  total: 2.25s
                                                   remaining: 26.2s
79:
        learn: 15.5585216
                                  total: 2.34s
                                                   remaining: 26.9s
80:
        learn: 15.4755765
                                  total: 2.34s
                                                   remaining: 26.6s
81:
        learn: 15.4408553
                                  total: 2.35s
                                                   remaining: 26.3s
        learn: 15.3785950
82:
                                  total: 2.35s
                                                   remaining: 26s
83:
        learn: 15.3513111
                                  total: 2.44s
                                                   remaining: 26.6s
84:
        learn: 15.2968115
                                  total: 2.44s
                                                   remaining: 26.3s
85:
        learn: 15.2208421
                                  total: 2.44s
                                                   remaining: 26s
86:
        learn: 15.1470759
                                  total: 2.54s
                                                   remaining: 26.6s
87:
        learn: 15.0516809
                                  total: 2.54s
                                                   remaining: 26.3s
        learn: 14.9839333
88:
                                  total: 2.54s
                                                   remaining: 26s
```

```
89:
        learn: 14.9579679
                                  total: 2.63s
                                                   remaining: 26.6s
90:
        learn: 14.9250207
                                  total: 2.64s
                                                   remaining: 26.3s
                                  total: 2.64s
91:
        learn: 14.8948516
                                                   remaining: 26.1s
92:
        learn: 14.8683459
                                  total: 2.73s
                                                   remaining: 26.6s
93:
        learn: 14.8426524
                                  total: 2.73s
                                                   remaining: 26.4s
        learn: 14.8062816
94:
                                  total: 2.74s
                                                   remaining: 26.1s
95:
        learn: 14.7375491
                                  total: 2.74s
                                                   remaining: 25.8s
        learn: 14.7014957
                                                   remaining: 26.4s
96:
                                  total: 2.83s
97:
        learn: 14.6768114
                                  total: 2.83s
                                                   remaining: 26.1s
        learn: 14.6507683
                                  total: 2.84s
98:
                                                   remaining: 25.8s
99:
        learn: 14.5889144
                                  total: 2.93s
                                                   remaining: 26.3s
        learn: 14.4829213
                                                   remaining: 26.1s
100:
                                  total: 2.93s
101:
        learn: 14.4166047
                                  total: 2.94s
                                                   remaining: 25.8s
        learn: 14.3644602
102:
                                  total: 3.02s
                                                   remaining: 26.3s
103:
        learn: 14.3426359
                                  total: 3.03s
                                                   remaining: 26.1s
104:
        learn: 14.2828432
                                  total: 3.03s
                                                   remaining: 25.8s
105:
        learn: 14.2147226
                                  total: 3.04s
                                                   remaining: 25.6s
106:
        learn: 14.1401115
                                  total: 3.13s
                                                   remaining: 26.1s
107:
        learn: 14.0972248
                                  total: 3.13s
                                                   remaining: 25.8s
        learn: 14.0622314
                                                   remaining: 25.6s
108:
                                  total: 3.13s
        learn: 14.0417085
                                  total: 3.22s
109:
                                                   remaining: 26.1s
        learn: 13.9843142
110:
                                  total: 3.23s
                                                   remaining: 25.9s
111:
        learn: 13.9580564
                                                   remaining: 25.6s
                                  total: 3.23s
112:
        learn: 13.9341261
                                  total: 3.32s
                                                   remaining: 26s
        learn: 13.9132425
                                  total: 3.32s
113:
                                                   remaining: 25.8s
114:
        learn: 13.8579494
                                  total: 3.33s
                                                   remaining: 25.6s
115:
        learn: 13.8345514
                                  total: 3.42s
                                                   remaining: 26s
                                                   remaining: 25.8s
        learn: 13.7834425
                                  total: 3.42s
116:
117:
        learn: 13.7084607
                                  total: 3.42s
                                                   remaining: 25.6s
                                  total: 3.51s
118:
        learn: 13.6561057
                                                   remaining: 26s
119:
        learn: 13.6138578
                                  total: 3.52s
                                                   remaining: 25.8s
        learn: 13.5891056
120:
                                  total: 3.52s
                                                   remaining: 25.6s
        learn: 13.5632890
121:
                                  total: 3.61s
                                                   remaining: 26s
122:
        learn: 13.5153987
                                  total: 3.62s
                                                   remaining: 25.8s
123:
        learn: 13.4897667
                                  total: 3.62s
                                                   remaining: 25.6s
124:
        learn: 13.4629898
                                  total: 3.63s
                                                   remaining: 25.4s
125:
        learn: 13.4356166
                                  total: 3.71s
                                                   remaining: 25.8s
126:
        learn: 13.4156929
                                  total: 3.72s
                                                   remaining: 25.6s
127:
        learn: 13.3549358
                                  total: 3.72s
                                                   remaining: 25.4s
128:
        learn: 13.3170253
                                  total: 3.81s
                                                   remaining: 25.7s
129:
        learn: 13.2968437
                                                   remaining: 25.5s
                                  total: 3.81s
        learn: 13.2311455
130:
                                  total: 3.82s
                                                   remaining: 25.3s
131:
        learn: 13.1620798
                                  total: 3.91s
                                                   remaining: 25.7s
132:
        learn: 13.0844603
                                  total: 3.91s
                                                   remaining: 25.5s
        learn: 13.0381336
                                                   remaining: 25.3s
133:
                                  total: 3.92s
134:
        learn: 13.0188674
                                  total: 4.01s
                                                   remaining: 25.7s
        learn: 13.0022255
135:
                                  total: 4.01s
                                                   remaining: 25.5s
                                                   remaining: 25.3s
136:
        learn: 12.9556658
                                  total: 4.01s
137:
        learn: 12.9111363
                                  total: 4.02s
                                                   remaining: 25.1s
138:
        learn: 12.8936994
                                  total: 4.11s
                                                   remaining: 25.4s
139:
        learn: 12.8767985
                                  total: 4.11s
                                                   remaining: 25.3s
140:
        learn: 12.8571101
                                  total: 4.11s
                                                   remaining: 25.1s
141:
        learn: 12.8184305
                                                   remaining: 25.4s
                                  total: 4.2s
        learn: 12.8028648
142:
                                  total: 4.21s
                                                   remaining: 25.2s
143:
        learn: 12.7857633
                                  total: 4.21s
                                                   remaining: 25s
144:
        learn: 12.7415238
                                                   remaining: 25.4s
                                  total: 4.3s
145:
        learn: 12.7272286
                                  total: 4.31s
                                                   remaining: 25.2s
        learn: 12.6729532
146:
                                  total: 4.31s
                                                   remaining: 25s
147:
        learn: 12.6527935
                                  total: 4.4s
                                                   remaining: 25.3s
148:
        learn: 12.5917590
                                  total: 4.4s
                                                   remaining: 25.1s
        learn: 12.5760660
149:
                                  total: 4.41s
                                                   remaining: 25s
```

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150:
        learn: 12.5546560
                                  total: 4.5s
                                                   remaining: 25.3s
151:
        learn: 12.5076462
                                  total: 4.5s
                                                   remaining: 25.1s
152:
        learn: 12.4835456
                                  total: 4.5s
                                                   remaining: 24.9s
153:
        learn: 12.4495571
                                  total: 4.59s
                                                   remaining: 25.2s
154:
        learn: 12.4054280
                                  total: 4.6s
                                                   remaining: 25.1s
        learn: 12.3923989
155:
                                  total: 4.6s
                                                   remaining: 24.9s
156:
        learn: 12.3457766
                                  total: 4.61s
                                                   remaining: 24.7s
        learn: 12.2977714
                                  total: 4.7s
                                                   remaining: 25s
157:
        learn: 12.2683129
                                  total: 4.7s
                                                   remaining: 24.9s
158:
        learn: 12.2330504
                                  total: 4.7s
                                                   remaining: 24.7s
159:
                                  total: 4.79s
160:
        learn: 12.1979180
                                                   remaining: 25s
        learn: 12.1845634
                                  total: 4.79s
                                                   remaining: 24.8s
161:
162:
        learn: 12.1662907
                                  total: 4.8s
                                                   remaining: 24.6s
        learn: 12.1544680
163:
                                  total: 4.8s
                                                   remaining: 24.5s
164:
        learn: 12.0934388
                                  total: 4.89s
                                                   remaining: 24.8s
165:
        learn: 12.0636044
                                  total: 4.9s
                                                   remaining: 24.6s
166:
        learn: 12.0428391
                                  total: 4.9s
                                                   remaining: 24.4s
167:
        learn: 12.0282205
                                  total: 4.99s
                                                   remaining: 24.7s
168:
        learn: 11.9745279
                                  total: 4.99s
                                                   remaining: 24.5s
        learn: 11.9221460
                                                   remaining: 24.4s
169:
                                  total: 5s
        learn: 11.8698922
                                  total: 5.08s
170:
                                                   remaining: 24.6s
171:
        learn: 11.8362360
                                  total: 5.09s
                                                   remaining: 24.5s
        learn: 11.8188227
                                                   remaining: 24.4s
172:
                                  total: 5.09s
173:
        learn: 11.7854422
                                  total: 5.18s
                                                   remaining: 24.6s
174:
        learn: 11.7581724
                                  total: 5.18s
                                                   remaining: 24.4s
175:
        learn: 11.7490755
                                  total: 5.19s
                                                   remaining: 24.3s
176:
        learn: 11.7052140
                                  total: 5.19s
                                                   remaining: 24.1s
177:
        learn: 11.6916295
                                  total: 5.28s
                                                   remaining: 24.4s
178:
        learn: 11.6624349
                                  total: 5.28s
                                                   remaining: 24.2s
        learn: 11.6503023
179:
                                  total: 5.29s
                                                   remaining: 24.1s
180:
        learn: 11.6134365
                                  total: 5.38s
                                                   remaining: 24.3s
        learn: 11.5813029
181:
                                  total: 5.38s
                                                   remaining: 24.2s
        learn: 11.5462569
                                  total: 5.38s
182:
                                                   remaining: 24s
                                                   remaining: 23.9s
183:
        learn: 11.5338289
                                  total: 5.39s
184:
        learn: 11.5195127
                                  total: 5.48s
                                                   remaining: 24.1s
                                                   remaining: 24s
        learn: 11.4875555
                                  total: 5.48s
185:
186:
        learn: 11.4748953
                                  total: 5.48s
                                                   remaining: 23.8s
187:
        learn: 11.4636439
                                  total: 5.57s
                                                   remaining: 24.1s
        learn: 11.4339800
                                  total: 5.58s
                                                   remaining: 23.9s
188:
189:
        learn: 11.4007239
                                  total: 5.58s
                                                   remaining: 23.8s
190:
        learn: 11.3863720
                                                   remaining: 24s
                                  total: 5.67s
        learn: 11.3733161
                                                   remaining: 23.9s
191:
                                  total: 5.67s
        learn: 11.3569486
192:
                                  total: 5.68s
                                                   remaining: 23.8s
        learn: 11.3452688
193:
                                  total: 5.77s
                                                   remaining: 24s
194:
        learn: 11.3128173
                                                   remaining: 23.8s
                                  total: 5.77s
195:
        learn: 11.2950098
                                  total: 5.78s
                                                   remaining: 23.7s
        learn: 11.2555093
                                  total: 5.78s
196:
                                                   remaining: 23.6s
                                                   remaining: 23.8s
197:
        learn: 11.2468871
                                  total: 5.87s
198:
        learn: 11.2265703
                                  total: 5.87s
                                                   remaining: 23.6s
199:
        learn: 11.2140855
                                  total: 5.88s
                                                   remaining: 23.5s
200:
        learn: 11.2031491
                                  total: 5.96s
                                                   remaining: 23.7s
201:
        learn: 11.1885118
                                  total: 5.97s
                                                   remaining: 23.6s
202:
        learn: 11.1770925
                                  total: 5.97s
                                                   remaining: 23.5s
203:
        learn: 11.1358251
                                  total: 6.06s
                                                   remaining: 23.7s
204:
        learn: 11.0959691
                                  total: 6.07s
                                                   remaining: 23.5s
205:
        learn: 11.0521584
                                                   remaining: 23.4s
                                  total: 6.07s
206:
        learn: 11.0267973
                                  total: 6.07s
                                                   remaining: 23.3s
207:
        learn: 10.9965787
                                  total: 6.16s
                                                   remaining: 23.5s
208:
        learn: 10.9856871
                                  total: 6.17s
                                                   remaining: 23.3s
209:
        learn: 10.9653421
                                  total: 6.17s
                                                   remaining: 23.2s
        learn: 10.9311480
210:
                                  total: 6.26s
                                                   remaining: 23.4s
```

```
learn: 10.8842934
211:
                                 total: 6.26s
                                                   remaining: 23.3s
212:
        learn: 10.8641098
                                 total: 6.27s
                                                   remaining: 23.2s
213:
        learn: 10.8534311
                                 total: 6.27s
                                                   remaining: 23s
214:
        learn: 10.8156370
                                 total: 6.36s
                                                   remaining: 23.2s
215:
        learn: 10.7739800
                                 total: 6.36s
                                                   remaining: 23.1s
        learn: 10.7623909
                                 total: 6.37s
216:
                                                   remaining: 23s
217:
        learn: 10.7367604
                                 total: 6.45s
                                                   remaining: 23.2s
218:
        learn: 10.7040318
                                 total: 6.46s
                                                   remaining: 23s
219:
        learn: 10.6887324
                                 total: 6.46s
                                                   remaining: 22.9s
220:
        learn: 10.6629826
                                 total: 6.55s
                                                   remaining: 23.1s
221:
        learn: 10.6553915
                                 total: 6.56s
                                                   remaining: 23s
222:
        learn: 10.6197983
                                                   remaining: 22.9s
                                 total: 6.56s
223:
        learn: 10.6099801
                                 total: 6.57s
                                                   remaining: 22.7s
224:
        learn: 10.5792280
                                 total: 6.65s
                                                   remaining: 22.9s
225:
        learn: 10.5542979
                                 total: 6.66s
                                                   remaining: 22.8s
226:
        learn: 10.5334438
                                 total: 6.66s
                                                   remaining: 22.7s
227:
        learn: 10.5265366
                                 total: 6.75s
                                                   remaining: 22.8s
228:
        learn: 10.5034356
                                 total: 6.75s
                                                   remaining: 22.7s
229:
        learn: 10.4900065
                                 total: 6.76s
                                                   remaining: 22.6s
230:
        learn: 10.4851154
                                 total: 6.76s
                                                   remaining: 22.5s
231:
        learn: 10.4791560
                                 total: 6.84s
                                                   remaining: 22.7s
        learn: 10.4670168
232:
                                 total: 6.85s
                                                   remaining: 22.5s
233:
        learn: 10.4502076
                                 total: 6.85s
                                                   remaining: 22.4s
234:
        learn: 10.4306568
                                 total: 6.86s
                                                   remaining: 22.3s
                                                   remaining: 22.5s
235:
        learn: 10.4207222
                                 total: 6.95s
236:
        learn: 10.3942174
                                 total: 6.95s
                                                   remaining: 22.4s
237:
        learn: 10.3862096
                                 total: 6.95s
                                                   remaining: 22.3s
                                                   remaining: 22.4s
238:
        learn: 10.3463794
                                 total: 7.04s
239:
        learn: 10.3398969
                                 total: 7.05s
                                                   remaining: 22.3s
        learn: 10.3322668
240:
                                 total: 7.05s
                                                   remaining: 22.2s
241:
        learn: 10.3225739
                                 total: 7.14s
                                                   remaining: 22.4s
        learn: 10.3126898
242:
                                 total: 7.14s
                                                   remaining: 22.3s
243:
        learn: 10.3050904
                                 total: 7.15s
                                                   remaining: 22.1s
244:
        learn: 10.2970564
                                 total: 7.24s
                                                   remaining: 22.3s
245:
        learn: 10.2580178
                                 total: 7.24s
                                                   remaining: 22.2s
                                 total: 7.25s
246:
        learn: 10.2493452
                                                   remaining: 22.1s
247:
        learn: 10.2433985
                                 total: 7.25s
                                                   remaining: 22s
248:
        learn: 10.2375452
                                 total: 7.34s
                                                   remaining: 22.1s
249:
        learn: 10.2203566
                                 total: 7.34s
                                                   remaining: 22s
250:
        learn: 10.2084559
                                 total: 7.35s
                                                   remaining: 21.9s
251:
        learn: 10.1877844
                                                   remaining: 22.1s
                                 total: 7.43s
252:
        learn: 10.1796322
                                 total: 7.44s
                                                   remaining: 22s
        learn: 10.1647233
253:
                                 total: 7.44s
                                                   remaining: 21.9s
        learn: 10.1600439
254:
                                 total: 7.45s
                                                   remaining: 21.8s
255:
        learn: 10.1366661
                                                   remaining: 21.9s
                                 total: 7.53s
256:
        learn: 10.1261125
                                 total: 7.54s
                                                   remaining: 21.8s
257:
        learn: 10.1176804
                                 total: 7.54s
                                                   remaining: 21.7s
                                                   remaining: 21.8s
258:
        learn: 10.0940152
                                 total: 7.63s
259:
        learn: 10.0846761
                                 total: 7.64s
                                                   remaining: 21.7s
260:
        learn: 10.0727432
                                 total: 7.64s
                                                   remaining: 21.6s
261:
        learn: 10.0438577
                                 total: 7.73s
                                                   remaining: 21.8s
262:
        learn: 10.0388899
                                 total: 7.73s
                                                   remaining: 21.7s
263:
        learn: 10.0344024
                                 total: 7.74s
                                                   remaining: 21.6s
264:
        learn: 10.0294578
                                 total: 7.83s
                                                   remaining: 21.7s
        learn: 10.0008175
265:
                                 total: 7.83s
                                                   remaining: 21.6s
266:
        learn: 9.9870681
                                                   remaining: 21.5s
                                 total: 7.83s
267:
        learn: 9.9827772
                                 total: 7.84s
                                                   remaining: 21.4s
268:
        learn: 9.9746886
                                 total: 7.92s
                                                   remaining: 21.5s
269:
        learn: 9.9700005
                                 total: 7.93s
                                                   remaining: 21.4s
270:
        learn: 9.9661063
                                 total: 7.93s
                                                   remaining: 21.3s
271:
        learn: 9.9399889
                                 total: 8.02s
                                                   remaining: 21.5s
```

```
272:
        learn: 9.9145058
                                 total: 8.03s
                                                   remaining: 21.4s
273:
        learn: 9.9031956
                                 total: 8.03s
                                                   remaining: 21.3s
274:
        learn: 9.8982201
                                 total: 8.12s
                                                   remaining: 21.4s
275:
        learn: 9.8944842
                                 total: 8.12s
                                                   remaining: 21.3s
276:
        learn: 9.8679798
                                 total: 8.13s
                                                   remaining: 21.2s
277:
        learn: 9.8265637
                                 total: 8.13s
                                                   remaining: 21.1s
278:
        learn: 9.8214755
                                 total: 8.22s
                                                   remaining: 21.2s
279:
        learn: 9.8026404
                                 total: 8.22s
                                                   remaining: 21.1s
280:
        learn: 9.7696966
                                 total: 8.23s
                                                   remaining: 21.1s
281:
        learn: 9.7589814
                                 total: 8.32s
                                                   remaining: 21.2s
        learn: 9.7531669
282:
                                 total: 8.32s
                                                   remaining: 21.1s
283:
        learn: 9.7483892
                                                   remaining: 21s
                                 total: 8.33s
284:
        learn: 9.7433745
                                 total: 8.41s
                                                   remaining: 21.1s
285:
        learn: 9.7220165
                                 total: 8.42s
                                                   remaining: 21s
286:
        learn: 9.7080535
                                 total: 8.42s
                                                   remaining: 20.9s
287:
        learn: 9.6886038
                                 total: 8.51s
                                                   remaining: 21s
288:
        learn: 9.6849431
                                 total: 8.52s
                                                   remaining: 21s
289:
        learn: 9.6805173
                                 total: 8.52s
                                                   remaining: 20.9s
290:
        learn: 9.6747289
                                 total: 8.52s
                                                   remaining: 20.8s
291:
        learn: 9.6709732
                                 total: 8.61s
                                                   remaining: 20.9s
292:
        learn: 9.6667446
                                 total: 8.62s
                                                   remaining: 20.8s
293:
        learn: 9.6604432
                                 total: 8.62s
                                                   remaining: 20.7s
294:
        learn: 9.6522681
                                 total: 8.71s
                                                   remaining: 20.8s
295:
        learn: 9.6385084
                                 total: 8.71s
                                                   remaining: 20.7s
296:
        learn: 9.6331936
                                 total: 8.72s
                                                   remaining: 20.6s
297:
        learn: 9.6280291
                                 total: 8.81s
                                                   remaining: 20.7s
298:
        learn: 9.6048768
                                 total: 8.81s
                                                   remaining: 20.7s
                                                   remaining: 20.6s
299:
        learn: 9.5799312
                                 total: 8.81s
300:
        learn: 9.5467761
                                 total: 8.9s
                                                   remaining: 20.7s
301:
        learn: 9.5152325
                                 total: 8.91s
                                                   remaining: 20.6s
302:
        learn: 9.5119553
                                 total: 8.91s
                                                   remaining: 20.5s
303:
        learn: 9.4713160
                                 total: 9s
                                                   remaining: 20.6s
304:
        learn: 9.4357113
                                 total: 9.01s
                                                   remaining: 20.5s
305:
        learn: 9.4321034
                                 total: 9.01s
                                                   remaining: 20.4s
306:
        learn: 9.4290756
                                 total: 9.01s
                                                   remaining: 20.3s
                                                   remaining: 20.5s
307:
        learn: 9.4258345
                                 total: 9.1s
308:
        learn: 9.3909720
                                 total: 9.11s
                                                   remaining: 20.4s
309:
        learn: 9.3861819
                                 total: 9.11s
                                                   remaining: 20.3s
310:
        learn: 9.3679442
                                 total: 9.2s
                                                   remaining: 20.4s
311:
        learn: 9.3647446
                                 total: 9.2s
                                                   remaining: 20.3s
                                 total: 9.21s
312:
        learn: 9.3594775
                                                   remaining: 20.2s
313:
        learn: 9.3487938
                                 total: 9.3s
                                                   remaining: 20.3s
314:
        learn: 9.3268018
                                 total: 9.3s
                                                   remaining: 20.2s
        learn: 9.3235167
315:
                                 total: 9.3s
                                                   remaining: 20.1s
                                                   remaining: 20.1s
316:
        learn: 9.3205881
                                 total: 9.31s
317:
        learn: 9.3094419
                                 total: 9.4s
                                                   remaining: 20.2s
318:
        learn: 9.3059784
                                 total: 9.4s
                                                   remaining: 20.1s
319:
        learn: 9.2790269
                                 total: 9.41s
                                                   remaining: 20s
320:
        learn: 9.2761120
                                 total: 9.5s
                                                   remaining: 20.1s
321:
        learn: 9.2596141
                                 total: 9.5s
                                                   remaining: 20s
322:
        learn: 9.2451797
                                 total: 9.5s
                                                   remaining: 19.9s
323:
        learn: 9.2405266
                                 total: 9.59s
                                                   remaining: 20s
324:
        learn: 9.2144279
                                                   remaining: 19.9s
                                 total: 9.6s
325:
        learn: 9.2119411
                                 total: 9.6s
                                                   remaining: 19.9s
        learn: 9.2090102
326:
                                 total: 9.69s
                                                   remaining: 19.9s
327:
        learn: 9.1948014
                                                   remaining: 19.9s
                                 total: 9.7s
328:
        learn: 9.1751601
                                 total: 9.7s
                                                   remaining: 19.8s
329:
        learn: 9.1415885
                                 total: 9.7s
                                                   remaining: 19.7s
330:
        learn: 9.1092323
                                 total: 9.79s
                                                   remaining: 19.8s
331:
        learn: 9.1067052
                                 total: 9.8s
                                                   remaining: 19.7s
332:
        learn: 9.0853398
                                 total: 9.8s
                                                   remaining: 19.6s
```

```
333:
        learn: 9.0555954
                                  total: 9.89s
                                                   remaining: 19.7s
334:
        learn: 9.0403429
                                  total: 9.89s
                                                   remaining: 19.6s
        learn: 9.0380035
335:
                                  total: 9.89s
                                                   remaining: 19.6s
336:
        learn: 9.0339565
                                  total: 9.98s
                                                   remaining: 19.6s
337:
        learn: 9.0315897
                                  total: 9.99s
                                                   remaining: 19.6s
338:
        learn: 9.0097094
                                  total: 9.99s
                                                   remaining: 19.5s
339:
        learn: 8.9931038
                                  total: 10.1s
                                                   remaining: 19.6s
340:
        learn: 8.9607919
                                                   remaining: 19.5s
                                  total: 10.1s
341:
        learn: 8.9396539
                                  total: 10.1s
                                                   remaining: 19.4s
342:
        learn: 8.9315635
                                  total: 10.2s
                                                   remaining: 19.5s
        learn: 8.9141868
343:
                                  total: 10.2s
                                                   remaining: 19.4s
344:
        learn: 8.8972292
                                  total: 10.2s
                                                   remaining: 19.4s
345:
        learn: 8.8824337
                                  total: 10.2s
                                                   remaining: 19.3s
        learn: 8.8708564
                                  total: 10.3s
346:
                                                   remaining: 19.3s
347:
        learn: 8.8533955
                                  total: 10.3s
                                                   remaining: 19.3s
348:
        learn: 8.8266494
                                  total: 10.3s
                                                   remaining: 19.2s
349:
        learn: 8.8224553
                                  total: 10.4s
                                                   remaining: 19.3s
350:
        learn: 8.8201910
                                  total: 10.4s
                                                   remaining: 19.2s
351:
        learn: 8.7947566
                                  total: 10.4s
                                                   remaining: 19.1s
352:
        learn: 8.7790449
                                  total: 10.5s
                                                   remaining: 19.2s
353:
        learn: 8.7564673
                                  total: 10.5s
                                                   remaining: 19.1s
354:
        learn: 8.7289850
                                  total: 10.5s
                                                   remaining: 19s
355:
        learn: 8.7048825
                                  total: 10.6s
                                                   remaining: 19.1s
356:
        learn: 8.6792952
                                  total: 10.6s
                                                   remaining: 19.1s
                                  total: 10.6s
357:
        learn: 8.6592165
                                                   remaining: 19s
358:
        learn: 8.6428272
                                  total: 10.7s
                                                   remaining: 19.1s
359:
        learn: 8.6405453
                                  total: 10.7s
                                                   remaining: 19s
360:
        learn: 8.6211256
                                  total: 10.7s
                                                   remaining: 18.9s
                                  total: 10.7s
361:
        learn: 8.5997491
                                                   remaining: 18.8s
        learn: 8.5857527
362:
                                  total: 10.8s
                                                   remaining: 18.9s
363:
        learn: 8.5758160
                                  total: 10.8s
                                                   remaining: 18.8s
                                  total: 10.8s
364:
        learn: 8.5597938
                                                   remaining: 18.8s
365:
        learn: 8.5534704
                                  total: 10.9s
                                                   remaining: 18.8s
366:
        learn: 8.5318765
                                  total: 10.9s
                                                   remaining: 18.8s
367:
        learn: 8.5076138
                                  total: 10.9s
                                                   remaining: 18.7s
                                  total: 11s
368:
        learn: 8.4897267
                                                   remaining: 18.8s
369:
        learn: 8.4765713
                                  total: 11s
                                                   remaining: 18.7s
370:
        learn: 8.4741321
                                  total: 11s
                                                   remaining: 18.6s
371:
        learn: 8.4720581
                                  total: 11.1s
                                                   remaining: 18.7s
        learn: 8.4606336
                                  total: 11.1s
372:
                                                   remaining: 18.6s
373:
        learn: 8.4362384
                                  total: 11.1s
                                                   remaining: 18.5s
374:
        learn: 8.4218785
                                  total: 11.2s
                                                   remaining: 18.6s
375:
        learn: 8.4101798
                                  total: 11.2s
                                                   remaining: 18.5s
        learn: 8.3763856
376:
                                  total: 11.2s
                                                   remaining: 18.5s
377:
        learn: 8.3542896
                                                   remaining: 18.5s
                                  total: 11.3s
378:
        learn: 8.3527514
                                  total: 11.3s
                                                   remaining: 18.5s
379:
        learn: 8.3412505
                                  total: 11.3s
                                                   remaining: 18.4s
                                                   remaining: 18.3s
380:
        learn: 8.3273593
                                  total: 11.3s
381:
        learn: 8.3128688
                                  total: 11.4s
                                                   remaining: 18.4s
382:
        learn: 8.3114183
                                  total: 11.4s
                                                   remaining: 18.3s
383:
        learn: 8.2818314
                                  total: 11.4s
                                                   remaining: 18.2s
        learn: 8.2695382
384:
                                  total: 11.5s
                                                   remaining: 18.3s
385:
        learn: 8.2583186
                                  total: 11.5s
                                                   remaining: 18.2s
386:
        learn: 8.2332678
                                  total: 11.5s
                                                   remaining: 18.2s
        learn: 8.2230424
387:
                                  total: 11.6s
                                                   remaining: 18.2s
388:
        learn: 8.2114856
                                                   remaining: 18.2s
                                  total: 11.6s
389:
        learn: 8.1993416
                                  total: 11.6s
                                                   remaining: 18.1s
390:
        learn: 8.1718356
                                  total: 11.7s
                                                   remaining: 18.1s
391:
        learn: 8.1459537
                                  total: 11.7s
                                                   remaining: 18.1s
392:
        learn: 8.1356475
                                  total: 11.7s
                                                   remaining: 18s
        learn: 8.1246870
393:
                                  total: 11.7s
                                                   remaining: 17.9s
```

```
learn: 8.1173161
394:
                                  total: 11.8s
                                                   remaining: 18s
395:
        learn: 8.1073595
                                  total: 11.8s
                                                   remaining: 17.9s
        learn: 8.0885674
                                  total: 11.8s
396:
                                                   remaining: 17.9s
397:
        learn: 8.0577292
                                  total: 11.8s
                                                   remaining: 17.9s
398:
        learn: 8.0294794
                                  total: 11.9s
                                                   remaining: 17.9s
        learn: 8.0159006
399:
                                  total: 11.9s
                                                   remaining: 17.8s
400:
        learn: 8.0001106
                                  total: 11.9s
                                                   remaining: 17.8s
401:
        learn: 7.9700758
                                                   remaining: 17.8s
                                  total: 12s
402:
        learn: 7.9617035
                                                   remaining: 17.7s
                                  total: 12s
403:
        learn: 7.9501694
                                  total: 12s
                                                   remaining: 17.8s
404:
        learn: 7.9339473
                                  total: 12.1s
                                                   remaining: 17.7s
405:
        learn: 7.9077287
                                                   remaining: 17.6s
                                  total: 12.1s
406:
        learn: 7.8868400
                                  total: 12.1s
                                                   remaining: 17.7s
407:
        learn: 7.8581566
                                  total: 12.1s
                                                   remaining: 17.6s
408:
        learn: 7.8522714
                                  total: 12.2s
                                                   remaining: 17.6s
409:
        learn: 7.8509316
                                  total: 12.2s
                                                   remaining: 17.6s
410:
        learn: 7.8322323
                                  total: 12.2s
                                                   remaining: 17.5s
411:
        learn: 7.8048840
                                  total: 12.2s
                                                   remaining: 17.5s
412:
        learn: 7.8004444
                                  total: 12.3s
                                                   remaining: 17.5s
413:
        learn: 7.7971067
                                  total: 12.3s
                                                   remaining: 17.5s
414:
        learn: 7.7875202
                                  total: 12.3s
                                                   remaining: 17.4s
415:
        learn: 7.7598204
                                  total: 12.3s
                                                   remaining: 17.3s
416:
        learn: 7.7346322
                                  total: 12.4s
                                                   remaining: 17.4s
417:
        learn: 7.7293704
                                  total: 12.4s
                                                   remaining: 17.3s
        learn: 7.7014092
                                  total: 12.4s
418:
                                                   remaining: 17.3s
419:
        learn: 7.6837252
                                  total: 12.5s
                                                   remaining: 17.3s
420:
        learn: 7.6663316
                                  total: 12.5s
                                                   remaining: 17.2s
421:
        learn: 7.6443415
                                  total: 12.6s
                                                   remaining: 17.2s
422:
        learn: 7.6290057
                                  total: 12.6s
                                                   remaining: 17.2s
423:
        learn: 7.6060961
                                  total: 12.6s
                                                   remaining: 17.2s
424:
        learn: 7.5954329
                                  total: 12.6s
                                                   remaining: 17.1s
                                  total: 12.7s
        learn: 7.5865456
425:
                                                   remaining: 17.2s
426:
        learn: 7.5715130
                                  total: 12.7s
                                                   remaining: 17.1s
427:
        learn: 7.5612998
                                  total: 12.7s
                                                   remaining: 17s
428:
        learn: 7.5426065
                                  total: 12.8s
                                                   remaining: 17.1s
429:
                                  total: 12.8s
        learn: 7.5280598
                                                   remaining: 17s
430:
        learn: 7.5200529
                                  total: 12.8s
                                                   remaining: 16.9s
431:
        learn: 7.5145174
                                  total: 12.9s
                                                   remaining: 17s
432:
        learn: 7.4993638
                                  total: 12.9s
                                                   remaining: 16.9s
433:
        learn: 7.4849998
                                  total: 12.9s
                                                   remaining: 16.9s
434:
        learn: 7.4768738
                                                   remaining: 16.9s
                                  total: 13s
435:
        learn: 7.4738471
                                  total: 13s
                                                   remaining: 16.9s
        learn: 7.4626698
436:
                                  total: 13s
                                                   remaining: 16.8s
437:
        learn: 7.4524103
                                  total: 13.1s
                                                   remaining: 16.8s
438:
        learn: 7.4452093
                                  total: 13.1s
                                                   remaining: 16.8s
439:
        learn: 7.4318940
                                  total: 13.1s
                                                   remaining: 16.7s
440:
        learn: 7.4075328
                                  total: 13.2s
                                                   remaining: 16.8s
441:
        learn: 7.3906678
                                  total: 13.2s
                                                   remaining: 16.7s
442:
        learn: 7.3793676
                                  total: 13.2s
                                                   remaining: 16.6s
443:
        learn: 7.3713424
                                  total: 13.3s
                                                   remaining: 16.7s
444:
        learn: 7.3595055
                                  total: 13.3s
                                                   remaining: 16.6s
445:
        learn: 7.3455479
                                  total: 13.3s
                                                   remaining: 16.6s
446:
        learn: 7.3355432
                                  total: 13.4s
                                                   remaining: 16.6s
447:
        learn: 7.3252813
                                  total: 13.4s
                                                   remaining: 16.5s
448:
        learn: 7.3234914
                                  total: 13.4s
                                                   remaining: 16.5s
449:
        learn: 7.3025272
                                                   remaining: 16.4s
                                  total: 13.4s
450:
        learn: 7.3000366
                                  total: 13.5s
                                                   remaining: 16.5s
451:
        learn: 7.2846104
                                  total: 13.5s
                                                   remaining: 16.4s
452:
        learn: 7.2749419
                                  total: 13.5s
                                                   remaining: 16.3s
453:
        learn: 7.2525365
                                  total: 13.6s
                                                   remaining: 16.4s
454:
        learn: 7.2361149
                                  total: 13.6s
                                                   remaining: 16.3s
```

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455:
        learn: 7.2194030
                                  total: 13.6s
                                                   remaining: 16.3s
456:
        learn: 7.2116203
                                  total: 13.7s
                                                   remaining: 16.3s
457:
        learn: 7.2102549
                                  total: 13.7s
                                                   remaining: 16.2s
458:
        learn: 7.1925672
                                  total: 13.7s
                                                   remaining: 16.2s
459:
        learn: 7.1827879
                                  total: 13.8s
                                                   remaining: 16.2s
460:
        learn: 7.1790418
                                  total: 13.8s
                                                   remaining: 16.2s
461:
        learn: 7.1693468
                                  total: 13.8s
                                                   remaining: 16.1s
462:
        learn: 7.1668145
                                                   remaining: 16.1s
                                  total: 13.9s
463:
        learn: 7.1657278
                                  total: 13.9s
                                                   remaining: 16.1s
464:
        learn: 7.1486710
                                  total: 13.9s
                                                   remaining: 16s
465:
        learn: 7.1340515
                                  total: 13.9s
                                                   remaining: 16s
466:
        learn: 7.1229109
                                                   remaining: 16s
                                  total: 14s
467:
        learn: 7.1072859
                                  total: 14s
                                                   remaining: 15.9s
        learn: 7.0902080
                                  total: 14s
468:
                                                   remaining: 15.9s
469:
        learn: 7.0806867
                                  total: 14.1s
                                                   remaining: 15.9s
470:
        learn: 7.0719418
                                  total: 14.1s
                                                   remaining: 15.8s
471:
        learn: 7.0618447
                                  total: 14.1s
                                                   remaining: 15.8s
472:
        learn: 7.0474159
                                  total: 14.2s
                                                   remaining: 15.8s
473:
        learn: 7.0394040
                                  total: 14.2s
                                                   remaining: 15.8s
474:
        learn: 7.0321980
                                  total: 14.2s
                                                   remaining: 15.7s
475:
        learn: 7.0148784
                                  total: 14.3s
                                                   remaining: 15.7s
476:
        learn: 7.0135497
                                  total: 14.3s
                                                   remaining: 15.7s
477:
        learn: 7.0008183
                                  total: 14.3s
                                                   remaining: 15.6s
478:
        learn: 6.9873947
                                  total: 14.4s
                                                   remaining: 15.7s
479:
        learn: 6.9831441
                                  total: 14.4s
                                                   remaining: 15.6s
480:
        learn: 6.9658239
                                  total: 14.4s
                                                   remaining: 15.5s
481:
        learn: 6.9593677
                                  total: 14.5s
                                                   remaining: 15.6s
482:
        learn: 6.9501308
                                  total: 14.5s
                                                   remaining: 15.5s
483:
        learn: 6.9452511
                                  total: 14.5s
                                                   remaining: 15.5s
484:
        learn: 6.9307872
                                  total: 14.6s
                                                   remaining: 15.5s
485:
        learn: 6.9225737
                                  total: 14.6s
                                                   remaining: 15.4s
                                  total: 14.6s
486:
        learn: 6.8966177
                                                   remaining: 15.4s
487:
        learn: 6.8853042
                                  total: 14.7s
                                                   remaining: 15.4s
488:
        learn: 6.8744742
                                  total: 14.7s
                                                   remaining: 15.4s
489:
        learn: 6.8633230
                                  total: 14.7s
                                                   remaining: 15.3s
                                  total: 14.8s
490:
        learn: 6.8496817
                                                   remaining: 15.3s
491:
        learn: 6.8403412
                                  total: 14.8s
                                                   remaining: 15.3s
492:
        learn: 6.8313872
                                  total: 14.8s
                                                   remaining: 15.2s
493:
        learn: 6.8181795
                                  total: 14.9s
                                                   remaining: 15.3s
                                  total: 14.9s
494:
        learn: 6.8085811
                                                   remaining: 15.2s
495:
        learn: 6.7864854
                                  total: 14.9s
                                                   remaining: 15.1s
496:
        learn: 6.7735951
                                  total: 14.9s
                                                   remaining: 15.1s
497:
                                  total: 15s
        learn: 6.7651277
                                                   remaining: 15.1s
        learn: 6.7574398
498:
                                  total: 15s
                                                   remaining: 15.1s
                                                   remaining: 15s
499:
        learn: 6.7389859
                                  total: 15s
500:
        learn: 6.7303482
                                  total: 15.1s
                                                   remaining: 15s
501:
        learn: 6.7224496
                                  total: 15.1s
                                                   remaining: 15s
                                                   remaining: 14.9s
502:
        learn: 6.7211676
                                  total: 15.1s
503:
        learn: 6.7172590
                                  total: 15.2s
                                                   remaining: 14.9s
504:
        learn: 6.7055540
                                  total: 15.2s
                                                   remaining: 14.9s
505:
        learn: 6.6971776
                                  total: 15.2s
                                                   remaining: 14.8s
506:
        learn: 6.6859720
                                  total: 15.3s
                                                   remaining: 14.9s
507:
        learn: 6.6753289
                                                   remaining: 14.8s
                                  total: 15.3s
508:
        learn: 6.6625258
                                  total: 15.3s
                                                   remaining: 14.7s
509:
        learn: 6.6533671
                                  total: 15.3s
                                                   remaining: 14.7s
510:
        learn: 6.6343027
                                                   remaining: 14.7s
                                  total: 15.4s
511:
        learn: 6.6104321
                                  total: 15.4s
                                                   remaining: 14.7s
512:
        learn: 6.6016963
                                  total: 15.4s
                                                   remaining: 14.6s
513:
        learn: 6.6006183
                                  total: 15.5s
                                                   remaining: 14.6s
514:
        learn: 6.5935847
                                  total: 15.5s
                                                   remaining: 14.6s
        learn: 6.5851738
515:
                                  total: 15.5s
                                                   remaining: 14.5s
```

```
learn: 6.5767627
516:
                                  total: 15.6s
                                                   remaining: 14.6s
517:
        learn: 6.5650284
                                  total: 15.6s
                                                   remaining: 14.5s
                                  total: 15.6s
518:
        learn: 6.5542021
                                                   remaining: 14.4s
519:
        learn: 6.5422781
                                  total: 15.7s
                                                   remaining: 14.5s
520:
        learn: 6.5359687
                                  total: 15.7s
                                                   remaining: 14.4s
521:
        learn: 6.5267569
                                  total: 15.7s
                                                   remaining: 14.4s
522:
        learn: 6.5246304
                                  total: 15.7s
                                                   remaining: 14.3s
523:
        learn: 6.5186139
                                                   remaining: 14.3s
                                  total: 15.8s
524:
        learn: 6.5094982
                                  total: 15.8s
                                                   remaining: 14.3s
525:
        learn: 6.4927699
                                  total: 15.8s
                                                   remaining: 14.2s
        learn: 6.4847507
526:
                                  total: 15.9s
                                                   remaining: 14.2s
527:
        learn: 6.4741560
                                                   remaining: 14.2s
                                  total: 15.9s
528:
        learn: 6.4524171
                                  total: 15.9s
                                                   remaining: 14.1s
529:
        learn: 6.4434087
                                  total: 16s
                                                   remaining: 14.2s
530:
        learn: 6.4410717
                                  total: 16s
                                                   remaining: 14.1s
531:
        learn: 6.4344042
                                  total: 16s
                                                   remaining: 14.1s
        learn: 6.4267200
532:
                                  total: 16.1s
                                                   remaining: 14.1s
533:
        learn: 6.4164601
                                  total: 16.1s
                                                   remaining: 14s
534:
        learn: 6.4155698
                                  total: 16.1s
                                                   remaining: 14s
535:
        learn: 6.4088238
                                  total: 16.1s
                                                   remaining: 13.9s
        learn: 6.4076408
                                  total: 16.2s
536:
                                                   remaining: 13.9s
537:
        learn: 6.3971989
                                  total: 16.2s
                                                   remaining: 13.9s
538:
        learn: 6.3864113
                                  total: 16.2s
                                                   remaining: 13.8s
539:
        learn: 6.3853206
                                  total: 16.3s
                                                   remaining: 13.9s
540:
        learn: 6.3651879
                                  total: 16.3s
                                                   remaining: 13.8s
541:
        learn: 6.3638747
                                  total: 16.3s
                                                   remaining: 13.7s
542:
        learn: 6.3567141
                                  total: 16.4s
                                                   remaining: 13.8s
543:
        learn: 6.3431205
                                  total: 16.4s
                                                   remaining: 13.7s
                                  total: 16.4s
544:
        learn: 6.3315469
                                                   remaining: 13.7s
545:
        learn: 6.3253112
                                  total: 16.5s
                                                   remaining: 13.7s
546:
        learn: 6.3205183
                                  total: 16.5s
                                                   remaining: 13.6s
                                  total: 16.5s
547:
        learn: 6.3101348
                                                   remaining: 13.6s
548:
        learn: 6.3084503
                                  total: 16.6s
                                                   remaining: 13.6s
549:
        learn: 6.2891679
                                  total: 16.6s
                                                   remaining: 13.5s
550:
        learn: 6.2792038
                                  total: 16.6s
                                                   remaining: 13.5s
                                  total: 16.6s
551:
        learn: 6.2622921
                                                   remaining: 13.4s
552:
        learn: 6.2555852
                                  total: 16.7s
                                                   remaining: 13.5s
553:
        learn: 6.2413693
                                  total: 16.7s
                                                   remaining: 13.4s
554:
        learn: 6.2310957
                                  total: 16.7s
                                                   remaining: 13.4s
555:
                                  total: 16.8s
        learn: 6.2173000
                                                   remaining: 13.4s
556:
        learn: 6.2050135
                                  total: 16.8s
                                                   remaining: 13.3s
557:
        learn: 6.1959529
                                  total: 16.8s
                                                   remaining: 13.3s
558:
        learn: 6.1882191
                                  total: 16.9s
                                                   remaining: 13.3s
559:
        learn: 6.1801888
                                  total: 16.9s
                                                   remaining: 13.2s
                                                   remaining: 13.2s
560:
        learn: 6.1705503
                                  total: 16.9s
561:
        learn: 6.1656093
                                  total: 16.9s
                                                   remaining: 13.2s
        learn: 6.1579100
                                  total: 17s
562:
                                                   remaining: 13.2s
563:
                                                   remaining: 13.1s
        learn: 6.1483599
                                  total: 17s
564:
        learn: 6.1406518
                                  total: 17s
                                                   remaining: 13.1s
        learn: 6.1383559
565:
                                  total: 17s
                                                   remaining: 13.1s
566:
        learn: 6.1247620
                                  total: 17.1s
                                                   remaining: 13s
567:
        learn: 6.1147546
                                  total: 17.1s
                                                   remaining: 13s
568:
        learn: 6.1039280
                                  total: 17.1s
                                                   remaining: 13s
569:
        learn: 6.0935934
                                  total: 17.1s
                                                   remaining: 12.9s
570:
        learn: 6.0837695
                                  total: 17.2s
                                                   remaining: 12.9s
571:
        learn: 6.0713340
                                                   remaining: 12.9s
                                  total: 17.2s
572:
        learn: 6.0596762
                                  total: 17.2s
                                                   remaining: 12.9s
573:
        learn: 6.0441367
                                  total: 17.3s
                                                   remaining: 12.8s
574:
        learn: 6.0378497
                                  total: 17.3s
                                                   remaining: 12.8s
575:
        learn: 6.0331346
                                  total: 17.3s
                                                   remaining: 12.8s
        learn: 6.0198006
576:
                                  total: 17.3s
                                                   remaining: 12.7s
```

```
learn: 6.0182302
577:
                                  total: 17.4s
                                                   remaining: 12.7s
578:
        learn: 6.0038370
                                  total: 17.4s
                                                   remaining: 12.7s
579:
                                  total: 17.4s
        learn: 6.0028061
                                                   remaining: 12.6s
580:
        learn: 5.9936721
                                  total: 17.5s
                                                   remaining: 12.6s
581:
        learn: 5.9832032
                                  total: 17.5s
                                                   remaining: 12.6s
        learn: 5.9795168
                                  total: 17.5s
582:
                                                   remaining: 12.5s
583:
        learn: 5.9661993
                                  total: 17.6s
                                                   remaining: 12.6s
584:
        learn: 5.9584618
                                  total: 17.6s
                                                   remaining: 12.5s
585:
        learn: 5.9542336
                                  total: 17.6s
                                                   remaining: 12.5s
        learn: 5.9408460
                                  total: 17.7s
586:
                                                   remaining: 12.5s
        learn: 5.9312958
587:
                                  total: 17.7s
                                                   remaining: 12.4s
588:
        learn: 5.9248463
                                                   remaining: 12.4s
                                  total: 17.7s
589:
        learn: 5.9182678
                                  total: 17.7s
                                                   remaining: 12.3s
        learn: 5.9167718
                                  total: 17.8s
590:
                                                   remaining: 12.3s
591:
        learn: 5.9108634
                                  total: 17.8s
                                                   remaining: 12.3s
592:
        learn: 5.9063298
                                  total: 17.8s
                                                   remaining: 12.2s
593:
        learn: 5.9014572
                                  total: 17.9s
                                                   remaining: 12.3s
594:
        learn: 5.8923914
                                  total: 17.9s
                                                   remaining: 12.2s
595:
        learn: 5.8830986
                                  total: 17.9s
                                                   remaining: 12.2s
596:
        learn: 5.8702318
                                  total: 18s
                                                   remaining: 12.2s
597:
        learn: 5.8634034
                                  total: 18s
                                                   remaining: 12.1s
598:
        learn: 5.8627076
                                  total: 18s
                                                   remaining: 12.1s
599:
        learn: 5.8499601
                                  total: 18.1s
                                                   remaining: 12.1s
600:
        learn: 5.8466137
                                  total: 18.1s
                                                   remaining: 12s
601:
        learn: 5.8350045
                                  total: 18.1s
                                                   remaining: 12s
602:
        learn: 5.8267634
                                  total: 18.2s
                                                   remaining: 12s
603:
        learn: 5.8164803
                                  total: 18.2s
                                                   remaining: 11.9s
604:
        learn: 5.8074741
                                  total: 18.2s
                                                   remaining: 11.9s
                                  total: 18.3s
605:
        learn: 5.7984476
                                                   remaining: 11.9s
        learn: 5.7869828
606:
                                  total: 18.3s
                                                   remaining: 11.9s
607:
        learn: 5.7791064
                                  total: 18.3s
                                                   remaining: 11.8s
                                  total: 18.4s
608:
        learn: 5.7709324
                                                   remaining: 11.8s
609:
        learn: 5.7650520
                                  total: 18.4s
                                                   remaining: 11.8s
610:
        learn: 5.7535797
                                  total: 18.4s
                                                   remaining: 11.7s
611:
        learn: 5.7479519
                                  total: 18.5s
                                                   remaining: 11.7s
                                  total: 18.5s
612:
        learn: 5.7386191
                                                   remaining: 11.7s
613:
        learn: 5.7346767
                                  total: 18.5s
                                                   remaining: 11.6s
614:
        learn: 5.7280990
                                  total: 18.6s
                                                   remaining: 11.7s
615:
        learn: 5.7198865
                                  total: 18.6s
                                                   remaining: 11.6s
616:
        learn: 5.7052370
                                  total: 18.6s
                                                   remaining: 11.6s
617:
        learn: 5.6964433
                                  total: 18.7s
                                                   remaining: 11.6s
        learn: 5.6831801
618:
                                  total: 18.7s
                                                   remaining: 11.5s
        learn: 5.6762828
                                  total: 18.7s
619:
                                                   remaining: 11.5s
        learn: 5.6688860
620:
                                  total: 18.8s
                                                   remaining: 11.5s
621:
        learn: 5.6674072
                                                   remaining: 11.4s
                                  total: 18.8s
622:
        learn: 5.6622024
                                  total: 18.8s
                                                   remaining: 11.4s
623:
        learn: 5.6531593
                                  total: 18.9s
                                                   remaining: 11.4s
                                                   remaining: 11.3s
624:
        learn: 5.6406474
                                  total: 18.9s
625:
        learn: 5.6263737
                                  total: 18.9s
                                                   remaining: 11.3s
626:
        learn: 5.6171811
                                  total: 19s
                                                   remaining: 11.3s
627:
        learn: 5.6105980
                                  total: 19s
                                                   remaining: 11.3s
628:
        learn: 5.6020032
                                  total: 19s
                                                   remaining: 11.2s
629:
        learn: 5.5971852
                                  total: 19.1s
                                                   remaining: 11.2s
630:
        learn: 5.5901944
                                  total: 19.1s
                                                   remaining: 11.2s
        learn: 5.5844045
631:
                                  total: 19.1s
                                                   remaining: 11.1s
632:
        learn: 5.5765452
                                  total: 19.2s
                                                   remaining: 11.1s
633:
        learn: 5.5685784
                                  total: 19.2s
                                                   remaining: 11.1s
634:
        learn: 5.5560284
                                  total: 19.2s
                                                   remaining: 11s
635:
        learn: 5.5533430
                                  total: 19.3s
                                                   remaining: 11s
636:
        learn: 5.5438941
                                  total: 19.3s
                                                   remaining: 11s
637:
        learn: 5.5365792
                                  total: 19.3s
                                                   remaining: 11s
```

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638:
        learn: 5.5193978
                                  total: 19.3s
                                                   remaining: 10.9s
639:
        learn: 5.5084713
                                  total: 19.4s
                                                   remaining: 10.9s
        learn: 5.4980525
                                  total: 19.4s
640:
                                                   remaining: 10.9s
641:
        learn: 5.4844186
                                  total: 19.4s
                                                   remaining: 10.8s
642:
        learn: 5.4771238
                                  total: 19.5s
                                                   remaining: 10.8s
643:
        learn: 5.4653431
                                  total: 19.5s
                                                   remaining: 10.8s
644:
        learn: 5.4597142
                                  total: 19.5s
                                                   remaining: 10.7s
645:
        learn: 5.4511701
                                  total: 19.6s
                                                   remaining: 10.7s
646:
        learn: 5.4338148
                                  total: 19.6s
                                                   remaining: 10.7s
647:
        learn: 5.4280673
                                  total: 19.6s
                                                   remaining: 10.6s
        learn: 5.4193824
                                  total: 19.7s
648:
                                                   remaining: 10.7s
649:
        learn: 5.4106618
                                  total: 19.7s
                                                   remaining: 10.6s
650:
        learn: 5.4012373
                                  total: 19.7s
                                                   remaining: 10.6s
        learn: 5.3985275
                                  total: 19.8s
651:
                                                   remaining: 10.6s
652:
        learn: 5.3843152
                                  total: 19.8s
                                                   remaining: 10.5s
653:
        learn: 5.3802545
                                  total: 19.8s
                                                   remaining: 10.5s
654:
        learn: 5.3762516
                                  total: 19.9s
                                                   remaining: 10.5s
655:
        learn: 5.3714949
                                  total: 19.9s
                                                   remaining: 10.4s
656:
        learn: 5.3646674
                                  total: 19.9s
                                                   remaining: 10.4s
657:
        learn: 5.3570881
                                  total: 19.9s
                                                   remaining: 10.3s
        learn: 5.3550185
                                  total: 20s
658:
                                                   remaining: 10.3s
659:
        learn: 5.3454107
                                  total: 20s
                                                   remaining: 10.3s
660:
        learn: 5.3401501
                                  total: 20s
                                                   remaining: 10.3s
661:
        learn: 5.3301309
                                  total: 20.1s
                                                   remaining: 10.3s
                                  total: 20.1s
662:
        learn: 5.3203051
                                                   remaining: 10.2s
663:
        learn: 5.3091861
                                  total: 20.1s
                                                   remaining: 10.2s
664:
        learn: 5.2989080
                                  total: 20.2s
                                                   remaining: 10.2s
                                                   remaining: 10.1s
665:
        learn: 5.2855537
                                  total: 20.2s
                                  total: 20.2s
666:
        learn: 5.2792175
                                                   remaining: 10.1s
        learn: 5.2640563
667:
                                  total: 20.3s
                                                   remaining: 10.1s
668:
        learn: 5.2627626
                                  total: 20.3s
                                                   remaining: 10s
                                  total: 20.3s
669:
        learn: 5.2587935
                                                   remaining: 9.99s
670:
        learn: 5.2528657
                                  total: 20.4s
                                                   remaining: 9.99s
                                                   remaining: 9.95s
671:
        learn: 5.2453022
                                  total: 20.4s
672:
        learn: 5.2367802
                                  total: 20.4s
                                                   remaining: 9.9s
                                  total: 20.5s
                                                   remaining: 9.9s
673:
        learn: 5.2354477
674:
        learn: 5.2189742
                                  total: 20.5s
                                                   remaining: 9.86s
675:
        learn: 5.2076413
                                  total: 20.5s
                                                   remaining: 9.82s
676:
        learn: 5.2038324
                                  total: 20.6s
                                                   remaining: 9.81s
                                  total: 20.6s
677:
        learn: 5.2015896
                                                   remaining: 9.77s
        learn: 5.1928291
                                  total: 20.6s
                                                   remaining: 9.73s
678:
679:
        learn: 5.1868461
                                  total: 20.7s
                                                   remaining: 9.73s
        learn: 5.1796496
                                  total: 20.7s
680:
                                                   remaining: 9.68s
        learn: 5.1775416
                                  total: 20.7s
681:
                                                   remaining: 9.64s
                                                   remaining: 9.6s
682:
        learn: 5.1728059
                                  total: 20.7s
683:
        learn: 5.1592448
                                  total: 20.8s
                                                   remaining: 9.6s
        learn: 5.1574570
                                  total: 20.8s
684:
                                                   remaining: 9.55s
                                                   remaining: 9.51s
685:
        learn: 5.1508374
                                  total: 20.8s
686:
        learn: 5.1458993
                                  total: 20.9s
                                                   remaining: 9.51s
687:
        learn: 5.1426722
                                  total: 20.9s
                                                   remaining: 9.46s
                                  total: 20.9s
688:
        learn: 5.1358474
                                                   remaining: 9.42s
689:
        learn: 5.1294269
                                  total: 21s
                                                   remaining: 9.42s
690:
        learn: 5.1232727
                                  total: 21s
                                                   remaining: 9.38s
        learn: 5.1187894
691:
                                  total: 21s
                                                   remaining: 9.34s
        learn: 5.1174129
692:
                                  total: 21.1s
                                                   remaining: 9.33s
693:
        learn: 5.1119415
                                  total: 21.1s
                                                   remaining: 9.29s
694:
        learn: 5.0992050
                                  total: 21.1s
                                                   remaining: 9.25s
695:
        learn: 5.0861397
                                  total: 21.2s
                                                   remaining: 9.24s
696:
        learn: 5.0815947
                                  total: 21.2s
                                                   remaining: 9.2s
697:
        learn: 5.0719279
                                  total: 21.2s
                                                   remaining: 9.16s
698:
        learn: 5.0666424
                                  total: 21.3s
                                                   remaining: 9.15s
```

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699:
        learn: 5.0567209
                                  total: 21.3s
                                                   remaining: 9.11s
700:
        learn: 5.0553077
                                  total: 21.3s
                                                   remaining: 9.07s
        learn: 5.0452944
                                  total: 21.4s
701:
                                                   remaining: 9.06s
702:
        learn: 5.0352115
                                  total: 21.4s
                                                   remaining: 9.02s
703:
        learn: 5.0205642
                                  total: 21.4s
                                                   remaining: 8.98s
704:
        learn: 5.0142565
                                  total: 21.4s
                                                   remaining: 8.94s
705:
        learn: 5.0082235
                                  total: 21.5s
                                                   remaining: 8.93s
706:
        learn: 4.9932712
                                  total: 21.5s
                                                   remaining: 8.89s
707:
        learn: 4.9875447
                                  total: 21.5s
                                                   remaining: 8.85s
708:
        learn: 4.9787138
                                  total: 21.6s
                                                   remaining: 8.85s
709:
        learn: 4.9714906
                                  total: 21.6s
                                                   remaining: 8.81s
710:
        learn: 4.9604436
                                  total: 21.6s
                                                   remaining: 8.77s
711:
        learn: 4.9550980
                                  total: 21.7s
                                                   remaining: 8.76s
712:
        learn: 4.9446919
                                  total: 21.7s
                                                   remaining: 8.72s
713:
        learn: 4.9365200
                                  total: 21.7s
                                                   remaining: 8.68s
714:
        learn: 4.9302903
                                  total: 21.7s
                                                   remaining: 8.67s
715:
        learn: 4.9251667
                                  total: 21.8s
                                                   remaining: 8.63s
716:
        learn: 4.9231326
                                  total: 21.8s
                                                   remaining: 8.59s
717:
        learn: 4.9128922
                                  total: 21.8s
                                                   remaining: 8.58s
718:
        learn: 4.9084845
                                  total: 21.9s
                                                   remaining: 8.54s
719:
        learn: 4.9026659
                                  total: 21.9s
                                                   remaining: 8.5s
720:
        learn: 4.8898123
                                  total: 21.9s
                                                   remaining: 8.49s
721:
        learn: 4.8790541
                                  total: 21.9s
                                                   remaining: 8.45s
722:
        learn: 4.8756133
                                  total: 22s
                                                   remaining: 8.41s
                                  total: 22s
723:
        learn: 4.8749900
                                                   remaining: 8.4s
724:
        learn: 4.8717257
                                  total: 22s
                                                   remaining: 8.36s
725:
        learn: 4.8692254
                                  total: 22.1s
                                                   remaining: 8.32s
                                                   remaining: 8.31s
726:
        learn: 4.8610542
                                  total: 22.1s
                                  total: 22.1s
727:
        learn: 4.8556605
                                                   remaining: 8.27s
728:
        learn: 4.8467048
                                  total: 22.1s
                                                   remaining: 8.23s
729:
        learn: 4.8374177
                                  total: 22.2s
                                                   remaining: 8.22s
                                  total: 22.2s
730:
        learn: 4.8229226
                                                   remaining: 8.19s
731:
        learn: 4.8221161
                                  total: 22.3s
                                                   remaining: 8.15s
732:
        learn: 4.8181464
                                  total: 22.3s
                                                   remaining: 8.13s
        learn: 4.8077781
733:
                                  total: 22.3s
                                                   remaining: 8.1s
                                  total: 22.3s
                                                   remaining: 8.06s
734:
        learn: 4.7959006
735:
        learn: 4.7859800
                                  total: 22.4s
                                                   remaining: 8.02s
736:
        learn: 4.7717133
                                  total: 22.4s
                                                   remaining: 8.01s
737:
        learn: 4.7631266
                                  total: 22.4s
                                                   remaining: 7.97s
738:
        learn: 4.7587893
                                  total: 22.4s
                                                   remaining: 7.93s
739:
        learn: 4.7450850
                                  total: 22.5s
                                                   remaining: 7.92s
740:
        learn: 4.7360924
                                  total: 22.5s
                                                   remaining: 7.88s
741:
        learn: 4.7296876
                                  total: 22.5s
                                                   remaining: 7.84s
742:
        learn: 4.7213812
                                  total: 22.6s
                                                   remaining: 7.83s
743:
        learn: 4.7202299
                                  total: 22.6s
                                                   remaining: 7.79s
744:
        learn: 4.7097612
                                  total: 22.6s
                                                   remaining: 7.75s
745:
        learn: 4.7040801
                                  total: 22.7s
                                                   remaining: 7.74s
                                                   remaining: 7.7s
746:
        learn: 4.6992553
                                  total: 22.7s
747:
        learn: 4.6945906
                                  total: 22.7s
                                                   remaining: 7.66s
748:
        learn: 4.6938310
                                  total: 22.8s
                                                   remaining: 7.65s
749:
        learn: 4.6852118
                                  total: 22.8s
                                                   remaining: 7.61s
750:
        learn: 4.6786940
                                  total: 22.8s
                                                   remaining: 7.57s
751:
        learn: 4.6777881
                                  total: 22.9s
                                                   remaining: 7.56s
                                  total: 22.9s
752:
        learn: 4.6682081
                                                   remaining: 7.52s
753:
                                  total: 22.9s
        learn: 4.6629780
                                                   remaining: 7.48s
754:
        learn: 4.6552806
                                  total: 22.9s
                                                   remaining: 7.44s
755:
        learn: 4.6463760
                                  total: 23s
                                                   remaining: 7.43s
756:
        learn: 4.6415528
                                  total: 23s
                                                   remaining: 7.39s
757:
        learn: 4.6404373
                                  total: 23s
                                                   remaining: 7.36s
758:
        learn: 4.6397909
                                  total: 23.1s
                                                   remaining: 7.34s
759:
                                  total: 23.1s
        learn: 4.6297153
                                                   remaining: 7.3s
```

```
760:
        learn: 4.6291340
                                  total: 23.1s
                                                   remaining: 7.26s
761:
        learn: 4.6212461
                                  total: 23.2s
                                                   remaining: 7.25s
762:
        learn: 4.6127784
                                  total: 23.2s
                                                   remaining: 7.21s
763:
        learn: 4.6025973
                                  total: 23.2s
                                                   remaining: 7.17s
764:
        learn: 4.5995705
                                  total: 23.3s
                                                   remaining: 7.16s
765:
        learn: 4.5948338
                                  total: 23.3s
                                                   remaining: 7.12s
766:
        learn: 4.5922434
                                  total: 23.3s
                                                   remaining: 7.08s
767:
        learn: 4.5877214
                                  total: 23.4s
                                                   remaining: 7.07s
768:
        learn: 4.5800293
                                  total: 23.4s
                                                   remaining: 7.03s
769:
        learn: 4.5717105
                                  total: 23.4s
                                                   remaining: 7s
770:
        learn: 4.5653801
                                  total: 23.5s
                                                   remaining: 6.98s
771:
        learn: 4.5567550
                                  total: 23.5s
                                                   remaining: 6.95s
772:
        learn: 4.5562513
                                  total: 23.5s
                                                   remaining: 6.91s
773:
        learn: 4.5480341
                                  total: 23.6s
                                                   remaining: 6.89s
774:
        learn: 4.5401482
                                  total: 23.6s
                                                   remaining: 6.86s
775:
        learn: 4.5322818
                                  total: 23.6s
                                                   remaining: 6.82s
                                                   remaining: 6.8s
776:
        learn: 4.5210552
                                  total: 23.7s
                                  total: 23.7s
777:
        learn: 4.5165712
                                                   remaining: 6.77s
778:
        learn: 4.5158327
                                  total: 23.7s
                                                   remaining: 6.73s
779:
        learn: 4.5074818
                                  total: 23.8s
                                                   remaining: 6.71s
780:
        learn: 4.4996947
                                  total: 23.8s
                                                   remaining: 6.68s
781:
        learn: 4.4890303
                                  total: 23.8s
                                                   remaining: 6.64s
782:
        learn: 4.4792706
                                  total: 23.9s
                                                   remaining: 6.62s
783:
        learn: 4.4752004
                                  total: 23.9s
                                                   remaining: 6.59s
                                  total: 23.9s
784:
        learn: 4.4671228
                                                   remaining: 6.55s
785:
        learn: 4.4667028
                                  total: 23.9s
                                                   remaining: 6.51s
786:
        learn: 4.4589939
                                  total: 24s
                                                   remaining: 6.5s
                                                   remaining: 6.46s
787:
        learn: 4.4479992
                                  total: 24s
                                  total: 24s
788:
        learn: 4.4445668
                                                   remaining: 6.42s
789:
        learn: 4.4373562
                                  total: 24.1s
                                                   remaining: 6.41s
790:
        learn: 4.4356503
                                  total: 24.1s
                                                   remaining: 6.37s
791:
        learn: 4.4272642
                                  total: 24.1s
                                                   remaining: 6.33s
                                                   remaining: 6.29s
792:
        learn: 4.4176823
                                  total: 24.1s
        learn: 4.4172045
793:
                                  total: 24.2s
                                                   remaining: 6.28s
794:
        learn: 4.4067470
                                  total: 24.2s
                                                   remaining: 6.24s
795:
        learn: 4.4008612
                                  total: 24.2s
                                                   remaining: 6.2s
796:
        learn: 4.3982042
                                  total: 24.3s
                                                   remaining: 6.19s
797:
        learn: 4.3967220
                                  total: 24.3s
                                                   remaining: 6.15s
798:
        learn: 4.3855785
                                  total: 24.3s
                                                   remaining: 6.11s
                                  total: 24.3s
799:
        learn: 4.3749619
                                                   remaining: 6.08s
800:
        learn: 4.3622366
                                  total: 24.4s
                                                   remaining: 6.06s
801:
        learn: 4.3601444
                                  total: 24.4s
                                                   remaining: 6.02s
        learn: 4.3534775
                                  total: 24.4s
802:
                                                   remaining: 5.99s
        learn: 4.3528348
                                  total: 24.5s
803:
                                                   remaining: 5.97s
804:
        learn: 4.3507162
                                  total: 24.5s
                                                   remaining: 5.93s
805:
        learn: 4.3405754
                                  total: 24.5s
                                                   remaining: 5.9s
        learn: 4.3348910
                                  total: 24.6s
806:
                                                   remaining: 5.88s
                                                   remaining: 5.84s
807:
        learn: 4.3289272
                                  total: 24.6s
808:
        learn: 4.3211040
                                  total: 24.6s
                                                   remaining: 5.81s
809:
        learn: 4.3152508
                                  total: 24.7s
                                                   remaining: 5.79s
810:
        learn: 4.3082200
                                  total: 24.7s
                                                   remaining: 5.75s
811:
        learn: 4.2989753
                                  total: 24.7s
                                                   remaining: 5.72s
812:
        learn: 4.2912632
                                  total: 24.8s
                                                   remaining: 5.7s
813:
        learn: 4.2797283
                                  total: 24.8s
                                                   remaining: 5.66s
814:
        learn: 4.2750276
                                  total: 24.8s
                                                   remaining: 5.63s
815:
        learn: 4.2691135
                                  total: 24.8s
                                                   remaining: 5.59s
816:
        learn: 4.2629455
                                  total: 24.9s
                                                   remaining: 5.58s
                                  total: 24.9s
817:
        learn: 4.2590786
                                                   remaining: 5.54s
818:
        learn: 4.2521447
                                  total: 24.9s
                                                   remaining: 5.5s
819:
        learn: 4.2483690
                                  total: 25s
                                                   remaining: 5.48s
        learn: 4.2469490
820:
                                  total: 25s
                                                   remaining: 5.45s
```

```
total: 25s
821:
        learn: 4.2403724
                                                   remaining: 5.41s
822:
        learn: 4.2373615
                                  total: 25.1s
                                                   remaining: 5.39s
823:
        learn: 4.2366254
                                  total: 25.1s
                                                   remaining: 5.36s
824:
        learn: 4.2310517
                                  total: 25.1s
                                                   remaining: 5.32s
825:
        learn: 4.2268180
                                  total: 25.2s
                                                   remaining: 5.3s
                                  total: 25.2s
826:
        learn: 4.2241815
                                                   remaining: 5.27s
827:
        learn: 4.2200929
                                  total: 25.2s
                                                   remaining: 5.23s
828:
        learn: 4.2157098
                                  total: 25.3s
                                                   remaining: 5.21s
829:
        learn: 4.2084072
                                  total: 25.3s
                                                   remaining: 5.18s
830:
        learn: 4.2036981
                                  total: 25.3s
                                                   remaining: 5.14s
        learn: 4.1978972
                                  total: 25.4s
831:
                                                   remaining: 5.12s
832:
        learn: 4.1879414
                                  total: 25.4s
                                                   remaining: 5.09s
833:
        learn: 4.1764683
                                  total: 25.4s
                                                   remaining: 5.05s
834:
        learn: 4.1661306
                                  total: 25.4s
                                                   remaining: 5.02s
835:
        learn: 4.1588799
                                  total: 25.5s
                                                   remaining: 5s
836:
        learn: 4.1523619
                                  total: 25.5s
                                                   remaining: 4.96s
837:
        learn: 4.1514842
                                  total: 25.5s
                                                   remaining: 4.93s
838:
        learn: 4.1471375
                                  total: 25.6s
                                                   remaining: 4.91s
839:
        learn: 4.1465451
                                  total: 25.6s
                                                   remaining: 4.87s
840:
        learn: 4.1396372
                                  total: 25.6s
                                                   remaining: 4.84s
841:
        learn: 4.1327221
                                  total: 25.7s
                                                   remaining: 4.82s
842:
        learn: 4.1302688
                                  total: 25.7s
                                                   remaining: 4.78s
843:
        learn: 4.1232671
                                  total: 25.7s
                                                   remaining: 4.75s
844:
        learn: 4.1146689
                                  total: 25.8s
                                                   remaining: 4.73s
                                  total: 25.8s
845:
        learn: 4.1037351
                                                   remaining: 4.69s
846:
        learn: 4.1026119
                                  total: 25.8s
                                                   remaining: 4.66s
847:
        learn: 4.0933306
                                  total: 25.9s
                                                   remaining: 4.64s
848:
        learn: 4.0843857
                                  total: 25.9s
                                                   remaining: 4.6s
                                  total: 25.9s
849:
        learn: 4.0734748
                                                   remaining: 4.57s
850:
        learn: 4.0654650
                                  total: 26s
                                                   remaining: 4.55s
851:
        learn: 4.0553283
                                  total: 26s
                                                   remaining: 4.51s
                                  total: 26s
852:
        learn: 4.0539046
                                                   remaining: 4.48s
853:
        learn: 4.0479943
                                  total: 26s
                                                   remaining: 4.44s
854:
        learn: 4.0401480
                                  total: 26.1s
                                                   remaining: 4.42s
        learn: 4.0385800
855:
                                  total: 26.1s
                                                   remaining: 4.38s
                                  total: 26.1s
856:
        learn: 4.0346116
                                                   remaining: 4.35s
857:
        learn: 4.0282442
                                  total: 26.2s
                                                   remaining: 4.33s
858:
        learn: 4.0236984
                                  total: 26.2s
                                                   remaining: 4.29s
859:
        learn: 4.0210505
                                  total: 26.2s
                                                   remaining: 4.26s
                                  total: 26.3s
860:
        learn: 4.0148233
                                                   remaining: 4.24s
861:
        learn: 4.0082831
                                  total: 26.3s
                                                   remaining: 4.2s
862:
        learn: 4.0039074
                                  total: 26.3s
                                                   remaining: 4.17s
        learn: 4.0000653
                                  total: 26.4s
863:
                                                   remaining: 4.15s
        learn: 3.9959281
864:
                                  total: 26.4s
                                                   remaining: 4.11s
                                                   remaining: 4.08s
865:
        learn: 3.9907005
                                  total: 26.4s
866:
        learn: 3.9829364
                                  total: 26.5s
                                                   remaining: 4.06s
867:
        learn: 3.9814398
                                  total: 26.5s
                                                   remaining: 4.02s
                                                   remaining: 3.99s
868:
        learn: 3.9742869
                                  total: 26.5s
869:
        learn: 3.9664451
                                  total: 26.5s
                                                   remaining: 3.95s
870:
        learn: 3.9642540
                                  total: 26.5s
                                                   remaining: 3.93s
871:
        learn: 3.9598284
                                  total: 26.6s
                                                   remaining: 3.9s
872:
        learn: 3.9515222
                                  total: 26.6s
                                                   remaining: 3.86s
873:
        learn: 3.9452690
                                  total: 26.6s
                                                   remaining: 3.84s
874:
        learn: 3.9376127
                                  total: 26.7s
                                                   remaining: 3.81s
875:
        learn: 3.9372349
                                  total: 26.7s
                                                   remaining: 3.77s
876:
        learn: 3.9330429
                                  total: 26.7s
                                                   remaining: 3.74s
877:
        learn: 3.9297398
                                  total: 26.7s
                                                   remaining: 3.72s
878:
        learn: 3.9268080
                                  total: 26.8s
                                                   remaining: 3.68s
879:
        learn: 3.9202597
                                  total: 26.8s
                                                   remaining: 3.66s
880:
        learn: 3.9157937
                                  total: 26.8s
                                                   remaining: 3.63s
        learn: 3.9078886
                                  total: 26.9s
881:
                                                   remaining: 3.59s
```

```
learn: 3.9032498
882:
                                  total: 26.9s
                                                   remaining: 3.56s
883:
        learn: 3.8948681
                                  total: 26.9s
                                                   remaining: 3.54s
        learn: 3.8889752
                                  total: 26.9s
884:
                                                   remaining: 3.5s
885:
        learn: 3.8821971
                                  total: 27s
                                                   remaining: 3.47s
886:
        learn: 3.8769531
                                  total: 27s
                                                   remaining: 3.43s
887:
        learn: 3.8729740
                                  total: 27s
                                                   remaining: 3.41s
888:
        learn: 3.8650767
                                  total: 27s
                                                   remaining: 3.38s
889:
        learn: 3.8603382
                                  total: 27.1s
                                                   remaining: 3.35s
890:
        learn: 3.8586008
                                  total: 27.1s
                                                   remaining: 3.32s
        learn: 3.8517578
                                  total: 27.1s
891:
                                                   remaining: 3.29s
892:
        learn: 3.8426664
                                  total: 27.1s
                                                   remaining: 3.25s
893:
        learn: 3.8400032
                                  total: 27.2s
                                                   remaining: 3.23s
894:
        learn: 3.8317915
                                  total: 27.2s
                                                   remaining: 3.19s
895:
        learn: 3.8258997
                                  total: 27.2s
                                                   remaining: 3.16s
896:
        learn: 3.8226437
                                  total: 27.3s
                                                   remaining: 3.14s
897:
        learn: 3.8194912
                                  total: 27.3s
                                                   remaining: 3.1s
898:
        learn: 3.8161375
                                  total: 27.3s
                                                   remaining: 3.07s
899:
        learn: 3.8093822
                                  total: 27.4s
                                                   remaining: 3.05s
900:
        learn: 3.8020290
                                  total: 27.4s
                                                   remaining: 3.01s
901:
        learn: 3.7981024
                                  total: 27.4s
                                                   remaining: 2.98s
902:
        learn: 3.7954901
                                  total: 27.5s
                                                   remaining: 2.96s
903:
        learn: 3.7912477
                                  total: 27.5s
                                                   remaining: 2.92s
904:
        learn: 3.7860647
                                  total: 27.5s
                                                   remaining: 2.89s
905:
        learn: 3.7814696
                                  total: 27.6s
                                                   remaining: 2.87s
                                  total: 27.6s
906:
        learn: 3.7755223
                                                   remaining: 2.83s
907:
        learn: 3.7713836
                                  total: 27.6s
                                                   remaining: 2.8s
908:
        learn: 3.7679535
                                  total: 27.7s
                                                   remaining: 2.77s
909:
        learn: 3.7674934
                                  total: 27.7s
                                                   remaining: 2.74s
                                  total: 27.7s
910:
        learn: 3.7624533
                                                   remaining: 2.71s
911:
        learn: 3.7552210
                                  total: 27.8s
                                                   remaining: 2.68s
912:
        learn: 3.7525529
                                  total: 27.8s
                                                   remaining: 2.65s
        learn: 3.7463242
                                  total: 27.8s
913:
                                                   remaining: 2.62s
914:
        learn: 3.7423187
                                  total: 27.9s
                                                   remaining: 2.59s
915:
        learn: 3.7393477
                                  total: 27.9s
                                                   remaining: 2.56s
916:
        learn: 3.7283656
                                  total: 27.9s
                                                   remaining: 2.53s
        learn: 3.7227245
                                  total: 28s
                                                   remaining: 2.5s
917:
918:
        learn: 3.7207544
                                  total: 28s
                                                   remaining: 2.47s
919:
        learn: 3.7166547
                                  total: 28s
                                                   remaining: 2.44s
920:
        learn: 3.7114626
                                  total: 28s
                                                   remaining: 2.4s
921:
        learn: 3.7069301
                                  total: 28.1s
                                                   remaining: 2.38s
922:
        learn: 3.7035280
                                  total: 28.1s
                                                   remaining: 2.35s
923:
        learn: 3.6998939
                                  total: 28.1s
                                                   remaining: 2.31s
924:
        learn: 3.6949564
                                  total: 28.2s
                                                   remaining: 2.29s
925:
        learn: 3.6899952
                                  total: 28.2s
                                                   remaining: 2.25s
926:
        learn: 3.6834388
                                  total: 28.2s
                                                   remaining: 2.22s
927:
        learn: 3.6810999
                                  total: 28.3s
                                                   remaining: 2.2s
928:
        learn: 3.6763121
                                  total: 28.3s
                                                   remaining: 2.16s
                                                   remaining: 2.13s
929:
        learn: 3.6706816
                                  total: 28.3s
930:
        learn: 3.6641586
                                  total: 28.4s
                                                   remaining: 2.1s
931:
        learn: 3.6564687
                                  total: 28.4s
                                                   remaining: 2.07s
932:
        learn: 3.6525882
                                  total: 28.4s
                                                   remaining: 2.04s
933:
        learn: 3.6487273
                                  total: 28.5s
                                                   remaining: 2.01s
934:
        learn: 3.6427725
                                  total: 28.5s
                                                   remaining: 1.98s
935:
        learn: 3.6424589
                                  total: 28.5s
                                                   remaining: 1.95s
        learn: 3.6415639
936:
                                  total: 28.6s
                                                   remaining: 1.92s
937:
        learn: 3.6346382
                                  total: 28.6s
                                                   remaining: 1.89s
938:
        learn: 3.6343011
                                  total: 28.6s
                                                   remaining: 1.86s
939:
        learn: 3.6275540
                                  total: 28.7s
                                                   remaining: 1.83s
940:
        learn: 3.6232540
                                  total: 28.7s
                                                   remaining: 1.8s
941:
        learn: 3.6173070
                                  total: 28.7s
                                                   remaining: 1.77s
942:
        learn: 3.6148011
                                  total: 28.8s
                                                   remaining: 1.74s
```

```
943:
        learn: 3.6071993
                                  total: 28.8s
                                                   remaining: 1.71s
944:
        learn: 3.6048447
                                  total: 28.8s
                                                   remaining: 1.68s
945:
        learn: 3.5994663
                                  total: 28.9s
                                                   remaining: 1.65s
946:
        learn: 3.5981871
                                  total: 28.9s
                                                   remaining: 1.62s
947:
        learn: 3.5968506
                                  total: 28.9s
                                                   remaining: 1.58s
948:
        learn: 3.5926532
                                  total: 28.9s
                                                   remaining: 1.55s
949:
        learn: 3.5884138
                                  total: 29s
                                                   remaining: 1.53s
950:
        learn: 3.5832936
                                  total: 29s
                                                   remaining: 1.49s
951:
        learn: 3.5778448
                                  total: 29s
                                                   remaining: 1.46s
952:
        learn: 3.5747630
                                  total: 29.1s
                                                   remaining: 1.44s
                                  total: 29.1s
953:
        learn: 3.5684402
                                                   remaining: 1.4s
954:
        learn: 3.5667559
                                  total: 29.1s
                                                   remaining: 1.37s
955:
        learn: 3.5614603
                                  total: 29.2s
                                                   remaining: 1.34s
        learn: 3.5584421
                                  total: 29.2s
956:
                                                   remaining: 1.31s
957:
        learn: 3.5537559
                                  total: 29.2s
                                                   remaining: 1.28s
958:
        learn: 3.5492287
                                  total: 29.2s
                                                   remaining: 1.25s
959:
        learn: 3.5467679
                                  total: 29.3s
                                                   remaining: 1.22s
960:
        learn: 3.5429327
                                  total: 29.3s
                                                   remaining: 1.19s
961:
        learn: 3.5367613
                                  total: 29.3s
                                                   remaining: 1.16s
962:
        learn: 3.5324024
                                  total: 29.4s
                                                   remaining: 1.13s
        learn: 3.5318096
                                  total: 29.4s
963:
                                                   remaining: 1.1s
964:
        learn: 3.5272514
                                  total: 29.4s
                                                   remaining: 1.07s
965:
        learn: 3.5235017
                                  total: 29.5s
                                                   remaining: 1.04s
966:
        learn: 3.5159353
                                  total: 29.5s
                                                   remaining: 1.01s
                                  total: 29.5s
967:
        learn: 3.5142866
                                                   remaining: 975ms
968:
        learn: 3.5070608
                                  total: 29.6s
                                                   remaining: 947ms
969:
        learn: 3.5010598
                                  total: 29.6s
                                                   remaining: 915ms
970:
        learn: 3.4971132
                                  total: 29.6s
                                                   remaining: 884ms
                                  total: 29.7s
971:
        learn: 3.4936104
                                                   remaining: 855ms
                                  total: 29.7s
                                                   remaining: 824ms
972:
        learn: 3.4884391
973:
        learn: 3.4814241
                                  total: 29.7s
                                                   remaining: 793ms
974:
        learn: 3.4754643
                                  total: 29.8s
                                                   remaining: 764ms
975:
        learn: 3.4736096
                                  total: 29.8s
                                                   remaining: 733ms
                                                   remaining: 701ms
976:
        learn: 3.4668901
                                  total: 29.8s
        learn: 3.4614145
977:
                                  total: 29.8s
                                                   remaining: 670ms
        learn: 3.4565564
                                  total: 29.9s
978:
                                                   remaining: 641ms
979:
        learn: 3.4470556
                                  total: 29.9s
                                                   remaining: 610ms
                                                   remaining: 579ms
980:
        learn: 3.4399800
                                  total: 29.9s
981:
        learn: 3.4375886
                                  total: 30s
                                                   remaining: 550ms
982:
        learn: 3.4364951
                                  total: 30s
                                                   remaining: 519ms
                                  total: 30s
983:
        learn: 3.4334512
                                                   remaining: 488ms
984:
        learn: 3.4294743
                                  total: 30.1s
                                                   remaining: 458ms
        learn: 3.4248108
                                  total: 30.1s
985:
                                                   remaining: 427ms
        learn: 3.4214283
                                  total: 30.1s
986:
                                                   remaining: 396ms
987:
        learn: 3.4157576
                                  total: 30.2s
                                                   remaining: 367ms
988:
        learn: 3.4095945
                                  total: 30.2s
                                                   remaining: 336ms
989:
        learn: 3.4071637
                                  total: 30.2s
                                                   remaining: 305ms
                                                   remaining: 274ms
990:
        learn: 3.4050153
                                  total: 30.2s
991:
        learn: 3.4014958
                                  total: 30.3s
                                                   remaining: 244ms
992:
        learn: 3.3944616
                                  total: 30.3s
                                                   remaining: 213ms
993:
        learn: 3.3881168
                                  total: 30.3s
                                                   remaining: 183ms
994:
        learn: 3.3835236
                                  total: 30.4s
                                                   remaining: 153ms
995:
        learn: 3.3808227
                                  total: 30.4s
                                                   remaining: 122ms
        learn: 3.3777068
996:
                                  total: 30.4s
                                                   remaining: 91.4ms
                                  total: 30.5s
997:
        learn: 3.3731354
                                                   remaining: 61.1ms
998:
        learn: 3.3649182
                                  total: 30.5s
                                                   remaining: 30.5ms
999:
        learn: 3.3587226
                                  total: 30.5s
                                                   remaining: Ous
0:
        learn: 14.4037316
                                  total: 4.24ms
                                                   remaining: 4.24s
1:
        learn: 14.0075632
                                  total: 8.93ms
                                                   remaining: 4.46s
2:
        learn: 13.6755736
                                  total: 12.6ms
                                                   remaining: 4.2s
        learn: 13.3998094
                                  total: 53.2ms
                                                   remaining: 13.2s
```

```
4:
        learn: 13.1148474
                                  total: 57.2ms
                                                   remaining: 11.4s
5:
        learn: 12.8841867
                                  total: 61.3ms
                                                   remaining: 10.2s
        learn: 12.6517203
                                  total: 151ms
6:
                                                   remaining: 21.5s
7:
        learn: 12.4307908
                                  total: 155ms
                                                   remaining: 19.3s
8:
        learn: 12.2391694
                                  total: 159ms
                                                   remaining: 17.5s
9:
        learn: 12.0510432
                                  total: 249ms
                                                   remaining: 24.7s
10:
        learn: 11.8600803
                                  total: 254ms
                                                   remaining: 22.9s
        learn: 11.7036188
                                  total: 258ms
                                                   remaining: 21.3s
11:
        learn: 11.5459107
                                  total: 348ms
                                                   remaining: 26.4s
12:
        learn: 11.3907789
                                  total: 353ms
13:
                                                   remaining: 24.8s
        learn: 11.2583122
                                  total: 357ms
14:
                                                   remaining: 23.4s
15:
        learn: 11.1116132
                                  total: 446ms
                                                   remaining: 27.4s
16:
        learn: 11.0238656
                                  total: 451ms
                                                   remaining: 26.1s
        learn: 10.9255917
                                  total: 542ms
17:
                                                   remaining: 29.6s
18:
        learn: 10.8178126
                                  total: 548ms
                                                   remaining: 28.3s
19:
        learn: 10.7285051
                                  total: 552ms
                                                   remaining: 27.1s
20:
        learn: 10.6355689
                                  total: 556ms
                                                   remaining: 25.9s
        learn: 10.5524927
21:
                                  total: 642ms
                                                   remaining: 28.5s
22:
        learn: 10.4494046
                                  total: 646ms
                                                   remaining: 27.4s
23:
        learn: 10.3743281
                                  total: 652ms
                                                   remaining: 26.5s
24:
        learn: 10.3019634
                                  total: 740ms
                                                   remaining: 28.8s
25:
        learn: 10.2608493
                                  total: 744ms
                                                   remaining: 27.9s
26:
        learn: 10.1744349
                                  total: 748ms
                                                   remaining: 26.9s
        learn: 10.1144141
27:
                                  total: 835ms
                                                   remaining: 29s
                                  total: 840ms
28:
        learn: 10.0323665
                                                   remaining: 28.1s
29:
        learn: 9.9480409
                                  total: 844ms
                                                   remaining: 27.3s
30:
        learn: 9.8787517
                                  total: 934ms
                                                   remaining: 29.2s
31:
        learn: 9.8233620
                                  total: 939ms
                                                   remaining: 28.4s
32:
        learn: 9.7623081
                                  total: 943ms
                                                   remaining: 27.6s
        learn: 9.7146156
33:
                                  total: 1.03s
                                                   remaining: 29.3s
34:
        learn: 9.6649734
                                  total: 1.04s
                                                   remaining: 28.8s
        learn: 9.6190610
35:
                                  total: 1.05s
                                                   remaining: 28.1s
                                                   remaining: 29.4s
36:
        learn: 9.5682698
                                  total: 1.13s
37:
                                                   remaining: 28.7s
        learn: 9.5116501
                                  total: 1.13s
        learn: 9.4677709
38:
                                  total: 1.14s
                                                   remaining: 28.1s
39:
        learn: 9.4153845
                                  total: 1.14s
                                                   remaining: 27.5s
40:
        learn: 9.3916455
                                  total: 1.23s
                                                   remaining: 28.8s
        learn: 9.3652317
41:
                                  total: 1.23s
                                                   remaining: 28.2s
42:
        learn: 9.3424176
                                  total: 1.24s
                                                   remaining: 27.6s
43:
        learn: 9.2970252
                                  total: 1.32s
                                                   remaining: 28.8s
        learn: 9.2479582
44:
                                  total: 1.33s
                                                   remaining: 28.2s
45:
        learn: 9.2197258
                                                   remaining: 27.7s
                                  total: 1.33s
46:
        learn: 9.1834501
                                  total: 1.42s
                                                   remaining: 28.9s
        learn: 9.1392835
47:
                                  total: 1.43s
                                                   remaining: 28.3s
48:
        learn: 9.1025595
                                  total: 1.43s
                                                   remaining: 27.8s
49:
        learn: 9.0763141
                                  total: 1.52s
                                                   remaining: 28.9s
50:
        learn: 9.0309604
                                  total: 1.52s
                                                   remaining: 28.4s
51:
        learn: 8.9821775
                                  total: 1.53s
                                                   remaining: 27.9s
52:
        learn: 8.9393899
                                  total: 1.62s
                                                   remaining: 29s
                                  total: 1.63s
53:
        learn: 8.9018928
                                                   remaining: 28.5s
54:
        learn: 8.8684886
                                  total: 1.63s
                                                   remaining: 28s
55:
        learn: 8.8179464
                                  total: 1.72s
                                                   remaining: 29s
56:
        learn: 8.7514977
                                  total: 1.72s
                                                   remaining: 28.5s
57:
        learn: 8.7035424
                                  total: 1.73s
                                                   remaining: 28.1s
58:
        learn: 8.6481073
                                  total: 1.82s
                                                   remaining: 29s
59:
        learn: 8.6149921
                                  total: 1.82s
                                                   remaining: 28.6s
60:
        learn: 8.5846849
                                  total: 1.83s
                                                   remaining: 28.2s
        learn: 8.5459441
                                  total: 1.92s
                                                   remaining: 29s
61:
62:
        learn: 8.5028671
                                  total: 1.92s
                                                   remaining: 28.6s
63:
        learn: 8.4371682
                                  total: 1.92s
                                                   remaining: 28.1s
        learn: 8.3853486
64:
                                  total: 2.01s
                                                   remaining: 28.9s
```

```
65:
        learn: 8.3318222
                                  total: 2.02s
                                                   remaining: 28.5s
66:
        learn: 8.3083700
                                  total: 2.02s
                                                   remaining: 28.2s
        learn: 8.2773910
                                  total: 2.11s
67:
                                                   remaining: 28.9s
68:
        learn: 8.2410002
                                  total: 2.12s
                                                   remaining: 28.5s
69:
        learn: 8.2106974
                                  total: 2.12s
                                                   remaining: 28.2s
70:
        learn: 8.1836983
                                  total: 2.21s
                                                   remaining: 28.9s
71:
        learn: 8.1343884
                                  total: 2.21s
                                                   remaining: 28.5s
72:
        learn: 8.1222964
                                  total: 2.21s
                                                   remaining: 28.1s
73:
        learn: 8.0800920
                                  total: 2.3s
                                                   remaining: 28.8s
74:
        learn: 8.0335564
                                  total: 2.31s
                                                   remaining: 28.5s
75:
        learn: 7.9671372
                                  total: 2.31s
                                                   remaining: 28.1s
76:
        learn: 7.9262934
                                                   remaining: 28.8s
                                  total: 2.4s
77:
        learn: 7.8983033
                                  total: 2.41s
                                                   remaining: 28.5s
78:
        learn: 7.8611168
                                  total: 2.41s
                                                   remaining: 28.1s
79:
        learn: 7.8112572
                                  total: 2.42s
                                                   remaining: 27.8s
80:
        learn: 7.7695650
                                  total: 2.5s
                                                   remaining: 28.4s
81:
        learn: 7.7461372
                                  total: 2.51s
                                                   remaining: 28.1s
82:
        learn: 7.7395701
                                  total: 2.51s
                                                   remaining: 27.7s
83:
        learn: 7.6919540
                                  total: 2.6s
                                                   remaining: 28.4s
84:
        learn: 7.6521513
                                  total: 2.6s
                                                   remaining: 28s
85:
        learn: 7.6157924
                                  total: 2.61s
                                                   remaining: 27.8s
86:
        learn: 7.5584505
                                  total: 2.7s
                                                   remaining: 28.3s
87:
        learn: 7.5099580
                                  total: 2.7s
                                                   remaining: 28s
88:
        learn: 7.4528346
                                  total: 2.71s
                                                   remaining: 27.7s
        learn: 7.4326544
                                                   remaining: 28.3s
89:
                                  total: 2.8s
90:
        learn: 7.4032852
                                  total: 2.8s
                                                   remaining: 28s
91:
        learn: 7.3573903
                                  total: 2.8s
                                                   remaining: 27.7s
92:
        learn: 7.3468607
                                  total: 2.89s
                                                   remaining: 28.2s
93:
        learn: 7.3394555
                                  total: 2.9s
                                                   remaining: 27.9s
94:
        learn: 7.3293982
                                  total: 2.9s
                                                   remaining: 27.6s
95:
        learn: 7.2768487
                                  total: 2.99s
                                                   remaining: 28.2s
        learn: 7.2448125
96:
                                  total: 3s
                                                   remaining: 27.9s
97:
        learn: 7.2082700
                                  total: 3s
                                                   remaining: 27.6s
98:
        learn: 7.1388126
                                  total: 3s
                                                   remaining: 27.3s
        learn: 7.1298762
99:
                                  total: 3.09s
                                                   remaining: 27.8s
        learn: 7.0731597
                                                   remaining: 27.5s
100:
                                  total: 3.1s
101:
        learn: 7.0104270
                                  total: 3.1s
                                                   remaining: 27.3s
        learn: 7.0038402
102:
                                  total: 3.19s
                                                   remaining: 27.8s
103:
        learn: 6.9862717
                                  total: 3.19s
                                                   remaining: 27.5s
104:
        learn: 6.9321254
                                  total: 3.2s
                                                   remaining: 27.3s
105:
        learn: 6.8898737
                                                   remaining: 27.7s
                                  total: 3.29s
        learn: 6.8520703
106:
                                  total: 3.29s
                                                   remaining: 27.5s
        learn: 6.8324478
107:
                                  total: 3.3s
                                                   remaining: 27.2s
        learn: 6.7855073
108:
                                  total: 3.38s
                                                   remaining: 27.7s
109:
        learn: 6.7801693
                                  total: 3.39s
                                                   remaining: 27.4s
110:
        learn: 6.7389613
                                  total: 3.39s
                                                   remaining: 27.2s
        learn: 6.7077935
                                  total: 3.48s
111:
                                                   remaining: 27.6s
                                                   remaining: 27.3s
112:
        learn: 6.6604840
                                  total: 3.48s
113:
        learn: 6.6553304
                                  total: 3.49s
                                                   remaining: 27.1s
        learn: 6.6494002
114:
                                  total: 3.58s
                                                   remaining: 27.5s
115:
        learn: 6.5803863
                                  total: 3.58s
                                                   remaining: 27.3s
116:
        learn: 6.5276856
                                  total: 3.59s
                                                   remaining: 27.1s
117:
        learn: 6.4805941
                                  total: 3.59s
                                                   remaining: 26.8s
118:
        learn: 6.4507619
                                  total: 3.68s
                                                   remaining: 27.2s
        learn: 6.4364438
119:
                                  total: 3.68s
                                                   remaining: 27s
120:
        learn: 6.4228209
                                                   remaining: 26.8s
                                  total: 3.69s
121:
        learn: 6.4178877
                                  total: 3.78s
                                                   remaining: 27.2s
122:
        learn: 6.3769938
                                  total: 3.78s
                                                   remaining: 27s
123:
        learn: 6.3415060
                                  total: 3.79s
                                                   remaining: 26.7s
124:
        learn: 6.3079879
                                  total: 3.87s
                                                   remaining: 27.1s
        learn: 6.2847038
125:
                                  total: 3.88s
                                                   remaining: 26.9s
```

```
learn: 6.2381364
126:
                                  total: 3.88s
                                                   remaining: 26.7s
127:
        learn: 6.2080257
                                  total: 3.97s
                                                   remaining: 27s
                                  total: 3.97s
128:
        learn: 6.1855612
                                                   remaining: 26.8s
129:
        learn: 6.1423840
                                  total: 3.98s
                                                   remaining: 26.6s
130:
        learn: 6.1138553
                                  total: 4.07s
                                                   remaining: 27s
        learn: 6.0948249
131:
                                  total: 4.07s
                                                   remaining: 26.8s
132:
        learn: 6.0540855
                                  total: 4.08s
                                                   remaining: 26.6s
133:
        learn: 6.0273413
                                  total: 4.17s
                                                   remaining: 26.9s
        learn: 6.0221695
                                  total: 4.17s
                                                   remaining: 26.7s
134:
        learn: 5.9743174
                                  total: 4.17s
135:
                                                   remaining: 26.5s
136:
        learn: 5.9353381
                                  total: 4.26s
                                                   remaining: 26.9s
        learn: 5.9307553
                                  total: 4.27s
                                                   remaining: 26.7s
137:
138:
        learn: 5.8875554
                                  total: 4.27s
                                                   remaining: 26.5s
        learn: 5.8610175
139:
                                  total: 4.36s
                                                   remaining: 26.8s
140:
        learn: 5.8269146
                                  total: 4.37s
                                                   remaining: 26.6s
141:
        learn: 5.8037962
                                  total: 4.37s
                                                   remaining: 26.4s
142:
        learn: 5.7927389
                                  total: 4.38s
                                                   remaining: 26.3s
143:
        learn: 5.7534905
                                  total: 4.46s
                                                   remaining: 26.5s
144:
        learn: 5.7152523
                                  total: 4.47s
                                                   remaining: 26.3s
145:
        learn: 5.6737209
                                  total: 4.56s
                                                   remaining: 26.7s
        learn: 5.6522829
                                  total: 4.56s
146:
                                                   remaining: 26.5s
147:
                                  total: 4.57s
        learn: 5.6207998
                                                   remaining: 26.3s
148:
        learn: 5.6150902
                                  total: 4.57s
                                                   remaining: 26.1s
149:
        learn: 5.6096619
                                  total: 4.66s
                                                   remaining: 26.4s
        learn: 5.5906543
                                  total: 4.66s
150:
                                                   remaining: 26.2s
151:
        learn: 5.5486662
                                  total: 4.67s
                                                   remaining: 26s
152:
        learn: 5.5175082
                                  total: 4.75s
                                                   remaining: 26.3s
153:
        learn: 5.4919279
                                  total: 4.77s
                                                   remaining: 26.2s
154:
        learn: 5.4666195
                                  total: 4.85s
                                                   remaining: 26.4s
155:
        learn: 5.4537355
                                  total: 4.86s
                                                   remaining: 26.3s
156:
        learn: 5.4334344
                                  total: 4.86s
                                                   remaining: 26.1s
        learn: 5.4298579
157:
                                  total: 4.94s
                                                   remaining: 26.3s
158:
        learn: 5.4070231
                                  total: 4.95s
                                                   remaining: 26.2s
159:
        learn: 5.4034526
                                  total: 4.95s
                                                   remaining: 26s
160:
        learn: 5.3779675
                                  total: 5.04s
                                                   remaining: 26.3s
        learn: 5.3590547
                                  total: 5.05s
                                                   remaining: 26.1s
161:
162:
        learn: 5.3401441
                                  total: 5.05s
                                                   remaining: 25.9s
163:
        learn: 5.3170827
                                  total: 5.14s
                                                   remaining: 26.2s
164:
        learn: 5.2817829
                                  total: 5.14s
                                                   remaining: 26s
165:
        learn: 5.2291902
                                  total: 5.15s
                                                   remaining: 25.9s
        learn: 5.1844787
                                                   remaining: 26.1s
166:
                                  total: 5.24s
        learn: 5.1653031
167:
                                  total: 5.24s
                                                   remaining: 26s
        learn: 5.1629992
                                  total: 5.25s
168:
                                                   remaining: 25.8s
        learn: 5.1569687
169:
                                  total: 5.25s
                                                   remaining: 25.6s
170:
        learn: 5.1371641
                                                   remaining: 25.9s
                                  total: 5.34s
171:
        learn: 5.0992319
                                  total: 5.34s
                                                   remaining: 25.7s
        learn: 5.0527119
                                  total: 5.35s
172:
                                                   remaining: 25.6s
                                                   remaining: 25.8s
173:
        learn: 5.0294306
                                  total: 5.43s
174:
        learn: 4.9894719
                                  total: 5.44s
                                                   remaining: 25.6s
175:
        learn: 4.9623849
                                  total: 5.45s
                                                   remaining: 25.5s
176:
        learn: 4.9272396
                                  total: 5.53s
                                                   remaining: 25.7s
177:
        learn: 4.8999246
                                  total: 5.54s
                                                   remaining: 25.6s
178:
        learn: 4.8846062
                                  total: 5.54s
                                                   remaining: 25.4s
179:
        learn: 4.8550266
                                  total: 5.63s
                                                   remaining: 25.7s
180:
        learn: 4.8116756
                                  total: 5.63s
                                                   remaining: 25.5s
        learn: 4.7916323
                                                   remaining: 25.3s
181:
                                  total: 5.64s
182:
        learn: 4.7894579
                                  total: 5.73s
                                                   remaining: 25.6s
        learn: 4.7657672
                                  total: 5.73s
183:
                                                   remaining: 25.4s
184:
        learn: 4.7482531
                                  total: 5.74s
                                                   remaining: 25.3s
185:
        learn: 4.7098326
                                  total: 5.83s
                                                   remaining: 25.5s
186:
        learn: 4.6826130
                                  total: 5.83s
                                                   remaining: 25.4s
```

```
187:
        learn: 4.6383331
                                  total: 5.83s
                                                   remaining: 25.2s
188:
        learn: 4.6365932
                                  total: 5.92s
                                                   remaining: 25.4s
                                  total: 5.93s
189:
        learn: 4.6205615
                                                   remaining: 25.3s
190:
        learn: 4.6001190
                                  total: 5.93s
                                                   remaining: 25.1s
191:
        learn: 4.5719283
                                  total: 6.02s
                                                   remaining: 25.3s
        learn: 4.5444103
192:
                                  total: 6.03s
                                                   remaining: 25.2s
193:
        learn: 4.5311379
                                  total: 6.03s
                                                   remaining: 25.1s
194:
        learn: 4.5101470
                                  total: 6.12s
                                                   remaining: 25.3s
195:
        learn: 4.4884570
                                  total: 6.13s
                                                   remaining: 25.1s
        learn: 4.4730865
                                  total: 6.13s
196:
                                                   remaining: 25s
        learn: 4.4436312
197:
                                  total: 6.22s
                                                   remaining: 25.2s
198:
        learn: 4.4210517
                                                   remaining: 25.1s
                                  total: 6.22s
199:
        learn: 4.4013189
                                  total: 6.23s
                                                   remaining: 24.9s
        learn: 4.3772242
                                  total: 6.32s
200:
                                                   remaining: 25.1s
201:
        learn: 4.3635650
                                  total: 6.32s
                                                   remaining: 25s
202:
        learn: 4.3447899
                                  total: 6.33s
                                                   remaining: 24.9s
        learn: 4.3264970
203:
                                  total: 6.42s
                                                   remaining: 25s
204:
        learn: 4.3043317
                                  total: 6.42s
                                                   remaining: 24.9s
205:
        learn: 4.2888545
                                  total: 6.42s
                                                   remaining: 24.8s
206:
        learn: 4.2652973
                                  total: 6.51s
                                                   remaining: 25s
207:
        learn: 4.2551077
                                  total: 6.52s
                                                   remaining: 24.8s
208:
        learn: 4.2432400
                                  total: 6.52s
                                                   remaining: 24.7s
209:
        learn: 4.2126020
                                  total: 6.61s
                                                   remaining: 24.9s
210:
        learn: 4.1970472
                                  total: 6.62s
                                                   remaining: 24.7s
211:
        learn: 4.1579494
                                  total: 6.62s
                                                   remaining: 24.6s
212:
        learn: 4.1336328
                                  total: 6.71s
                                                   remaining: 24.8s
213:
        learn: 4.1320156
                                  total: 6.71s
                                                   remaining: 24.7s
214:
        learn: 4.1082963
                                  total: 6.72s
                                                   remaining: 24.5s
215:
        learn: 4.0963110
                                  total: 6.8s
                                                   remaining: 24.7s
        learn: 4.0675381
216:
                                  total: 6.81s
                                                   remaining: 24.6s
217:
        learn: 4.0425016
                                  total: 6.81s
                                                   remaining: 24.4s
218:
        learn: 4.0163327
                                  total: 6.9s
                                                   remaining: 24.6s
219:
        learn: 3.9786971
                                  total: 6.91s
                                                   remaining: 24.5s
220:
        learn: 3.9542303
                                  total: 6.91s
                                                   remaining: 24.4s
221:
        learn: 3.9453216
                                  total: 7s
                                                   remaining: 24.5s
222:
                                  total: 7.01s
                                                   remaining: 24.4s
        learn: 3.9267988
223:
        learn: 3.9159583
                                  total: 7.01s
                                                   remaining: 24.3s
224:
        learn: 3.9097189
                                  total: 7.01s
                                                   remaining: 24.2s
225:
        learn: 3.8907230
                                  total: 7.1s
                                                   remaining: 24.3s
226:
        learn: 3.8668716
                                  total: 7.11s
                                                   remaining: 24.2s
227:
        learn: 3.8652453
                                                   remaining: 24.1s
                                  total: 7.11s
228:
        learn: 3.8462918
                                  total: 7.2s
                                                   remaining: 24.2s
229:
        learn: 3.8149890
                                  total: 7.2s
                                                   remaining: 24.1s
        learn: 3.8030194
230:
                                  total: 7.21s
                                                   remaining: 24s
                                                   remaining: 24.2s
231:
        learn: 3.7917927
                                  total: 7.3s
232:
        learn: 3.7859350
                                  total: 7.3s
                                                   remaining: 24s
233:
        learn: 3.7841098
                                  total: 7.31s
                                                   remaining: 23.9s
                                                   remaining: 23.8s
234:
        learn: 3.7683574
                                  total: 7.31s
235:
        learn: 3.7578977
                                  total: 7.4s
                                                   remaining: 24s
236:
        learn: 3.7431456
                                  total: 7.4s
                                                   remaining: 23.8s
237:
        learn: 3.7194835
                                  total: 7.41s
                                                   remaining: 23.7s
238:
        learn: 3.7183043
                                  total: 7.5s
                                                   remaining: 23.9s
239:
        learn: 3.7141500
                                                   remaining: 23.7s
                                  total: 7.5s
240:
        learn: 3.6944679
                                  total: 7.51s
                                                   remaining: 23.6s
        learn: 3.6785859
241:
                                  total: 7.59s
                                                   remaining: 23.8s
242:
        learn: 3.6600307
                                                   remaining: 23.7s
                                  total: 7.6s
243:
        learn: 3.6588335
                                  total: 7.6s
                                                   remaining: 23.6s
244:
        learn: 3.6423554
                                  total: 7.69s
                                                   remaining: 23.7s
245:
        learn: 3.6290384
                                  total: 7.69s
                                                   remaining: 23.6s
246:
        learn: 3.6084393
                                  total: 7.7s
                                                   remaining: 23.5s
        learn: 3.5935073
247:
                                  total: 7.79s
                                                   remaining: 23.6s
```

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248:
        learn: 3.5735199
                                  total: 7.79s
                                                   remaining: 23.5s
249:
        learn: 3.5721856
                                  total: 7.8s
                                                   remaining: 23.4s
        learn: 3.5570900
                                  total: 7.89s
250:
                                                   remaining: 23.5s
251:
        learn: 3.5436100
                                  total: 7.89s
                                                   remaining: 23.4s
252:
        learn: 3.5209905
                                  total: 7.89s
                                                   remaining: 23.3s
253:
        learn: 3.5147645
                                  total: 7.99s
                                                   remaining: 23.5s
254:
        learn: 3.5097799
                                  total: 7.99s
                                                   remaining: 23.3s
255:
        learn: 3.5085496
                                                   remaining: 23.2s
                                  total: 8s
256:
        learn: 3.5076497
                                  total: 8.08s
                                                   remaining: 23.4s
257:
        learn: 3.5019717
                                  total: 8.09s
                                                   remaining: 23.3s
258:
        learn: 3.4916737
                                  total: 8.09s
                                                   remaining: 23.2s
259:
        learn: 3.4836728
                                                   remaining: 23.3s
                                  total: 8.18s
260:
        learn: 3.4650280
                                  total: 8.19s
                                                   remaining: 23.2s
        learn: 3.4516618
261:
                                  total: 8.19s
                                                   remaining: 23.1s
262:
        learn: 3.4301110
                                  total: 8.28s
                                                   remaining: 23.2s
263:
        learn: 3.4229423
                                  total: 8.29s
                                                   remaining: 23.1s
264:
        learn: 3.4156629
                                  total: 8.29s
                                                   remaining: 23s
265:
        learn: 3.4018624
                                  total: 8.29s
                                                   remaining: 22.9s
266:
        learn: 3.3855394
                                  total: 8.38s
                                                   remaining: 23s
267:
        learn: 3.3700356
                                  total: 8.38s
                                                   remaining: 22.9s
        learn: 3.3519782
                                  total: 8.39s
268:
                                                   remaining: 22.8s
269:
        learn: 3.3311866
                                  total: 8.48s
                                                   remaining: 22.9s
270:
        learn: 3.3160840
                                  total: 8.48s
                                                   remaining: 22.8s
271:
        learn: 3.3127727
                                  total: 8.48s
                                                   remaining: 22.7s
                                                   remaining: 22.8s
272:
        learn: 3.2930541
                                  total: 8.57s
273:
        learn: 3.2790235
                                  total: 8.58s
                                                   remaining: 22.7s
274:
        learn: 3.2698369
                                  total: 8.58s
                                                   remaining: 22.6s
275:
        learn: 3.2511309
                                  total: 8.67s
                                                   remaining: 22.8s
276:
        learn: 3.2376105
                                  total: 8.68s
                                                   remaining: 22.7s
277:
        learn: 3.2140911
                                  total: 8.68s
                                                   remaining: 22.6s
278:
        learn: 3.2095677
                                  total: 8.77s
                                                   remaining: 22.7s
279:
        learn: 3.2039550
                                  total: 8.78s
                                                   remaining: 22.6s
280:
        learn: 3.1845920
                                  total: 8.78s
                                                   remaining: 22.5s
281:
        learn: 3.1709029
                                  total: 8.87s
                                                   remaining: 22.6s
282:
        learn: 3.1623402
                                  total: 8.88s
                                                   remaining: 22.5s
                                                   remaining: 22.4s
283:
        learn: 3.1514604
                                  total: 8.88s
284:
        learn: 3.1405447
                                  total: 8.97s
                                                   remaining: 22.5s
285:
        learn: 3.1161964
                                  total: 8.97s
                                                   remaining: 22.4s
286:
        learn: 3.1153768
                                  total: 8.98s
                                                   remaining: 22.3s
287:
        learn: 3.0795727
                                  total: 8.98s
                                                   remaining: 22.2s
288:
        learn: 3.0554967
                                  total: 9.07s
                                                   remaining: 22.3s
289:
        learn: 3.0312340
                                                   remaining: 22.2s
                                  total: 9.07s
290:
        learn: 3.0107008
                                  total: 9.08s
                                                   remaining: 22.1s
291:
        learn: 2.9915725
                                  total: 9.17s
                                                   remaining: 22.2s
292:
        learn: 2.9806980
                                  total: 9.17s
                                                   remaining: 22.1s
293:
        learn: 2.9712417
                                  total: 9.18s
                                                   remaining: 22s
294:
        learn: 2.9524943
                                  total: 9.27s
                                                   remaining: 22.1s
295:
        learn: 2.9292735
                                  total: 9.27s
                                                   remaining: 22s
296:
        learn: 2.9076384
                                  total: 9.27s
                                                   remaining: 22s
297:
        learn: 2.8974289
                                  total: 9.37s
                                                   remaining: 22.1s
298:
        learn: 2.8884813
                                  total: 9.37s
                                                   remaining: 22s
299:
        learn: 2.8819147
                                  total: 9.37s
                                                   remaining: 21.9s
300:
        learn: 2.8810309
                                  total: 9.46s
                                                   remaining: 22s
301:
        learn: 2.8765907
                                  total: 9.46s
                                                   remaining: 21.9s
302:
        learn: 2.8631049
                                  total: 9.47s
                                                   remaining: 21.8s
303:
        learn: 2.8522520
                                  total: 9.56s
                                                   remaining: 21.9s
304:
        learn: 2.8431307
                                  total: 9.56s
                                                   remaining: 21.8s
305:
        learn: 2.8263024
                                  total: 9.57s
                                                   remaining: 21.7s
306:
        learn: 2.7989528
                                  total: 9.57s
                                                   remaining: 21.6s
307:
        learn: 2.7851439
                                  total: 9.67s
                                                   remaining: 21.7s
        learn: 2.7730028
308:
                                  total: 9.67s
                                                   remaining: 21.6s
```

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309:
        learn: 2.7721167
                                  total: 9.76s
                                                   remaining: 21.7s
310:
        learn: 2.7562367
                                  total: 9.76s
                                                   remaining: 21.6s
        learn: 2.7469852
                                  total: 9.76s
311:
                                                   remaining: 21.5s
312:
        learn: 2.7428103
                                  total: 9.77s
                                                   remaining: 21.4s
313:
        learn: 2.7335162
                                  total: 9.86s
                                                   remaining: 21.5s
        learn: 2.7165817
                                  total: 9.86s
314:
                                                   remaining: 21.4s
315:
        learn: 2.7039464
                                  total: 9.87s
                                                   remaining: 21.4s
        learn: 2.6860020
                                  total: 9.95s
                                                   remaining: 21.4s
316:
317:
        learn: 2.6719325
                                  total: 9.96s
                                                   remaining: 21.4s
318:
        learn: 2.6501582
                                  total: 9.96s
                                                   remaining: 21.3s
                                  total: 10.1s
319:
        learn: 2.6396615
                                                   remaining: 21.4s
320:
        learn: 2.6222088
                                  total: 10.1s
                                                   remaining: 21.3s
321:
        learn: 2.6080178
                                  total: 10.1s
                                                   remaining: 21.2s
322:
        learn: 2.6012302
                                  total: 10.1s
                                                   remaining: 21.3s
323:
        learn: 2.5975860
                                  total: 10.2s
                                                   remaining: 21.2s
324:
        learn: 2.5843717
                                  total: 10.2s
                                                   remaining: 21.1s
325:
        learn: 2.5711712
                                  total: 10.2s
                                                   remaining: 21.2s
326:
        learn: 2.5652029
                                  total: 10.3s
                                                   remaining: 21.1s
327:
        learn: 2.5595370
                                  total: 10.3s
                                                   remaining: 21s
328:
        learn: 2.5453260
                                  total: 10.3s
                                                   remaining: 20.9s
329:
        learn: 2.5289085
                                  total: 10.3s
                                                   remaining: 21s
                                                   remaining: 20.9s
330:
        learn: 2.5163007
                                  total: 10.4s
331:
        learn: 2.5058063
                                  total: 10.4s
                                                   remaining: 20.8s
332:
        learn: 2.4913956
                                  total: 10.4s
                                                   remaining: 20.9s
                                  total: 10.4s
333:
        learn: 2.4888191
                                                   remaining: 20.8s
334:
        learn: 2.4745716
                                  total: 10.5s
                                                   remaining: 20.7s
335:
        learn: 2.4608326
                                  total: 10.5s
                                                   remaining: 20.8s
336:
        learn: 2.4570278
                                  total: 10.5s
                                                   remaining: 20.7s
                                  total: 10.6s
337:
        learn: 2.4494313
                                                   remaining: 20.7s
338:
        learn: 2.4486804
                                  total: 10.6s
                                                   remaining: 20.7s
339:
        learn: 2.4393232
                                  total: 10.6s
                                                   remaining: 20.7s
                                  total: 10.7s
340:
        learn: 2.4333255
                                                   remaining: 20.6s
                                                   remaining: 20.7s
341:
        learn: 2.4180123
                                  total: 10.7s
342:
        learn: 2.3965747
                                  total: 10.7s
                                                   remaining: 20.6s
        learn: 2.3806801
343:
                                  total: 10.7s
                                                   remaining: 20.5s
        learn: 2.3634478
                                  total: 10.8s
344:
                                                   remaining: 20.6s
345:
        learn: 2.3566801
                                  total: 10.8s
                                                   remaining: 20.5s
        learn: 2.3448968
346:
                                  total: 10.8s
                                                   remaining: 20.4s
347:
        learn: 2.3340925
                                  total: 10.9s
                                                   remaining: 20.5s
348:
        learn: 2.3269320
                                  total: 10.9s
                                                   remaining: 20.4s
349:
        learn: 2.3177494
                                  total: 10.9s
                                                   remaining: 20.3s
350:
        learn: 2.3088847
                                                   remaining: 20.4s
                                  total: 11s
351:
        learn: 2.3036339
                                  total: 11s
                                                   remaining: 20.3s
        learn: 2.2950778
352:
                                  total: 11s
                                                   remaining: 20.2s
                                                   remaining: 20.3s
353:
        learn: 2.2869921
                                  total: 11.1s
354:
        learn: 2.2666623
                                  total: 11.1s
                                                   remaining: 20.2s
355:
        learn: 2.2579915
                                  total: 11.1s
                                                   remaining: 20.1s
                                                   remaining: 20.2s
356:
        learn: 2.2523817
                                  total: 11.2s
357:
        learn: 2.2382244
                                  total: 11.2s
                                                   remaining: 20.1s
358:
        learn: 2.2297461
                                  total: 11.2s
                                                   remaining: 20.1s
359:
        learn: 2.2206388
                                  total: 11.3s
                                                   remaining: 20.1s
360:
        learn: 2.2060689
                                  total: 11.3s
                                                   remaining: 20.1s
361:
        learn: 2.1964947
                                  total: 11.3s
                                                   remaining: 20s
362:
        learn: 2.1914260
                                  total: 11.4s
                                                   remaining: 20s
        learn: 2.1790905
363:
                                  total: 11.4s
                                                   remaining: 20s
364:
        learn: 2.1734675
                                                   remaining: 19.9s
                                  total: 11.4s
365:
        learn: 2.1681364
                                  total: 11.5s
                                                   remaining: 20s
        learn: 2.1569095
                                  total: 11.5s
366:
                                                   remaining: 19.9s
367:
        learn: 2.1435926
                                  total: 11.5s
                                                   remaining: 19.8s
368:
        learn: 2.1338684
                                  total: 11.6s
                                                   remaining: 19.9s
        learn: 2.1249161
369:
                                  total: 11.6s
                                                   remaining: 19.8s
```

```
370:
        learn: 2.1175263
                                  total: 11.6s
                                                   remaining: 19.7s
371:
        learn: 2.1104481
                                  total: 11.7s
                                                   remaining: 19.8s
        learn: 2.1095657
                                  total: 11.7s
372:
                                                   remaining: 19.7s
373:
        learn: 2.0968773
                                  total: 11.7s
                                                   remaining: 19.6s
374:
        learn: 2.0887808
                                  total: 11.8s
                                                   remaining: 19.7s
        learn: 2.0793823
                                  total: 11.8s
375:
                                                   remaining: 19.6s
376:
        learn: 2.0726311
                                  total: 11.8s
                                                   remaining: 19.5s
        learn: 2.0673979
                                                   remaining: 19.5s
377:
                                  total: 11.8s
378:
        learn: 2.0615049
                                  total: 11.9s
                                                   remaining: 19.5s
379:
        learn: 2.0490792
                                  total: 11.9s
                                                   remaining: 19.4s
                                  total: 11.9s
380:
        learn: 2.0407401
                                                   remaining: 19.4s
        learn: 2.0301818
                                                   remaining: 19.4s
381:
                                  total: 12s
382:
        learn: 2.0234049
                                  total: 12s
                                                   remaining: 19.4s
        learn: 2.0053790
                                  total: 12s
383:
                                                   remaining: 19.3s
384:
        learn: 2.0041093
                                  total: 12.1s
                                                   remaining: 19.3s
385:
        learn: 1.9962369
                                  total: 12.1s
                                                   remaining: 19.3s
386:
        learn: 1.9884154
                                  total: 12.1s
                                                   remaining: 19.2s
387:
        learn: 1.9785304
                                  total: 12.2s
                                                   remaining: 19.3s
388:
        learn: 1.9716737
                                  total: 12.2s
                                                   remaining: 19.2s
389:
        learn: 1.9711229
                                  total: 12.2s
                                                   remaining: 19.1s
390:
        learn: 1.9701997
                                  total: 12.3s
                                                   remaining: 19.2s
391:
        learn: 1.9598098
                                  total: 12.3s
                                                   remaining: 19.1s
392:
        learn: 1.9512445
                                  total: 12.3s
                                                   remaining: 19s
393:
        learn: 1.9493107
                                  total: 12.4s
                                                   remaining: 19.1s
                                  total: 12.4s
394:
        learn: 1.9424353
                                                   remaining: 19s
395:
        learn: 1.9328090
                                  total: 12.4s
                                                   remaining: 18.9s
396:
        learn: 1.9206950
                                  total: 12.5s
                                                   remaining: 19s
397:
        learn: 1.9148509
                                  total: 12.5s
                                                   remaining: 18.9s
398:
        learn: 1.9143464
                                  total: 12.5s
                                                   remaining: 18.8s
399:
        learn: 1.9072746
                                  total: 12.6s
                                                   remaining: 18.9s
400:
        learn: 1.9030227
                                  total: 12.6s
                                                   remaining: 18.8s
        learn: 1.8888837
                                  total: 12.6s
401:
                                                   remaining: 18.8s
402:
        learn: 1.8883913
                                  total: 12.7s
                                                   remaining: 18.8s
403:
        learn: 1.8767409
                                  total: 12.7s
                                                   remaining: 18.7s
404:
        learn: 1.8673946
                                  total: 12.7s
                                                   remaining: 18.7s
                                  total: 12.7s
405:
        learn: 1.8670136
                                                   remaining: 18.6s
406:
        learn: 1.8591758
                                  total: 12.8s
                                                   remaining: 18.6s
407:
        learn: 1.8517380
                                  total: 12.8s
                                                   remaining: 18.6s
        learn: 1.8508224
408:
                                  total: 12.8s
                                                   remaining: 18.5s
409:
        learn: 1.8499430
                                  total: 12.9s
                                                   remaining: 18.6s
410:
        learn: 1.8405393
                                                   remaining: 18.5s
                                  total: 12.9s
411:
        learn: 1.8354297
                                  total: 12.9s
                                                   remaining: 18.4s
        learn: 1.8280715
412:
                                  total: 13s
                                                   remaining: 18.5s
413:
        learn: 1.8167718
                                  total: 13s
                                                   remaining: 18.4s
414:
        learn: 1.8123652
                                                   remaining: 18.3s
                                  total: 13s
415:
        learn: 1.8059973
                                  total: 13.1s
                                                   remaining: 18.4s
        learn: 1.7958138
                                  total: 13.1s
416:
                                                   remaining: 18.3s
                                                   remaining: 18.2s
417:
        learn: 1.7786475
                                  total: 13.1s
418:
        learn: 1.7689502
                                  total: 13.2s
                                                   remaining: 18.3s
419:
        learn: 1.7627757
                                  total: 13.2s
                                                   remaining: 18.2s
420:
        learn: 1.7579087
                                  total: 13.2s
                                                   remaining: 18.1s
421:
        learn: 1.7515845
                                  total: 13.3s
                                                   remaining: 18.2s
422:
        learn: 1.7447934
                                  total: 13.3s
                                                   remaining: 18.1s
423:
        learn: 1.7399457
                                  total: 13.3s
                                                   remaining: 18.1s
        learn: 1.7297544
424:
                                  total: 13.4s
                                                   remaining: 18.1s
425:
        learn: 1.7244542
                                                   remaining: 18s
                                  total: 13.4s
426:
        learn: 1.7157187
                                  total: 13.4s
                                                   remaining: 18s
427:
        learn: 1.7074183
                                  total: 13.5s
                                                   remaining: 18s
428:
        learn: 1.7014468
                                  total: 13.5s
                                                   remaining: 17.9s
429:
        learn: 1.6931561
                                  total: 13.5s
                                                   remaining: 17.9s
        learn: 1.6815509
430:
                                  total: 13.6s
                                                   remaining: 17.9s
```

```
learn: 1.6744477
431:
                                  total: 13.6s
                                                   remaining: 17.9s
432:
        learn: 1.6653601
                                  total: 13.6s
                                                   remaining: 17.8s
                                  total: 13.7s
433:
        learn: 1.6622501
                                                   remaining: 17.8s
434:
        learn: 1.6586962
                                  total: 13.7s
                                                   remaining: 17.8s
435:
        learn: 1.6524369
                                  total: 13.7s
                                                   remaining: 17.7s
        learn: 1.6496548
                                  total: 13.8s
436:
                                                   remaining: 17.7s
437:
        learn: 1.6451968
                                  total: 13.8s
                                                   remaining: 17.7s
438:
        learn: 1.6428636
                                                   remaining: 17.6s
                                  total: 13.8s
439:
        learn: 1.6377883
                                  total: 13.9s
                                                   remaining: 17.7s
440:
        learn: 1.6308433
                                  total: 13.9s
                                                   remaining: 17.6s
441:
        learn: 1.6220665
                                  total: 13.9s
                                                   remaining: 17.5s
442:
        learn: 1.6217328
                                                   remaining: 17.5s
                                  total: 13.9s
443:
        learn: 1.6179870
                                  total: 14s
                                                   remaining: 17.5s
444:
        learn: 1.6176622
                                  total: 14s
                                                   remaining: 17.4s
445:
        learn: 1.6100280
                                  total: 14s
                                                   remaining: 17.4s
446:
        learn: 1.6038666
                                  total: 14.1s
                                                   remaining: 17.4s
                                                   remaining: 17.3s
447:
        learn: 1.5996282
                                  total: 14.1s
448:
        learn: 1.5935794
                                  total: 14.1s
                                                   remaining: 17.3s
449:
        learn: 1.5862148
                                  total: 14.2s
                                                   remaining: 17.3s
450:
        learn: 1.5769012
                                  total: 14.2s
                                                   remaining: 17.3s
451:
        learn: 1.5723834
                                  total: 14.2s
                                                   remaining: 17.2s
        learn: 1.5721322
452:
                                  total: 14.3s
                                                   remaining: 17.2s
453:
        learn: 1.5633686
                                  total: 14.3s
                                                   remaining: 17.2s
454:
        learn: 1.5552165
                                  total: 14.3s
                                                   remaining: 17.1s
                                  total: 14.4s
455:
        learn: 1.5502435
                                                   remaining: 17.1s
456:
        learn: 1.5438267
                                  total: 14.4s
                                                   remaining: 17.1s
457:
        learn: 1.5435210
                                  total: 14.4s
                                                   remaining: 17s
458:
        learn: 1.5409464
                                  total: 14.4s
                                                   remaining: 16.9s
                                  total: 14.5s
459:
        learn: 1.5326718
                                                   remaining: 17s
460:
        learn: 1.5271637
                                  total: 14.5s
                                                   remaining: 16.9s
461:
        learn: 1.5199315
                                  total: 14.5s
                                                   remaining: 16.9s
                                  total: 14.6s
462:
        learn: 1.5132353
                                                   remaining: 16.9s
463:
        learn: 1.5109512
                                  total: 14.6s
                                                   remaining: 16.8s
464:
        learn: 1.5042634
                                  total: 14.6s
                                                   remaining: 16.8s
465:
        learn: 1.4955611
                                  total: 14.7s
                                                   remaining: 16.8s
                                  total: 14.7s
        learn: 1.4904985
466:
                                                   remaining: 16.7s
467:
        learn: 1.4839577
                                  total: 14.7s
                                                   remaining: 16.7s
468:
        learn: 1.4810711
                                  total: 14.8s
                                                   remaining: 16.7s
469:
        learn: 1.4735402
                                  total: 14.8s
                                                   remaining: 16.6s
                                                   remaining: 16.6s
470:
        learn: 1.4626174
                                  total: 14.8s
471:
        learn: 1.4623934
                                  total: 14.9s
                                                   remaining: 16.6s
472:
        learn: 1.4581562
                                  total: 14.9s
                                                   remaining: 16.6s
        learn: 1.4516519
                                  total: 14.9s
473:
                                                   remaining: 16.5s
474:
        learn: 1.4455610
                                  total: 15s
                                                   remaining: 16.5s
475:
        learn: 1.4337371
                                  total: 15s
                                                   remaining: 16.5s
476:
        learn: 1.4279572
                                  total: 15s
                                                   remaining: 16.4s
477:
        learn: 1.4188016
                                  total: 15.1s
                                                   remaining: 16.4s
478:
        learn: 1.4160587
                                  total: 15.1s
                                                   remaining: 16.4s
479:
        learn: 1.4157549
                                  total: 15.1s
                                                   remaining: 16.3s
480:
        learn: 1.4089246
                                  total: 15.1s
                                                   remaining: 16.3s
481:
        learn: 1.4039016
                                  total: 15.2s
                                                   remaining: 16.3s
482:
        learn: 1.4030527
                                  total: 15.2s
                                                   remaining: 16.2s
483:
        learn: 1.3978790
                                  total: 15.2s
                                                   remaining: 16.3s
        learn: 1.3896583
484:
                                  total: 15.3s
                                                   remaining: 16.2s
485:
        learn: 1.3835455
                                  total: 15.3s
                                                   remaining: 16.1s
486:
        learn: 1.3782538
                                                   remaining: 16.2s
                                  total: 15.3s
487:
        learn: 1.3724028
                                  total: 15.3s
                                                   remaining: 16.1s
488:
        learn: 1.3662878
                                  total: 15.4s
                                                   remaining: 16s
489:
        learn: 1.3612194
                                  total: 15.4s
                                                   remaining: 16.1s
490:
        learn: 1.3524072
                                  total: 15.4s
                                                   remaining: 16s
        learn: 1.3446008
491:
                                  total: 15.5s
                                                   remaining: 16s
```

```
492:
        learn: 1.3411259
                                  total: 15.5s
                                                   remaining: 16s
493:
        learn: 1.3362361
                                  total: 15.5s
                                                   remaining: 15.9s
                                  total: 15.6s
494:
        learn: 1.3332152
                                                   remaining: 15.9s
495:
        learn: 1.3249156
                                  total: 15.6s
                                                   remaining: 15.9s
496:
        learn: 1.3191859
                                  total: 15.6s
                                                   remaining: 15.8s
        learn: 1.3116314
                                  total: 15.6s
497:
                                                   remaining: 15.8s
498:
        learn: 1.3034492
                                  total: 15.7s
                                                   remaining: 15.8s
499:
        learn: 1.2995615
                                                   remaining: 15.7s
                                  total: 15.7s
500:
        learn: 1.2956043
                                  total: 15.7s
                                                   remaining: 15.7s
        learn: 1.2917675
                                  total: 15.8s
501:
                                                   remaining: 15.7s
502:
        learn: 1.2845236
                                  total: 15.8s
                                                   remaining: 15.6s
503:
        learn: 1.2761464
                                                   remaining: 15.6s
                                  total: 15.8s
504:
        learn: 1.2728874
                                  total: 15.9s
                                                   remaining: 15.6s
        learn: 1.2658815
                                  total: 15.9s
505:
                                                   remaining: 15.6s
506:
        learn: 1.2653121
                                  total: 15.9s
                                                   remaining: 15.5s
507:
        learn: 1.2616730
                                  total: 16s
                                                   remaining: 15.5s
508:
        learn: 1.2570827
                                  total: 16s
                                                   remaining: 15.5s
509:
        learn: 1.2506143
                                  total: 16s
                                                   remaining: 15.4s
510:
        learn: 1.2419887
                                  total: 16.1s
                                                   remaining: 15.4s
511:
        learn: 1.2401271
                                                   remaining: 15.4s
                                  total: 16.1s
512:
        learn: 1.2374291
                                  total: 16.1s
                                                   remaining: 15.3s
513:
        learn: 1.2305491
                                  total: 16.1s
                                                   remaining: 15.3s
514:
        learn: 1.2259782
                                  total: 16.2s
                                                   remaining: 15.3s
515:
        learn: 1.2171462
                                  total: 16.2s
                                                   remaining: 15.2s
516:
        learn: 1.2147484
                                  total: 16.2s
                                                   remaining: 15.2s
517:
        learn: 1.2100193
                                  total: 16.3s
                                                   remaining: 15.2s
518:
        learn: 1.2089919
                                  total: 16.3s
                                                   remaining: 15.1s
                                                   remaining: 15.1s
519:
        learn: 1.2039260
                                  total: 16.3s
                                  total: 16.4s
520:
        learn: 1.1960576
                                                   remaining: 15.1s
521:
        learn: 1.1909832
                                  total: 16.4s
                                                   remaining: 15s
522:
        learn: 1.1878729
                                  total: 16.4s
                                                   remaining: 15s
        learn: 1.1840566
                                  total: 16.5s
523:
                                                   remaining: 15s
                                                   remaining: 14.9s
524:
        learn: 1.1802223
                                  total: 16.5s
525:
        learn: 1.1757856
                                  total: 16.5s
                                                   remaining: 14.9s
526:
        learn: 1.1752625
                                  total: 16.6s
                                                   remaining: 14.9s
                                  total: 16.6s
527:
        learn: 1.1712848
                                                   remaining: 14.9s
528:
        learn: 1.1667850
                                  total: 16.6s
                                                   remaining: 14.8s
529:
        learn: 1.1602558
                                  total: 16.6s
                                                   remaining: 14.7s
        learn: 1.1543404
530:
                                  total: 16.7s
                                                   remaining: 14.8s
531:
        learn: 1.1497952
                                  total: 16.7s
                                                   remaining: 14.7s
532:
        learn: 1.1471993
                                                   remaining: 14.7s
                                  total: 16.7s
533:
        learn: 1.1400174
                                  total: 16.8s
                                                   remaining: 14.7s
        learn: 1.1351430
                                  total: 16.8s
534:
                                                   remaining: 14.6s
        learn: 1.1329309
535:
                                  total: 16.8s
                                                   remaining: 14.6s
        learn: 1.1271377
                                                   remaining: 14.6s
536:
                                  total: 16.9s
537:
        learn: 1.1203132
                                  total: 16.9s
                                                   remaining: 14.5s
538:
        learn: 1.1191658
                                  total: 16.9s
                                                   remaining: 14.5s
539:
                                                   remaining: 14.5s
        learn: 1.1187034
                                  total: 17s
540:
        learn: 1.1118162
                                  total: 17s
                                                   remaining: 14.4s
                                  total: 17s
541:
        learn: 1.1079371
                                                   remaining: 14.4s
542:
        learn: 1.1019434
                                  total: 17.1s
                                                   remaining: 14.4s
543:
        learn: 1.0979699
                                  total: 17.1s
                                                   remaining: 14.3s
544:
        learn: 1.0959063
                                  total: 17.1s
                                                   remaining: 14.3s
545:
        learn: 1.0908744
                                  total: 17.2s
                                                   remaining: 14.3s
        learn: 1.0864662
546:
                                  total: 17.2s
                                                   remaining: 14.2s
547:
        learn: 1.0818680
                                                   remaining: 14.2s
                                  total: 17.2s
548:
        learn: 1.0807437
                                  total: 17.3s
                                                   remaining: 14.2s
549:
        learn: 1.0736857
                                  total: 17.3s
                                                   remaining: 14.2s
550:
        learn: 1.0729909
                                  total: 17.3s
                                                   remaining: 14.1s
551:
        learn: 1.0684342
                                  total: 17.4s
                                                   remaining: 14.1s
        learn: 1.0654097
552:
                                  total: 17.4s
                                                   remaining: 14.1s
```

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553:
        learn: 1.0599815
                                  total: 17.4s
                                                   remaining: 14s
554:
        learn: 1.0571947
                                  total: 17.5s
                                                   remaining: 14s
                                  total: 17.5s
555:
        learn: 1.0509986
                                                   remaining: 14s
556:
        learn: 1.0458344
                                  total: 17.5s
                                                   remaining: 13.9s
557:
        learn: 1.0403958
                                  total: 17.6s
                                                   remaining: 13.9s
        learn: 1.0347600
                                  total: 17.6s
558:
                                                   remaining: 13.9s
559:
        learn: 1.0343653
                                  total: 17.6s
                                                   remaining: 13.8s
560:
        learn: 1.0311142
                                                   remaining: 13.8s
                                  total: 17.7s
561:
        learn: 1.0258913
                                  total: 17.7s
                                                   remaining: 13.8s
562:
        learn: 1.0212621
                                  total: 17.7s
                                                   remaining: 13.7s
563:
        learn: 1.0145123
                                  total: 17.8s
                                                   remaining: 13.8s
564:
        learn: 1.0087159
                                                   remaining: 13.7s
                                  total: 17.8s
565:
        learn: 1.0060199
                                  total: 17.8s
                                                   remaining: 13.6s
        learn: 1.0001968
                                  total: 17.9s
566:
                                                   remaining: 13.7s
567:
        learn: 0.9956038
                                  total: 17.9s
                                                   remaining: 13.6s
568:
        learn: 0.9906189
                                  total: 17.9s
                                                   remaining: 13.6s
569:
        learn: 0.9877855
                                  total: 18s
                                                   remaining: 13.6s
570:
        learn: 0.9815711
                                  total: 18s
                                                   remaining: 13.5s
571:
        learn: 0.9780242
                                  total: 18s
                                                   remaining: 13.5s
572:
        learn: 0.9747036
                                  total: 18.1s
                                                   remaining: 13.5s
573:
        learn: 0.9683502
                                  total: 18.1s
                                                   remaining: 13.4s
574:
        learn: 0.9648706
                                  total: 18.1s
                                                   remaining: 13.4s
575:
        learn: 0.9610631
                                  total: 18.2s
                                                   remaining: 13.4s
576:
        learn: 0.9587294
                                  total: 18.2s
                                                   remaining: 13.3s
                                  total: 18.2s
577:
        learn: 0.9545347
                                                   remaining: 13.3s
578:
        learn: 0.9509030
                                  total: 18.2s
                                                   remaining: 13.2s
579:
        learn: 0.9440208
                                  total: 18.3s
                                                   remaining: 13.2s
580:
        learn: 0.9400767
                                  total: 18.3s
                                                   remaining: 13.2s
581:
        learn: 0.9344977
                                  total: 18.3s
                                                   remaining: 13.1s
        learn: 0.9276493
582:
                                  total: 18.4s
                                                   remaining: 13.1s
583:
        learn: 0.9255856
                                  total: 18.4s
                                                   remaining: 13.1s
                                  total: 18.4s
584:
        learn: 0.9235139
                                                   remaining: 13s
585:
        learn: 0.9192714
                                  total: 18.5s
                                                   remaining: 13.1s
                                                   remaining: 13s
586:
        learn: 0.9163138
                                  total: 18.5s
587:
        learn: 0.9138317
                                  total: 18.5s
                                                   remaining: 12.9s
                                  total: 18.6s
                                                   remaining: 13s
588:
        learn: 0.9110086
589:
        learn: 0.9108289
                                  total: 18.6s
                                                   remaining: 12.9s
590:
        learn: 0.9073408
                                  total: 18.6s
                                                   remaining: 12.9s
591:
        learn: 0.9052927
                                  total: 18.7s
                                                   remaining: 12.9s
592:
        learn: 0.9051579
                                  total: 18.7s
                                                   remaining: 12.8s
593:
        learn: 0.8985856
                                  total: 18.7s
                                                   remaining: 12.8s
594:
        learn: 0.8950341
                                  total: 18.8s
                                                   remaining: 12.8s
595:
                                  total: 18.8s
        learn: 0.8857919
                                                   remaining: 12.7s
        learn: 0.8794847
596:
                                  total: 18.8s
                                                   remaining: 12.7s
597:
        learn: 0.8757577
                                                   remaining: 12.7s
                                  total: 18.9s
598:
        learn: 0.8730115
                                  total: 18.9s
                                                   remaining: 12.6s
599:
        learn: 0.8708740
                                  total: 18.9s
                                                   remaining: 12.6s
                                                   remaining: 12.5s
600:
        learn: 0.8666774
                                  total: 18.9s
601:
        learn: 0.8646974
                                  total: 19s
                                                   remaining: 12.5s
        learn: 0.8602544
                                  total: 19s
602:
                                                   remaining: 12.5s
603:
        learn: 0.8572033
                                  total: 19s
                                                   remaining: 12.4s
604:
        learn: 0.8539789
                                  total: 19.1s
                                                   remaining: 12.4s
605:
        learn: 0.8482056
                                  total: 19.1s
                                                   remaining: 12.4s
        learn: 0.8457682
606:
                                  total: 19.2s
                                                   remaining: 12.4s
607:
        learn: 0.8399547
                                  total: 19.2s
                                                   remaining: 12.4s
608:
        learn: 0.8363468
                                                   remaining: 12.3s
                                  total: 19.2s
609:
        learn: 0.8357644
                                  total: 19.2s
                                                   remaining: 12.3s
        learn: 0.8330484
                                  total: 19.3s
610:
                                                   remaining: 12.3s
611:
        learn: 0.8287684
                                  total: 19.3s
                                                   remaining: 12.2s
612:
        learn: 0.8241091
                                  total: 19.3s
                                                   remaining: 12.2s
613:
        learn: 0.8216664
                                  total: 19.4s
                                                   remaining: 12.2s
```

```
learn: 0.8190560
614:
                                  total: 19.4s
                                                   remaining: 12.1s
615:
        learn: 0.8176829
                                  total: 19.4s
                                                   remaining: 12.1s
                                  total: 19.5s
        learn: 0.8107569
                                                   remaining: 12.1s
616:
617:
        learn: 0.8038494
                                  total: 19.5s
                                                   remaining: 12s
618:
        learn: 0.7998476
                                  total: 19.5s
                                                   remaining: 12s
        learn: 0.7969197
                                  total: 19.6s
619:
                                                   remaining: 12s
620:
        learn: 0.7963991
                                  total: 19.6s
                                                   remaining: 11.9s
621:
        learn: 0.7936797
                                  total: 19.6s
                                                   remaining: 11.9s
622:
        learn: 0.7906198
                                  total: 19.6s
                                                   remaining: 11.9s
623:
        learn: 0.7879052
                                  total: 19.7s
                                                   remaining: 11.8s
        learn: 0.7844857
                                  total: 19.7s
624:
                                                   remaining: 11.8s
625:
        learn: 0.7823287
                                  total: 19.7s
                                                   remaining: 11.8s
626:
        learn: 0.7787415
                                  total: 19.8s
                                                   remaining: 11.8s
627:
        learn: 0.7765481
                                  total: 19.8s
                                                   remaining: 11.7s
628:
        learn: 0.7729228
                                  total: 19.8s
                                                   remaining: 11.7s
629:
        learn: 0.7706654
                                  total: 19.9s
                                                   remaining: 11.7s
630:
        learn: 0.7656280
                                  total: 19.9s
                                                   remaining: 11.6s
631:
        learn: 0.7641574
                                  total: 19.9s
                                                   remaining: 11.6s
632:
        learn: 0.7630890
                                  total: 19.9s
                                                   remaining: 11.6s
633:
        learn: 0.7627531
                                  total: 20s
                                                   remaining: 11.5s
634:
        learn: 0.7607682
                                  total: 20s
                                                   remaining: 11.5s
635:
        learn: 0.7605999
                                  total: 20s
                                                   remaining: 11.5s
636:
        learn: 0.7583604
                                  total: 20.1s
                                                   remaining: 11.4s
637:
        learn: 0.7540603
                                  total: 20.1s
                                                   remaining: 11.4s
                                  total: 20.1s
638:
        learn: 0.7514340
                                                   remaining: 11.4s
639:
        learn: 0.7504279
                                  total: 20.1s
                                                   remaining: 11.3s
640:
        learn: 0.7474664
                                  total: 20.2s
                                                   remaining: 11.3s
                                                   remaining: 11.3s
641:
        learn: 0.7452104
                                  total: 20.2s
                                  total: 20.3s
642:
        learn: 0.7437368
                                                   remaining: 11.2s
643:
        learn: 0.7393532
                                  total: 20.3s
                                                   remaining: 11.2s
644:
        learn: 0.7357799
                                  total: 20.3s
                                                   remaining: 11.2s
                                  total: 20.3s
645:
        learn: 0.7318197
                                                   remaining: 11.2s
646:
        learn: 0.7307202
                                  total: 20.4s
                                                   remaining: 11.1s
647:
        learn: 0.7282845
                                  total: 20.4s
                                                   remaining: 11.1s
648:
        learn: 0.7237006
                                  total: 20.4s
                                                   remaining: 11.1s
                                  total: 20.4s
649:
        learn: 0.7211489
                                                   remaining: 11s
650:
        learn: 0.7181709
                                  total: 20.5s
                                                   remaining: 11s
651:
        learn: 0.7162686
                                  total: 20.5s
                                                   remaining: 11s
652:
        learn: 0.7142376
                                  total: 20.5s
                                                   remaining: 10.9s
653:
        learn: 0.7113526
                                  total: 20.6s
                                                   remaining: 10.9s
654:
        learn: 0.7076572
                                  total: 20.6s
                                                   remaining: 10.9s
655:
        learn: 0.7041393
                                  total: 20.6s
                                                   remaining: 10.8s
        learn: 0.7019637
                                  total: 20.7s
656:
                                                   remaining: 10.8s
        learn: 0.7000711
                                  total: 20.7s
657:
                                                   remaining: 10.8s
                                                   remaining: 10.7s
658:
        learn: 0.6991114
                                  total: 20.7s
659:
        learn: 0.6967562
                                  total: 20.8s
                                                   remaining: 10.7s
        learn: 0.6958031
                                  total: 20.8s
660:
                                                   remaining: 10.7s
                                                   remaining: 10.6s
661:
        learn: 0.6917830
                                  total: 20.8s
662:
        learn: 0.6912776
                                  total: 20.9s
                                                   remaining: 10.6s
        learn: 0.6865538
663:
                                  total: 20.9s
                                                   remaining: 10.6s
                                  total: 20.9s
664:
        learn: 0.6847150
                                                   remaining: 10.5s
665:
        learn: 0.6810970
                                  total: 21s
                                                   remaining: 10.5s
666:
        learn: 0.6775041
                                  total: 21s
                                                   remaining: 10.5s
667:
        learn: 0.6730835
                                  total: 21s
                                                   remaining: 10.5s
668:
        learn: 0.6725134
                                  total: 21.1s
                                                   remaining: 10.4s
669:
        learn: 0.6705456
                                                   remaining: 10.4s
                                  total: 21.1s
670:
        learn: 0.6676580
                                  total: 21.1s
                                                   remaining: 10.4s
671:
        learn: 0.6657475
                                  total: 21.2s
                                                   remaining: 10.4s
672:
        learn: 0.6651191
                                  total: 21.2s
                                                   remaining: 10.3s
673:
        learn: 0.6611381
                                  total: 21.2s
                                                   remaining: 10.3s
674:
        learn: 0.6574955
                                  total: 21.3s
                                                   remaining: 10.3s
```

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675:
        learn: 0.6557975
                                  total: 21.3s
                                                   remaining: 10.2s
676:
        learn: 0.6538526
                                  total: 21.3s
                                                   remaining: 10.2s
                                  total: 21.4s
677:
        learn: 0.6524172
                                                   remaining: 10.2s
678:
        learn: 0.6509016
                                  total: 21.4s
                                                   remaining: 10.1s
679:
        learn: 0.6494940
                                  total: 21.4s
                                                   remaining: 10.1s
        learn: 0.6463154
                                  total: 21.5s
680:
                                                   remaining: 10.1s
681:
        learn: 0.6433474
                                  total: 21.5s
                                                   remaining: 10s
682:
        learn: 0.6414482
                                  total: 21.5s
                                                   remaining: 9.99s
683:
        learn: 0.6387778
                                  total: 21.5s
                                                   remaining: 9.94s
684:
        learn: 0.6370675
                                  total: 21.6s
                                                   remaining: 9.94s
                                  total: 21.6s
685:
        learn: 0.6354715
                                                   remaining: 9.89s
        learn: 0.6341845
                                  total: 21.6s
                                                   remaining: 9.85s
686:
687:
        learn: 0.6332980
                                  total: 21.7s
                                                   remaining: 9.84s
        learn: 0.6307437
                                  total: 21.7s
688:
                                                   remaining: 9.8s
689:
        learn: 0.6274335
                                  total: 21.7s
                                                   remaining: 9.76s
690:
        learn: 0.6263452
                                  total: 21.8s
                                                   remaining: 9.75s
691:
        learn: 0.6251979
                                  total: 21.8s
                                                   remaining: 9.71s
692:
        learn: 0.6237744
                                  total: 21.8s
                                                   remaining: 9.66s
693:
        learn: 0.6224341
                                  total: 21.9s
                                                   remaining: 9.65s
694:
        learn: 0.6203834
                                  total: 21.9s
                                                   remaining: 9.61s
        learn: 0.6202319
                                  total: 21.9s
695:
                                                   remaining: 9.57s
696:
        learn: 0.6191645
                                  total: 21.9s
                                                   remaining: 9.53s
697:
        learn: 0.6161318
                                  total: 22s
                                                   remaining: 9.52s
698:
        learn: 0.6128924
                                  total: 22s
                                                   remaining: 9.48s
                                  total: 22s
699:
        learn: 0.6106856
                                                   remaining: 9.43s
700:
        learn: 0.6083370
                                  total: 22.1s
                                                   remaining: 9.43s
701:
        learn: 0.6076925
                                  total: 22.1s
                                                   remaining: 9.38s
                                                   remaining: 9.34s
702:
        learn: 0.6067802
                                  total: 22.1s
                                  total: 22.2s
703:
        learn: 0.6027244
                                                   remaining: 9.33s
704:
        learn: 0.6020269
                                  total: 22.2s
                                                   remaining: 9.29s
705:
        learn: 0.5986639
                                  total: 22.2s
                                                   remaining: 9.25s
                                  total: 22.3s
706:
        learn: 0.5973361
                                                   remaining: 9.24s
707:
        learn: 0.5972358
                                  total: 22.3s
                                                   remaining: 9.2s
708:
        learn: 0.5968634
                                  total: 22.3s
                                                   remaining: 9.15s
        learn: 0.5957919
709:
                                  total: 22.4s
                                                   remaining: 9.14s
                                  total: 22.4s
710:
        learn: 0.5943988
                                                   remaining: 9.1s
711:
        learn: 0.5903430
                                  total: 22.4s
                                                   remaining: 9.06s
712:
        learn: 0.5889794
                                  total: 22.5s
                                                   remaining: 9.05s
713:
        learn: 0.5867247
                                  total: 22.5s
                                                   remaining: 9.01s
714:
        learn: 0.5846591
                                  total: 22.5s
                                                   remaining: 8.97s
715:
        learn: 0.5817613
                                  total: 22.6s
                                                   remaining: 8.96s
716:
        learn: 0.5810028
                                  total: 22.6s
                                                   remaining: 8.92s
717:
        learn: 0.5795945
                                  total: 22.6s
                                                   remaining: 8.88s
718:
        learn: 0.5773062
                                  total: 22.6s
                                                   remaining: 8.83s
719:
                                                   remaining: 8.82s
        learn: 0.5747573
                                  total: 22.7s
720:
        learn: 0.5727084
                                  total: 22.7s
                                                   remaining: 8.78s
721:
        learn: 0.5710069
                                  total: 22.7s
                                                   remaining: 8.74s
                                                   remaining: 8.73s
722:
        learn: 0.5684050
                                  total: 22.8s
723:
        learn: 0.5661676
                                  total: 22.8s
                                                   remaining: 8.69s
724:
        learn: 0.5638543
                                  total: 22.8s
                                                   remaining: 8.65s
725:
        learn: 0.5598486
                                  total: 22.9s
                                                   remaining: 8.64s
726:
        learn: 0.5579544
                                  total: 22.9s
                                                   remaining: 8.6s
727:
        learn: 0.5561444
                                  total: 22.9s
                                                   remaining: 8.55s
728:
        learn: 0.5548294
                                  total: 23s
                                                   remaining: 8.54s
729:
        learn: 0.5532166
                                  total: 23s
                                                   remaining: 8.5s
730:
        learn: 0.5521050
                                  total: 23s
                                                   remaining: 8.46s
731:
        learn: 0.5520241
                                  total: 23.1s
                                                   remaining: 8.45s
732:
        learn: 0.5497683
                                  total: 23.1s
                                                   remaining: 8.41s
733:
        learn: 0.5480049
                                  total: 23.1s
                                                   remaining: 8.37s
734:
        learn: 0.5448504
                                  total: 23.2s
                                                   remaining: 8.36s
        learn: 0.5415706
                                  total: 23.2s
735:
                                                   remaining: 8.31s
```

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736:
        learn: 0.5389978
                                  total: 23.2s
                                                   remaining: 8.27s
737:
        learn: 0.5375987
                                  total: 23.3s
                                                   remaining: 8.26s
738:
                                  total: 23.3s
        learn: 0.5374747
                                                   remaining: 8.22s
739:
        learn: 0.5357153
                                  total: 23.3s
                                                   remaining: 8.18s
740:
        learn: 0.5348240
                                  total: 23.4s
                                                   remaining: 8.17s
        learn: 0.5321305
741:
                                  total: 23.4s
                                                   remaining: 8.13s
742:
        learn: 0.5303809
                                  total: 23.4s
                                                   remaining: 8.09s
743:
        learn: 0.5266436
                                  total: 23.5s
                                                   remaining: 8.08s
744:
        learn: 0.5237661
                                  total: 23.5s
                                                   remaining: 8.04s
745:
        learn: 0.5222696
                                  total: 23.5s
                                                   remaining: 8s
                                  total: 23.6s
746:
        learn: 0.5214723
                                                   remaining: 7.98s
747:
        learn: 0.5207706
                                  total: 23.6s
                                                   remaining: 7.94s
748:
        learn: 0.5206987
                                  total: 23.6s
                                                   remaining: 7.9s
749:
                                  total: 23.7s
        learn: 0.5165698
                                                   remaining: 7.89s
750:
        learn: 0.5152003
                                  total: 23.7s
                                                   remaining: 7.85s
751:
        learn: 0.5151213
                                  total: 23.7s
                                                   remaining: 7.81s
752:
        learn: 0.5126423
                                  total: 23.7s
                                                   remaining: 7.77s
753:
        learn: 0.5093443
                                  total: 23.8s
                                                   remaining: 7.75s
754:
        learn: 0.5062393
                                  total: 23.8s
                                                   remaining: 7.71s
755:
        learn: 0.5019115
                                  total: 23.8s
                                                   remaining: 7.67s
        learn: 0.4993861
756:
                                  total: 23.9s
                                                   remaining: 7.66s
757:
        learn: 0.4971252
                                  total: 23.9s
                                                   remaining: 7.62s
758:
        learn: 0.4964824
                                  total: 23.9s
                                                   remaining: 7.58s
759:
        learn: 0.4964036
                                  total: 23.9s
                                                   remaining: 7.54s
                                  total: 24s
                                                   remaining: 7.53s
760:
        learn: 0.4952891
761:
        learn: 0.4951794
                                  total: 24s
                                                   remaining: 7.49s
762:
        learn: 0.4935168
                                  total: 24s
                                                   remaining: 7.45s
763:
        learn: 0.4908261
                                  total: 24.1s
                                                   remaining: 7.43s
                                  total: 24.1s
764:
        learn: 0.4877805
                                                   remaining: 7.39s
765:
                                  total: 24.1s
        learn: 0.4848768
                                                   remaining: 7.35s
766:
        learn: 0.4829123
                                  total: 24.2s
                                                   remaining: 7.34s
767:
        learn: 0.4809940
                                  total: 24.2s
                                                   remaining: 7.3s
768:
        learn: 0.4799601
                                  total: 24.2s
                                                   remaining: 7.26s
769:
        learn: 0.4766661
                                  total: 24.3s
                                                   remaining: 7.25s
770:
        learn: 0.4766044
                                  total: 24.3s
                                                   remaining: 7.21s
771:
                                  total: 24.3s
                                                   remaining: 7.17s
        learn: 0.4746507
772:
        learn: 0.4727423
                                  total: 24.4s
                                                   remaining: 7.15s
773:
        learn: 0.4724846
                                  total: 24.4s
                                                   remaining: 7.11s
774:
        learn: 0.4707360
                                  total: 24.4s
                                                   remaining: 7.07s
775:
        learn: 0.4680113
                                  total: 24.5s
                                                   remaining: 7.06s
776:
        learn: 0.4653260
                                  total: 24.5s
                                                   remaining: 7.02s
777:
        learn: 0.4649298
                                  total: 24.5s
                                                   remaining: 6.98s
778:
        learn: 0.4641068
                                  total: 24.6s
                                                   remaining: 6.96s
779:
        learn: 0.4610204
                                  total: 24.6s
                                                   remaining: 6.93s
780:
        learn: 0.4609422
                                  total: 24.6s
                                                   remaining: 6.89s
781:
        learn: 0.4596771
                                  total: 24.7s
                                                   remaining: 6.87s
782:
        learn: 0.4581396
                                  total: 24.7s
                                                   remaining: 6.83s
783:
        learn: 0.4570796
                                  total: 24.7s
                                                   remaining: 6.79s
784:
        learn: 0.4564352
                                  total: 24.7s
                                                   remaining: 6.78s
785:
        learn: 0.4528978
                                  total: 24.8s
                                                   remaining: 6.74s
786:
        learn: 0.4507829
                                  total: 24.8s
                                                   remaining: 6.7s
787:
        learn: 0.4504503
                                  total: 24.8s
                                                   remaining: 6.68s
788:
        learn: 0.4483865
                                  total: 24.9s
                                                   remaining: 6.65s
789:
        learn: 0.4471081
                                  total: 24.9s
                                                   remaining: 6.61s
790:
        learn: 0.4470555
                                  total: 24.9s
                                                   remaining: 6.59s
791:
        learn: 0.4455839
                                  total: 24.9s
                                                   remaining: 6.55s
792:
        learn: 0.4431184
                                  total: 25s
                                                   remaining: 6.51s
793:
        learn: 0.4416311
                                  total: 25s
                                                   remaining: 6.5s
794:
        learn: 0.4409088
                                  total: 25s
                                                   remaining: 6.46s
795:
        learn: 0.4387535
                                  total: 25.1s
                                                   remaining: 6.42s
        learn: 0.4374252
                                  total: 25.1s
796:
                                                   remaining: 6.4s
```

```
797:
        learn: 0.4350534
                                  total: 25.1s
                                                   remaining: 6.37s
798:
        learn: 0.4331866
                                  total: 25.1s
                                                   remaining: 6.33s
799:
                                  total: 25.2s
        learn: 0.4317665
                                                   remaining: 6.31s
800:
        learn: 0.4313066
                                  total: 25.2s
                                                   remaining: 6.27s
801:
        learn: 0.4297106
                                  total: 25.2s
                                                   remaining: 6.23s
        learn: 0.4285591
                                  total: 25.3s
802:
                                                   remaining: 6.22s
803:
        learn: 0.4252608
                                  total: 25.3s
                                                   remaining: 6.18s
804:
        learn: 0.4226695
                                  total: 25.3s
                                                   remaining: 6.14s
805:
        learn: 0.4205237
                                  total: 25.4s
                                                   remaining: 6.12s
        learn: 0.4179699
                                  total: 25.4s
806:
                                                   remaining: 6.09s
807:
        learn: 0.4156886
                                  total: 25.5s
                                                   remaining: 6.07s
808:
        learn: 0.4140354
                                  total: 25.5s
                                                   remaining: 6.03s
809:
        learn: 0.4117213
                                  total: 25.5s
                                                   remaining: 5.99s
                                  total: 25.6s
810:
        learn: 0.4098508
                                                   remaining: 5.97s
811:
        learn: 0.4081996
                                  total: 25.6s
                                                   remaining: 5.93s
812:
        learn: 0.4063031
                                  total: 25.6s
                                                   remaining: 5.9s
813:
        learn: 0.4057667
                                  total: 25.7s
                                                   remaining: 5.88s
814:
        learn: 0.4040409
                                  total: 25.7s
                                                   remaining: 5.84s
815:
        learn: 0.4019626
                                  total: 25.7s
                                                   remaining: 5.8s
816:
        learn: 0.4001309
                                  total: 25.7s
                                                   remaining: 5.76s
817:
        learn: 0.3976363
                                  total: 25.8s
                                                   remaining: 5.75s
818:
        learn: 0.3963991
                                  total: 25.8s
                                                   remaining: 5.71s
819:
        learn: 0.3946378
                                  total: 25.8s
                                                   remaining: 5.67s
820:
        learn: 0.3939326
                                  total: 25.9s
                                                   remaining: 5.65s
                                  total: 25.9s
821:
        learn: 0.3927716
                                                   remaining: 5.62s
822:
        learn: 0.3919258
                                  total: 25.9s
                                                   remaining: 5.58s
823:
        learn: 0.3892771
                                  total: 26s
                                                   remaining: 5.56s
824:
        learn: 0.3869370
                                  total: 26s
                                                   remaining: 5.52s
825:
        learn: 0.3861738
                                  total: 26s
                                                   remaining: 5.48s
826:
        learn: 0.3844939
                                  total: 26.1s
                                                   remaining: 5.46s
827:
        learn: 0.3841840
                                  total: 26.1s
                                                   remaining: 5.43s
                                  total: 26.1s
828:
        learn: 0.3827527
                                                   remaining: 5.39s
829:
        learn: 0.3808899
                                  total: 26.2s
                                                   remaining: 5.37s
830:
        learn: 0.3792942
                                  total: 26.2s
                                                   remaining: 5.33s
831:
        learn: 0.3775236
                                  total: 26.2s
                                                   remaining: 5.3s
                                  total: 26.3s
                                                   remaining: 5.28s
832:
        learn: 0.3751950
833:
        learn: 0.3737120
                                  total: 26.3s
                                                   remaining: 5.24s
834:
        learn: 0.3727712
                                  total: 26.3s
                                                   remaining: 5.2s
835:
        learn: 0.3715637
                                  total: 26.4s
                                                   remaining: 5.18s
836:
        learn: 0.3691492
                                  total: 26.4s
                                                   remaining: 5.14s
                                  total: 26.4s
837:
        learn: 0.3687221
                                                   remaining: 5.11s
838:
        learn: 0.3680401
                                  total: 26.5s
                                                   remaining: 5.09s
        learn: 0.3662079
                                  total: 26.5s
839:
                                                   remaining: 5.05s
        learn: 0.3647517
840:
                                  total: 26.5s
                                                   remaining: 5.01s
841:
        learn: 0.3632505
                                                   remaining: 4.99s
                                  total: 26.6s
842:
        learn: 0.3617003
                                  total: 26.6s
                                                   remaining: 4.96s
843:
        learn: 0.3605177
                                  total: 26.6s
                                                   remaining: 4.92s
                                                   remaining: 4.9s
844:
        learn: 0.3590325
                                  total: 26.7s
845:
        learn: 0.3572679
                                  total: 26.7s
                                                   remaining: 4.86s
846:
        learn: 0.3560127
                                  total: 26.7s
                                                   remaining: 4.83s
847:
        learn: 0.3546598
                                  total: 26.8s
                                                   remaining: 4.8s
848:
        learn: 0.3530544
                                  total: 26.8s
                                                   remaining: 4.77s
849:
        learn: 0.3500363
                                  total: 26.8s
                                                   remaining: 4.73s
850:
        learn: 0.3482373
                                  total: 26.9s
                                                   remaining: 4.71s
        learn: 0.3472345
                                  total: 26.9s
851:
                                                   remaining: 4.67s
852:
        learn: 0.3457308
                                  total: 26.9s
                                                   remaining: 4.64s
853:
        learn: 0.3447413
                                  total: 27s
                                                   remaining: 4.62s
854:
        learn: 0.3438745
                                  total: 27s
                                                   remaining: 4.58s
855:
        learn: 0.3431995
                                  total: 27s
                                                   remaining: 4.54s
856:
        learn: 0.3409853
                                  total: 27.1s
                                                   remaining: 4.52s
        learn: 0.3389830
                                  total: 27.1s
857:
                                                   remaining: 4.49s
```

```
learn: 0.3369454
858:
                                  total: 27.1s
                                                   remaining: 4.45s
859:
        learn: 0.3366524
                                  total: 27.2s
                                                   remaining: 4.43s
                                  total: 27.2s
860:
        learn: 0.3353802
                                                   remaining: 4.39s
861:
        learn: 0.3336808
                                  total: 27.2s
                                                   remaining: 4.36s
862:
        learn: 0.3313375
                                  total: 27.3s
                                                   remaining: 4.33s
        learn: 0.3300308
                                  total: 27.3s
863:
                                                   remaining: 4.3s
864:
        learn: 0.3292098
                                  total: 27.3s
                                                   remaining: 4.26s
865:
        learn: 0.3289987
                                  total: 27.4s
                                                   remaining: 4.24s
        learn: 0.3277303
                                  total: 27.4s
                                                   remaining: 4.2s
866:
867:
        learn: 0.3267417
                                  total: 27.4s
                                                   remaining: 4.17s
868:
        learn: 0.3244796
                                  total: 27.5s
                                                   remaining: 4.14s
869:
        learn: 0.3238480
                                  total: 27.5s
                                                   remaining: 4.11s
870:
        learn: 0.3220641
                                  total: 27.5s
                                                   remaining: 4.07s
871:
        learn: 0.3209560
                                  total: 27.6s
                                                   remaining: 4.05s
872:
        learn: 0.3200460
                                  total: 27.6s
                                                   remaining: 4.01s
873:
        learn: 0.3179757
                                  total: 27.6s
                                                   remaining: 3.98s
874:
        learn: 0.3164221
                                  total: 27.7s
                                                   remaining: 3.96s
875:
        learn: 0.3147849
                                  total: 27.7s
                                                   remaining: 3.92s
876:
        learn: 0.3140348
                                  total: 27.7s
                                                   remaining: 3.88s
877:
        learn: 0.3133442
                                  total: 27.8s
                                                   remaining: 3.86s
878:
        learn: 0.3124612
                                  total: 27.8s
                                                   remaining: 3.83s
879:
        learn: 0.3120994
                                  total: 27.8s
                                                   remaining: 3.79s
880:
        learn: 0.3105657
                                  total: 27.9s
                                                   remaining: 3.77s
881:
        learn: 0.3092626
                                  total: 27.9s
                                                   remaining: 3.73s
                                  total: 27.9s
882:
        learn: 0.3080828
                                                   remaining: 3.7s
                                                   remaining: 3.67s
883:
        learn: 0.3063894
                                  total: 28s
884:
        learn: 0.3051451
                                  total: 28s
                                                   remaining: 3.64s
885:
        learn: 0.3044124
                                  total: 28s
                                                   remaining: 3.6s
                                  total: 28.1s
886:
        learn: 0.3033892
                                                   remaining: 3.58s
        learn: 0.3011633
887:
                                  total: 28.1s
                                                   remaining: 3.54s
888:
        learn: 0.2998399
                                  total: 28.1s
                                                   remaining: 3.51s
                                  total: 28.2s
889:
        learn: 0.2988484
                                                   remaining: 3.48s
890:
        learn: 0.2977645
                                  total: 28.2s
                                                   remaining: 3.45s
891:
        learn: 0.2967519
                                  total: 28.2s
                                                   remaining: 3.41s
        learn: 0.2951299
892:
                                  total: 28.3s
                                                   remaining: 3.39s
                                  total: 28.3s
                                                   remaining: 3.35s
893:
        learn: 0.2940461
894:
        learn: 0.2935533
                                  total: 28.3s
                                                   remaining: 3.32s
895:
        learn: 0.2921592
                                  total: 28.4s
                                                   remaining: 3.29s
896:
        learn: 0.2911824
                                  total: 28.4s
                                                   remaining: 3.26s
897:
        learn: 0.2906635
                                  total: 28.4s
                                                   remaining: 3.22s
898:
        learn: 0.2894268
                                  total: 28.5s
                                                   remaining: 3.2s
899:
        learn: 0.2891577
                                  total: 28.5s
                                                   remaining: 3.16s
        learn: 0.2884777
                                  total: 28.5s
900:
                                                   remaining: 3.13s
        learn: 0.2871896
                                  total: 28.5s
901:
                                                   remaining: 3.09s
902:
        learn: 0.2860630
                                  total: 28.6s
                                                   remaining: 3.07s
903:
        learn: 0.2842412
                                  total: 28.6s
                                                   remaining: 3.03s
904:
        learn: 0.2841419
                                  total: 28.6s
                                                   remaining: 3s
                                                   remaining: 2.97s
905:
        learn: 0.2822273
                                  total: 28.7s
906:
        learn: 0.2819310
                                  total: 28.7s
                                                   remaining: 2.94s
907:
        learn: 0.2813773
                                  total: 28.7s
                                                   remaining: 2.91s
908:
        learn: 0.2806459
                                  total: 28.8s
                                                   remaining: 2.88s
909:
        learn: 0.2791455
                                  total: 28.8s
                                                   remaining: 2.85s
910:
        learn: 0.2778300
                                  total: 28.8s
                                                   remaining: 2.81s
911:
        learn: 0.2777738
                                  total: 28.9s
                                                   remaining: 2.79s
912:
        learn: 0.2759678
                                  total: 28.9s
                                                   remaining: 2.75s
913:
        learn: 0.2751217
                                  total: 28.9s
                                                   remaining: 2.72s
914:
        learn: 0.2740733
                                  total: 29s
                                                   remaining: 2.69s
915:
        learn: 0.2734892
                                  total: 29s
                                                   remaining: 2.66s
916:
        learn: 0.2727894
                                  total: 29s
                                                   remaining: 2.62s
917:
        learn: 0.2723131
                                  total: 29.1s
                                                   remaining: 2.6s
                                  total: 29.1s
918:
        learn: 0.2717595
                                                   remaining: 2.56s
```

```
total: 29.1s
919:
        learn: 0.2694373
                                                   remaining: 2.53s
920:
        learn: 0.2682881
                                  total: 29.2s
                                                   remaining: 2.5s
921:
                                  total: 29.2s
        learn: 0.2671455
                                                   remaining: 2.47s
922:
        learn: 0.2659925
                                  total: 29.2s
                                                   remaining: 2.43s
923:
        learn: 0.2640968
                                  total: 29.3s
                                                   remaining: 2.41s
        learn: 0.2634080
924:
                                  total: 29.3s
                                                   remaining: 2.37s
925:
        learn: 0.2627923
                                  total: 29.3s
                                                   remaining: 2.34s
926:
        learn: 0.2621831
                                  total: 29.4s
                                                   remaining: 2.31s
927:
        learn: 0.2615600
                                  total: 29.4s
                                                   remaining: 2.28s
928:
        learn: 0.2611852
                                  total: 29.4s
                                                   remaining: 2.24s
929:
                                  total: 29.5s
        learn: 0.2599543
                                                   remaining: 2.22s
930:
        learn: 0.2570098
                                  total: 29.5s
                                                   remaining: 2.18s
931:
        learn: 0.2552620
                                  total: 29.5s
                                                   remaining: 2.15s
932:
        learn: 0.2543156
                                  total: 29.6s
                                                   remaining: 2.12s
933:
        learn: 0.2538374
                                  total: 29.6s
                                                   remaining: 2.09s
934:
        learn: 0.2532391
                                  total: 29.6s
                                                   remaining: 2.05s
935:
        learn: 0.2531402
                                  total: 29.6s
                                                   remaining: 2.03s
                                  total: 29.7s
936:
        learn: 0.2517427
                                                   remaining: 1.99s
937:
        learn: 0.2514898
                                  total: 29.7s
                                                   remaining: 1.96s
938:
        learn: 0.2510670
                                  total: 29.7s
                                                   remaining: 1.93s
939:
        learn: 0.2507248
                                  total: 29.8s
                                                   remaining: 1.9s
940:
        learn: 0.2493485
                                  total: 29.8s
                                                   remaining: 1.86s
941:
        learn: 0.2475956
                                  total: 29.8s
                                                   remaining: 1.83s
942:
        learn: 0.2466563
                                  total: 29.9s
                                                   remaining: 1.8s
                                  total: 29.9s
943:
        learn: 0.2455867
                                                   remaining: 1.77s
944:
        learn: 0.2438538
                                  total: 29.9s
                                                   remaining: 1.74s
945:
        learn: 0.2426041
                                  total: 29.9s
                                                   remaining: 1.71s
946:
        learn: 0.2420077
                                  total: 29.9s
                                                   remaining: 1.68s
                                  total: 30s
947:
        learn: 0.2419657
                                                   remaining: 1.64s
948:
        learn: 0.2403244
                                  total: 30s
                                                   remaining: 1.61s
949:
        learn: 0.2393239
                                  total: 30s
                                                   remaining: 1.58s
                                  total: 30.1s
950:
        learn: 0.2385200
                                                   remaining: 1.55s
951:
        learn: 0.2370182
                                  total: 30.1s
                                                   remaining: 1.52s
952:
        learn: 0.2354949
                                  total: 30.1s
                                                   remaining: 1.49s
        learn: 0.2342414
953:
                                  total: 30.2s
                                                   remaining: 1.45s
                                  total: 30.2s
954:
        learn: 0.2339349
                                                   remaining: 1.42s
955:
        learn: 0.2330645
                                  total: 30.2s
                                                   remaining: 1.39s
        learn: 0.2320077
956:
                                  total: 30.2s
                                                   remaining: 1.36s
957:
        learn: 0.2312578
                                  total: 30.3s
                                                   remaining: 1.33s
958:
        learn: 0.2304647
                                  total: 30.3s
                                                   remaining: 1.3s
959:
        learn: 0.2297466
                                  total: 30.3s
                                                   remaining: 1.26s
960:
        learn: 0.2283513
                                  total: 30.4s
                                                   remaining: 1.24s
961:
        learn: 0.2279750
                                  total: 30.4s
                                                   remaining: 1.2s
        learn: 0.2264941
                                  total: 30.4s
962:
                                                   remaining: 1.17s
                                                   remaining: 1.14s
963:
        learn: 0.2252536
                                  total: 30.5s
964:
        learn: 0.2240171
                                  total: 30.5s
                                                   remaining: 1.11s
965:
        learn: 0.2227943
                                  total: 30.5s
                                                   remaining: 1.07s
                                                   remaining: 1.04s
966:
        learn: 0.2216493
                                  total: 30.6s
967:
        learn: 0.2215732
                                  total: 30.6s
                                                   remaining: 1.01s
968:
        learn: 0.2211013
                                  total: 30.6s
                                                   remaining: 980ms
969:
        learn: 0.2196822
                                  total: 30.7s
                                                   remaining: 950ms
970:
        learn: 0.2193101
                                  total: 30.7s
                                                   remaining: 918ms
971:
        learn: 0.2185436
                                  total: 30.7s
                                                   remaining: 885ms
972:
        learn: 0.2181991
                                  total: 30.8s
                                                   remaining: 855ms
973:
        learn: 0.2177377
                                  total: 30.8s
                                                   remaining: 823ms
974:
        learn: 0.2167976
                                  total: 30.8s
                                                   remaining: 791ms
975:
        learn: 0.2164138
                                  total: 30.9s
                                                   remaining: 760ms
                                  total: 30.9s
976:
        learn: 0.2162145
                                                   remaining: 728ms
977:
        learn: 0.2154807
                                  total: 30.9s
                                                   remaining: 696ms
978:
        learn: 0.2144662
                                  total: 31s
                                                   remaining: 665ms
        learn: 0.2130824
979:
                                  total: 31s
                                                   remaining: 633ms
```

```
980:
        learn: 0.2126121
                                  total: 31s
                                                   remaining: 601ms
981:
        learn: 0.2119579
                                  total: 31s
                                                   remaining: 569ms
                                  total: 31.1s
982:
        learn: 0.2109941
                                                   remaining: 538ms
983:
        learn: 0.2103964
                                  total: 31.1s
                                                   remaining: 506ms
984:
        learn: 0.2089047
                                  total: 31.1s
                                                   remaining: 474ms
985:
        learn: 0.2071326
                                  total: 31.2s
                                                   remaining: 443ms
986:
        learn: 0.2063167
                                  total: 31.2s
                                                   remaining: 411ms
987:
        learn: 0.2059889
                                  total: 31.2s
                                                   remaining: 379ms
988:
        learn: 0.2051071
                                  total: 31.3s
                                                   remaining: 348ms
989:
        learn: 0.2041617
                                  total: 31.3s
                                                   remaining: 316ms
990:
                                  total: 31.3s
        learn: 0.2036060
                                                   remaining: 285ms
991:
        learn: 0.2026570
                                  total: 31.4s
                                                   remaining: 253ms
992:
        learn: 0.2023893
                                  total: 31.4s
                                                   remaining: 221ms
993:
        learn: 0.2016084
                                  total: 31.4s
                                                   remaining: 190ms
994:
        learn: 0.2013568
                                  total: 31.5s
                                                   remaining: 158ms
995:
        learn: 0.2007050
                                  total: 31.5s
                                                   remaining: 127ms
996:
        learn: 0.1998816
                                  total: 31.5s
                                                   remaining: 94.9ms
997:
        learn: 0.1992142
                                  total: 31.6s
                                                   remaining: 63.4ms
998:
        learn: 0.1978540
                                  total: 31.6s
                                                   remaining: 31.6ms
999:
        learn: 0.1970317
                                  total: 31.6s
                                                   remaining: Ous
        learn: 20.2258321
                                  total: 4.42ms
                                                   remaining: 4.42s
0:
1:
        learn: 19.9943772
                                  total: 8.55ms
                                                   remaining: 4.27s
2:
        learn: 19.7719041
                                  total: 12.3ms
                                                   remaining: 4.09s
        learn: 19.5675970
3:
                                  total: 94ms
                                                   remaining: 23.4s
        learn: 19.3568795
                                  total: 97.9ms
4:
                                                   remaining: 19.5s
5:
        learn: 18.9299846
                                  total: 102ms
                                                   remaining: 16.9s
6:
        learn: 18.5661511
                                  total: 190ms
                                                   remaining: 26.9s
7:
        learn: 18.3354769
                                  total: 194ms
                                                   remaining: 24s
                                  total: 198ms
8:
        learn: 18.1564553
                                                   remaining: 21.8s
        learn: 17.7941615
9:
                                  total: 288ms
                                                   remaining: 28.5s
10:
        learn: 17.6262651
                                  total: 292ms
                                                   remaining: 26.3s
        learn: 17.4590880
11:
                                  total: 297ms
                                                   remaining: 24.4s
                                                   remaining: 22.8s
        learn: 17.2978680
                                  total: 301ms
12:
13:
        learn: 17.1330440
                                  total: 388ms
                                                   remaining: 27.4s
        learn: 16.9902644
14:
                                  total: 392ms
                                                   remaining: 25.8s
                                  total: 396ms
15:
        learn: 16.8420228
                                                   remaining: 24.4s
16:
        learn: 16.7123801
                                  total: 484ms
                                                   remaining: 28s
17:
        learn: 16.5897609
                                  total: 489ms
                                                   remaining: 26.7s
18:
        learn: 16.4640734
                                  total: 494ms
                                                   remaining: 25.5s
19:
        learn: 16.3442957
                                  total: 583ms
                                                   remaining: 28.6s
20:
        learn: 15.9816523
                                  total: 587ms
                                                   remaining: 27.4s
21:
        learn: 15.8500986
                                  total: 592ms
                                                   remaining: 26.3s
22:
        learn: 15.5922012
                                  total: 597ms
                                                   remaining: 25.3s
        learn: 15.4912368
23:
                                  total: 683ms
                                                   remaining: 27.8s
24:
        learn: 15.3907898
                                                   remaining: 26.8s
                                  total: 688ms
25:
        learn: 15.1344435
                                  total: 694ms
                                                   remaining: 26s
        learn: 15.0096177
                                  total: 781ms
26:
                                                   remaining: 28.1s
27:
        learn: 14.9297962
                                  total: 785ms
                                                   remaining: 27.2s
28:
        learn: 14.6916294
                                  total: 788ms
                                                   remaining: 26.4s
29:
        learn: 14.5297226
                                  total: 877ms
                                                   remaining: 28.4s
30:
        learn: 14.2774722
                                  total: 881ms
                                                   remaining: 27.5s
31:
        learn: 14.1844579
                                  total: 885ms
                                                   remaining: 26.8s
32:
        learn: 14.1163270
                                  total: 975ms
                                                   remaining: 28.6s
33:
        learn: 14.0383716
                                  total: 980ms
                                                   remaining: 27.8s
        learn: 13.9485227
34:
                                  total: 984ms
                                                   remaining: 27.1s
35:
        learn: 13.7171617
                                                   remaining: 28.7s
                                  total: 1.07s
36:
        learn: 13.6595943
                                  total: 1.08s
                                                   remaining: 28.1s
37:
        learn: 13.3984383
                                  total: 1.08s
                                                   remaining: 27.4s
38:
        learn: 13.3372683
                                  total: 1.08s
                                                   remaining: 26.8s
39:
        learn: 13.2847987
                                  total: 1.17s
                                                   remaining: 28.2s
        learn: 13.1592641
40:
                                  total: 1.18s
                                                   remaining: 27.6s
```

```
41:
        learn: 13.0249870
                                  total: 1.18s
                                                   remaining: 27s
42:
        learn: 12.8730350
                                  total: 1.27s
                                                   remaining: 28.3s
43:
        learn: 12.8090709
                                  total: 1.28s
                                                   remaining: 27.7s
44:
        learn: 12.7347415
                                  total: 1.28s
                                                   remaining: 27.2s
45:
        learn: 12.6185651
                                  total: 1.37s
                                                   remaining: 28.4s
        learn: 12.4297602
                                  total: 1.38s
46:
                                                   remaining: 27.9s
47:
        learn: 12.3914916
                                  total: 1.38s
                                                   remaining: 27.4s
48:
        learn: 12.2372873
                                                   remaining: 28.5s
                                  total: 1.47s
49:
        learn: 12.1786644
                                  total: 1.47s
                                                   remaining: 28s
50:
        learn: 11.9643930
                                  total: 1.48s
                                                   remaining: 27.5s
        learn: 11.8666279
51:
                                  total: 1.56s
                                                   remaining: 28.5s
52:
        learn: 11.8088817
                                                   remaining: 28s
                                  total: 1.57s
53:
        learn: 11.7544108
                                  total: 1.57s
                                                   remaining: 27.5s
54:
        learn: 11.6621360
                                  total: 1.57s
                                                   remaining: 27.1s
55:
        learn: 11.5668873
                                  total: 1.67s
                                                   remaining: 28.1s
56:
        learn: 11.5323910
                                  total: 1.67s
                                                   remaining: 27.6s
57:
        learn: 11.4469821
                                  total: 1.67s
                                                   remaining: 27.2s
58:
        learn: 11.3964245
                                  total: 1.76s
                                                   remaining: 28.1s
59:
        learn: 11.3274875
                                  total: 1.77s
                                                   remaining: 27.7s
60:
        learn: 11.2830487
                                  total: 1.77s
                                                   remaining: 27.3s
61:
        learn: 11.1357434
                                  total: 1.78s
                                                   remaining: 26.9s
62:
        learn: 11.0279165
                                  total: 1.86s
                                                   remaining: 27.7s
63:
        learn: 10.9768542
                                  total: 1.87s
                                                   remaining: 27.3s
        learn: 10.9441625
64:
                                  total: 1.87s
                                                   remaining: 26.9s
        learn: 10.8234096
                                  total: 1.96s
65:
                                                   remaining: 27.7s
66:
        learn: 10.7288142
                                  total: 1.96s
                                                   remaining: 27.3s
67:
        learn: 10.6962792
                                  total: 1.97s
                                                   remaining: 27s
68:
        learn: 10.6152720
                                  total: 2.06s
                                                   remaining: 27.8s
        learn: 10.5898753
69:
                                  total: 2.06s
                                                   remaining: 27.4s
        learn: 10.5579130
70:
                                  total: 2.07s
                                                   remaining: 27s
71:
        learn: 10.5347617
                                  total: 2.15s
                                                   remaining: 27.8s
        learn: 10.5167118
72:
                                  total: 2.16s
                                                   remaining: 27.4s
73:
        learn: 10.4978871
                                  total: 2.16s
                                                   remaining: 27.1s
74:
        learn: 10.4004427
                                  total: 2.25s
                                                   remaining: 27.8s
75:
        learn: 10.3824760
                                  total: 2.25s
                                                   remaining: 27.4s
                                                   remaining: 27.1s
76:
        learn: 10.2663462
                                  total: 2.26s
77:
        learn: 10.1510068
                                  total: 2.35s
                                                   remaining: 27.8s
78:
        learn: 10.1025696
                                  total: 2.35s
                                                   remaining: 27.4s
79:
        learn: 10.0588732
                                  total: 2.36s
                                                   remaining: 27.1s
80:
        learn: 10.0460831
                                  total: 2.45s
                                                   remaining: 27.8s
81:
        learn: 9.9440688
                                  total: 2.45s
                                                   remaining: 27.5s
82:
        learn: 9.8937611
                                  total: 2.46s
                                                   remaining: 27.1s
83:
        learn: 9.8701386
                                  total: 2.54s
                                                   remaining: 27.8s
        learn: 9.8552708
84:
                                  total: 2.55s
                                                   remaining: 27.4s
85:
        learn: 9.8372576
                                  total: 2.55s
                                                   remaining: 27.1s
86:
        learn: 9.7179629
                                  total: 2.56s
                                                   remaining: 26.8s
87:
        learn: 9.6928559
                                  total: 2.65s
                                                   remaining: 27.4s
                                                   remaining: 27.1s
88:
        learn: 9.6658259
                                  total: 2.65s
89:
        learn: 9.5700093
                                  total: 2.65s
                                                   remaining: 26.8s
90:
        learn: 9.5584326
                                  total: 2.74s
                                                   remaining: 27.4s
91:
        learn: 9.5178045
                                  total: 2.75s
                                                   remaining: 27.1s
92:
        learn: 9.4804504
                                  total: 2.75s
                                                   remaining: 26.8s
93:
        learn: 9.4699424
                                  total: 2.84s
                                                   remaining: 27.4s
94:
        learn: 9.3678351
                                  total: 2.84s
                                                   remaining: 27.1s
95:
        learn: 9.2724299
                                  total: 2.85s
                                                   remaining: 26.8s
96:
        learn: 9.2210382
                                  total: 2.94s
                                                   remaining: 27.3s
97:
        learn: 9.2126438
                                  total: 2.94s
                                                   remaining: 27.1s
98:
        learn: 9.2013713
                                  total: 2.94s
                                                   remaining: 26.8s
99:
        learn: 9.1835954
                                  total: 3.03s
                                                   remaining: 27.3s
100:
        learn: 9.1733007
                                  total: 3.04s
                                                   remaining: 27s
        learn: 9.1669086
101:
                                  total: 3.04s
                                                   remaining: 26.8s
```

```
learn: 9.0987673
102:
                                  total: 3.13s
                                                   remaining: 27.3s
103:
        learn: 9.0296964
                                  total: 3.14s
                                                   remaining: 27s
104:
        learn: 8.9827003
                                  total: 3.14s
                                                   remaining: 26.8s
105:
        learn: 8.9178928
                                  total: 3.23s
                                                   remaining: 27.2s
106:
        learn: 8.8553799
                                  total: 3.23s
                                                   remaining: 27s
        learn: 8.7957569
107:
                                  total: 3.24s
                                                   remaining: 26.7s
108:
        learn: 8.7491508
                                  total: 3.24s
                                                   remaining: 26.5s
109:
        learn: 8.7140577
                                                   remaining: 27s
                                  total: 3.33s
        learn: 8.5995401
                                                   remaining: 26.7s
110:
                                  total: 3.33s
        learn: 8.5233057
                                  total: 3.34s
111:
                                                   remaining: 26.5s
112:
        learn: 8.4767449
                                  total: 3.43s
                                                   remaining: 26.9s
113:
        learn: 8.3885809
                                                   remaining: 26.7s
                                  total: 3.43s
114:
        learn: 8.3742857
                                  total: 3.44s
                                                   remaining: 26.4s
                                  total: 3.44s
        learn: 8.3296199
115:
                                                   remaining: 26.2s
116:
        learn: 8.2544233
                                  total: 3.53s
                                                   remaining: 26.6s
117:
        learn: 8.1859507
                                  total: 3.53s
                                                   remaining: 26.4s
118:
        learn: 8.1569299
                                  total: 3.54s
                                                   remaining: 26.2s
119:
        learn: 8.1060786
                                  total: 3.63s
                                                   remaining: 26.6s
120:
        learn: 8.0285663
                                  total: 3.63s
                                                   remaining: 26.4s
121:
        learn: 7.9749158
                                                   remaining: 26.2s
                                  total: 3.64s
122:
        learn: 7.9621640
                                  total: 3.71s
                                                   remaining: 26.4s
                                  total: 3.71s
123:
        learn: 7.8903542
                                                   remaining: 26.2s
124:
        learn: 7.8613258
                                                   remaining: 26s
                                  total: 3.72s
125:
        learn: 7.8284603
                                  total: 3.72s
                                                   remaining: 25.8s
126:
        learn: 7.7605644
                                  total: 3.81s
                                                   remaining: 26.2s
127:
        learn: 7.7287695
                                  total: 3.81s
                                                   remaining: 26s
128:
        learn: 7.6880008
                                  total: 3.83s
                                                   remaining: 25.9s
                                                   remaining: 26.2s
129:
        learn: 7.6418496
                                  total: 3.91s
130:
        learn: 7.5825830
                                  total: 3.91s
                                                   remaining: 26s
                                  total: 3.92s
131:
        learn: 7.5274782
                                                   remaining: 25.8s
132:
        learn: 7.5218246
                                                   remaining: 26.1s
                                  total: 4s
        learn: 7.4602098
133:
                                  total: 4.01s
                                                   remaining: 25.9s
134:
        learn: 7.4160373
                                  total: 4.01s
                                                   remaining: 25.7s
135:
        learn: 7.3874071
                                  total: 4.1s
                                                   remaining: 26.1s
136:
        learn: 7.3287086
                                  total: 4.11s
                                                   remaining: 25.9s
137:
        learn: 7.2946566
                                  total: 4.11s
                                                   remaining: 25.7s
138:
        learn: 7.2592228
                                  total: 4.11s
                                                   remaining: 25.5s
139:
        learn: 7.2351927
                                  total: 4.2s
                                                   remaining: 25.8s
140:
        learn: 7.1844876
                                  total: 4.21s
                                                   remaining: 25.6s
                                                   remaining: 25.4s
141:
        learn: 7.1589307
                                  total: 4.21s
142:
        learn: 7.1254466
                                                   remaining: 25.8s
                                  total: 4.3s
        learn: 7.0792944
143:
                                  total: 4.3s
                                                   remaining: 25.6s
        learn: 7.0416491
144:
                                  total: 4.31s
                                                   remaining: 25.4s
145:
        learn: 7.0013532
                                  total: 4.4s
                                                   remaining: 25.7s
        learn: 6.9661782
                                                   remaining: 25.5s
146:
                                  total: 4.4s
147:
        learn: 6.9394021
                                  total: 4.4s
                                                   remaining: 25.4s
        learn: 6.9171971
148:
                                  total: 4.49s
                                                   remaining: 25.7s
                                                   remaining: 25.5s
149:
        learn: 6.8560421
                                  total: 4.5s
150:
        learn: 6.8325611
                                  total: 4.5s
                                                   remaining: 25.3s
        learn: 6.8110892
151:
                                  total: 4.51s
                                                   remaining: 25.1s
152:
        learn: 6.7869442
                                  total: 4.59s
                                                   remaining: 25.4s
153:
        learn: 6.7308456
                                  total: 4.6s
                                                   remaining: 25.3s
        learn: 6.7127660
                                                   remaining: 25.1s
154:
                                  total: 4.6s
155:
        learn: 6.6828236
                                  total: 4.69s
                                                   remaining: 25.4s
156:
        learn: 6.6463084
                                  total: 4.7s
                                                   remaining: 25.2s
        learn: 6.6208257
                                                   remaining: 25.1s
157:
                                  total: 4.71s
158:
        learn: 6.5995077
                                  total: 4.79s
                                                   remaining: 25.3s
159:
                                  total: 4.79s
        learn: 6.5609712
                                                   remaining: 25.2s
160:
        learn: 6.5333544
                                  total: 4.8s
                                                   remaining: 25s
161:
        learn: 6.5125230
                                  total: 4.89s
                                                   remaining: 25.3s
162:
        learn: 6.4812890
                                  total: 4.89s
                                                   remaining: 25.1s
```

```
learn: 6.4617517
163:
                                  total: 4.9s
                                                   remaining: 25s
164:
        learn: 6.4051738
                                  total: 4.98s
                                                   remaining: 25.2s
165:
        learn: 6.3892361
                                  total: 4.99s
                                                   remaining: 25.1s
166:
        learn: 6.3422797
                                  total: 4.99s
                                                   remaining: 24.9s
167:
        learn: 6.3209204
                                  total: 5.08s
                                                   remaining: 25.2s
        learn: 6.3013237
168:
                                  total: 5.09s
                                                   remaining: 25s
169:
        learn: 6.2399346
                                  total: 5.09s
                                                   remaining: 24.9s
        learn: 6.2085066
                                                   remaining: 25.1s
170:
                                  total: 5.18s
        learn: 6.1729624
                                  total: 5.18s
                                                   remaining: 24.9s
171:
        learn: 6.1566105
                                  total: 5.19s
172:
                                                   remaining: 24.8s
173:
        learn: 6.1363915
                                  total: 5.28s
                                                   remaining: 25s
174:
        learn: 6.1324839
                                                   remaining: 24.9s
                                  total: 5.28s
175:
        learn: 6.0867036
                                  total: 5.28s
                                                   remaining: 24.7s
        learn: 6.0401589
                                  total: 5.37s
176:
                                                   remaining: 25s
177:
        learn: 6.0231831
                                  total: 5.38s
                                                   remaining: 24.8s
178:
        learn: 5.9995614
                                  total: 5.38s
                                                   remaining: 24.7s
179:
        learn: 5.9707513
                                  total: 5.47s
                                                   remaining: 24.9s
180:
        learn: 5.9669019
                                  total: 5.48s
                                                   remaining: 24.8s
181:
        learn: 5.9636498
                                  total: 5.48s
                                                   remaining: 24.6s
        learn: 5.9151863
                                  total: 5.49s
                                                   remaining: 24.5s
182:
        learn: 5.8722760
                                  total: 5.58s
183:
                                                   remaining: 24.7s
184:
        learn: 5.8441263
                                  total: 5.58s
                                                   remaining: 24.6s
185:
        learn: 5.8335915
                                  total: 5.58s
                                                   remaining: 24.4s
186:
        learn: 5.7922990
                                  total: 5.67s
                                                   remaining: 24.7s
187:
        learn: 5.7613946
                                  total: 5.68s
                                                   remaining: 24.5s
188:
        learn: 5.7287087
                                  total: 5.68s
                                                   remaining: 24.4s
189:
        learn: 5.6864078
                                  total: 5.77s
                                                   remaining: 24.6s
190:
        learn: 5.6593245
                                  total: 5.77s
                                                   remaining: 24.5s
191:
        learn: 5.6187293
                                  total: 5.78s
                                                   remaining: 24.3s
192:
        learn: 5.5795637
                                  total: 5.87s
                                                   remaining: 24.5s
193:
        learn: 5.5618388
                                  total: 5.87s
                                                   remaining: 24.4s
        learn: 5.5432529
                                  total: 5.88s
194:
                                                   remaining: 24.3s
195:
        learn: 5.4782184
                                  total: 5.97s
                                                   remaining: 24.5s
        learn: 5.4496270
196:
                                  total: 5.97s
                                                   remaining: 24.3s
        learn: 5.4290231
197:
                                  total: 5.97s
                                                   remaining: 24.2s
                                                   remaining: 24.4s
198:
        learn: 5.4121508
                                  total: 6.06s
199:
        learn: 5.3740875
                                  total: 6.07s
                                                   remaining: 24.3s
200:
        learn: 5.3555082
                                  total: 6.07s
                                                   remaining: 24.1s
201:
        learn: 5.3135043
                                  total: 6.16s
                                                   remaining: 24.3s
202:
        learn: 5.2720917
                                  total: 6.16s
                                                   remaining: 24.2s
203:
        learn: 5.2186519
                                                   remaining: 24.1s
                                  total: 6.17s
        learn: 5.2015800
204:
                                  total: 6.26s
                                                   remaining: 24.3s
        learn: 5.1824622
205:
                                  total: 6.26s
                                                   remaining: 24.1s
        learn: 5.1586636
206:
                                  total: 6.27s
                                                   remaining: 24s
                                                   remaining: 24.2s
207:
        learn: 5.1293760
                                  total: 6.36s
208:
        learn: 5.1105379
                                  total: 6.36s
                                                   remaining: 24.1s
209:
        learn: 5.0662832
                                  total: 6.37s
                                                   remaining: 23.9s
                                                   remaining: 24.1s
210:
        learn: 5.0468506
                                  total: 6.46s
211:
        learn: 5.0184557
                                  total: 6.46s
                                                   remaining: 24s
                                  total: 6.46s
212:
        learn: 5.0136944
                                                   remaining: 23.9s
213:
        learn: 4.9985532
                                  total: 6.55s
                                                   remaining: 24.1s
214:
        learn: 4.9734672
                                  total: 6.56s
                                                   remaining: 23.9s
215:
        learn: 4.9456715
                                                   remaining: 23.8s
                                  total: 6.56s
216:
        learn: 4.9161253
                                  total: 6.65s
                                                   remaining: 24s
217:
        learn: 4.8968960
                                  total: 6.66s
                                                   remaining: 23.9s
218:
        learn: 4.8863151
                                                   remaining: 23.8s
                                  total: 6.66s
219:
        learn: 4.8453382
                                  total: 6.66s
                                                   remaining: 23.6s
220:
        learn: 4.8335951
                                  total: 6.75s
                                                   remaining: 23.8s
221:
        learn: 4.8171828
                                  total: 6.76s
                                                   remaining: 23.7s
222:
        learn: 4.7948486
                                  total: 6.76s
                                                   remaining: 23.6s
223:
        learn: 4.7386863
                                  total: 6.85s
                                                   remaining: 23.7s
```

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224:
        learn: 4.7211161
                                  total: 6.85s
                                                   remaining: 23.6s
225:
        learn: 4.6989441
                                  total: 6.86s
                                                   remaining: 23.5s
226:
        learn: 4.6680968
                                  total: 6.95s
                                                   remaining: 23.7s
227:
        learn: 4.6542300
                                  total: 6.95s
                                                   remaining: 23.5s
228:
        learn: 4.6415808
                                  total: 6.96s
                                                   remaining: 23.4s
229:
        learn: 4.6111144
                                  total: 7.04s
                                                   remaining: 23.6s
230:
        learn: 4.5884736
                                  total: 7.05s
                                                   remaining: 23.5s
231:
        learn: 4.5625376
                                                   remaining: 23.4s
                                  total: 7.05s
232:
        learn: 4.5185377
                                  total: 7.06s
                                                   remaining: 23.3s
233:
        learn: 4.5081502
                                  total: 7.14s
                                                   remaining: 23.4s
234:
        learn: 4.5048204
                                  total: 7.15s
                                                   remaining: 23.3s
235:
                                                   remaining: 23.4s
        learn: 4.4667170
                                  total: 7.24s
236:
        learn: 4.4515939
                                  total: 7.24s
                                                   remaining: 23.3s
237:
        learn: 4.4383606
                                  total: 7.25s
                                                   remaining: 23.2s
238:
        learn: 4.4305417
                                  total: 7.25s
                                                   remaining: 23.1s
239:
        learn: 4.4076635
                                  total: 7.34s
                                                   remaining: 23.2s
240:
        learn: 4.3910258
                                  total: 7.34s
                                                   remaining: 23.1s
                                                   remaining: 23s
241:
        learn: 4.3555379
                                  total: 7.35s
242:
        learn: 4.3366292
                                  total: 7.44s
                                                   remaining: 23.2s
243:
        learn: 4.3232314
                                  total: 7.44s
                                                   remaining: 23.1s
244:
        learn: 4.3000250
                                  total: 7.44s
                                                   remaining: 22.9s
245:
        learn: 4.2980138
                                  total: 7.53s
                                                   remaining: 23.1s
246:
        learn: 4.2733298
                                  total: 7.54s
                                                   remaining: 23s
247:
        learn: 4.2479989
                                  total: 7.54s
                                                   remaining: 22.9s
248:
        learn: 4.2242599
                                  total: 7.63s
                                                   remaining: 23s
249:
        learn: 4.2128348
                                  total: 7.63s
                                                   remaining: 22.9s
250:
        learn: 4.1888387
                                  total: 7.64s
                                                   remaining: 22.8s
251:
        learn: 4.1581983
                                  total: 7.73s
                                                   remaining: 22.9s
252:
        learn: 4.1340179
                                  total: 7.73s
                                                   remaining: 22.8s
        learn: 4.1217794
253:
                                  total: 7.74s
                                                   remaining: 22.7s
254:
        learn: 4.1203563
                                  total: 7.83s
                                                   remaining: 22.9s
255:
        learn: 4.0987231
                                  total: 7.83s
                                                   remaining: 22.8s
256:
        learn: 4.0973114
                                  total: 7.83s
                                                   remaining: 22.6s
257:
        learn: 4.0642312
                                  total: 7.92s
                                                   remaining: 22.8s
        learn: 4.0465258
258:
                                  total: 7.93s
                                                   remaining: 22.7s
                                  total: 7.93s
                                                   remaining: 22.6s
259:
        learn: 4.0209231
260:
        learn: 4.0128359
                                  total: 7.94s
                                                   remaining: 22.5s
261:
        learn: 3.9949679
                                  total: 8.02s
                                                   remaining: 22.6s
262:
        learn: 3.9787420
                                  total: 8.03s
                                                   remaining: 22.5s
263:
        learn: 3.9607940
                                  total: 8.03s
                                                   remaining: 22.4s
264:
        learn: 3.9335577
                                                   remaining: 22.5s
                                  total: 8.12s
265:
        learn: 3.9263426
                                  total: 8.13s
                                                   remaining: 22.4s
        learn: 3.8925594
266:
                                  total: 8.13s
                                                   remaining: 22.3s
        learn: 3.8779249
267:
                                  total: 8.22s
                                                   remaining: 22.5s
        learn: 3.8635693
                                                   remaining: 22.4s
268:
                                  total: 8.22s
269:
        learn: 3.8500103
                                  total: 8.23s
                                                   remaining: 22.2s
270:
        learn: 3.8303236
                                  total: 8.32s
                                                   remaining: 22.4s
                                                   remaining: 22.3s
271:
        learn: 3.8057973
                                  total: 8.32s
272:
        learn: 3.8036415
                                  total: 8.32s
                                                   remaining: 22.2s
273:
        learn: 3.7954224
                                  total: 8.41s
                                                   remaining: 22.3s
274:
        learn: 3.7795330
                                  total: 8.42s
                                                   remaining: 22.2s
275:
        learn: 3.7778963
                                  total: 8.42s
                                                   remaining: 22.1s
276:
        learn: 3.7651875
                                  total: 8.43s
                                                   remaining: 22s
277:
        learn: 3.7458411
                                  total: 8.52s
                                                   remaining: 22.1s
        learn: 3.7299795
278:
                                  total: 8.52s
                                                   remaining: 22s
279:
        learn: 3.7166924
                                  total: 8.52s
                                                   remaining: 21.9s
280:
        learn: 3.7096116
                                  total: 8.61s
                                                   remaining: 22s
281:
        learn: 3.6853955
                                  total: 8.62s
                                                   remaining: 21.9s
282:
        learn: 3.6784507
                                  total: 8.62s
                                                   remaining: 21.8s
283:
        learn: 3.6607604
                                  total: 8.71s
                                                   remaining: 22s
        learn: 3.6555996
284:
                                  total: 8.72s
                                                   remaining: 21.9s
```

```
285:
        learn: 3.6511634
                                 total: 8.72s
                                                   remaining: 21.8s
286:
        learn: 3.6391425
                                 total: 8.81s
                                                   remaining: 21.9s
287:
        learn: 3.6287414
                                 total: 8.81s
                                                   remaining: 21.8s
288:
        learn: 3.6153981
                                 total: 8.82s
                                                   remaining: 21.7s
289:
        learn: 3.6036535
                                 total: 8.91s
                                                   remaining: 21.8s
        learn: 3.5944984
290:
                                 total: 8.91s
                                                   remaining: 21.7s
291:
        learn: 3.5799787
                                 total: 8.92s
                                                   remaining: 21.6s
292:
        learn: 3.5679787
                                 total: 9.01s
                                                   remaining: 21.7s
293:
        learn: 3.5443364
                                 total: 9.01s
                                                   remaining: 21.6s
294:
        learn: 3.5427257
                                 total: 9.02s
                                                   remaining: 21.5s
295:
        learn: 3.5269854
                                 total: 9.1s
                                                   remaining: 21.6s
296:
        learn: 3.5086228
                                                   remaining: 21.6s
                                 total: 9.11s
297:
        learn: 3.4969519
                                 total: 9.11s
                                                   remaining: 21.5s
298:
        learn: 3.4869442
                                 total: 9.2s
                                                   remaining: 21.6s
299:
        learn: 3.4840222
                                 total: 9.21s
                                                   remaining: 21.5s
300:
        learn: 3.4652205
                                 total: 9.21s
                                                   remaining: 21.4s
301:
        learn: 3.4485051
                                 total: 9.3s
                                                   remaining: 21.5s
302:
        learn: 3.4355416
                                 total: 9.3s
                                                   remaining: 21.4s
303:
        learn: 3.4332953
                                 total: 9.31s
                                                   remaining: 21.3s
304:
        learn: 3.4092788
                                 total: 9.4s
                                                   remaining: 21.4s
305:
        learn: 3.3964823
                                 total: 9.4s
                                                   remaining: 21.3s
306:
        learn: 3.3904111
                                 total: 9.41s
                                                   remaining: 21.2s
307:
        learn: 3.3797521
                                 total: 9.49s
                                                   remaining: 21.3s
308:
        learn: 3.3618328
                                 total: 9.5s
                                                   remaining: 21.2s
309:
        learn: 3.3457838
                                 total: 9.5s
                                                   remaining: 21.2s
310:
        learn: 3.3240640
                                 total: 9.59s
                                                   remaining: 21.3s
311:
        learn: 3.3126165
                                 total: 9.6s
                                                   remaining: 21.2s
312:
        learn: 3.2998570
                                 total: 9.6s
                                                   remaining: 21.1s
313:
        learn: 3.2955606
                                 total: 9.61s
                                                   remaining: 21s
314:
                                 total: 9.7s
        learn: 3.2938333
                                                   remaining: 21.1s
315:
        learn: 3.2802267
                                 total: 9.7s
                                                   remaining: 21s
316:
        learn: 3.2570756
                                 total: 9.7s
                                                   remaining: 20.9s
317:
        learn: 3.2284290
                                 total: 9.79s
                                                   remaining: 21s
318:
        learn: 3.2200921
                                 total: 9.8s
                                                   remaining: 20.9s
319:
        learn: 3.2062763
                                 total: 9.8s
                                                   remaining: 20.8s
        learn: 3.1798234
320:
                                 total: 9.89s
                                                   remaining: 20.9s
321:
        learn: 3.1660761
                                 total: 9.89s
                                                   remaining: 20.8s
322:
        learn: 3.1477949
                                 total: 9.9s
                                                   remaining: 20.8s
323:
        learn: 3.1326293
                                 total: 9.98s
                                                   remaining: 20.8s
324:
        learn: 3.1099925
                                 total: 9.99s
                                                   remaining: 20.7s
325:
        learn: 3.1090254
                                 total: 9.99s
                                                   remaining: 20.7s
326:
        learn: 3.0988804
                                 total: 9.99s
                                                   remaining: 20.6s
327:
        learn: 3.0787366
                                 total: 10.1s
                                                   remaining: 20.7s
        learn: 3.0706261
328:
                                 total: 10.1s
                                                   remaining: 20.6s
329:
        learn: 3.0582112
                                                   remaining: 20.5s
                                 total: 10.1s
330:
        learn: 3.0502644
                                 total: 10.2s
                                                   remaining: 20.6s
331:
        learn: 3.0381141
                                 total: 10.2s
                                                   remaining: 20.5s
                                                   remaining: 20.4s
332:
        learn: 3.0214846
                                 total: 10.2s
333:
        learn: 3.0019621
                                 total: 10.3s
                                                   remaining: 20.5s
334:
        learn: 2.9989495
                                 total: 10.3s
                                                   remaining: 20.4s
335:
        learn: 2.9960075
                                 total: 10.3s
                                                   remaining: 20.3s
336:
        learn: 2.9912851
                                 total: 10.4s
                                                   remaining: 20.4s
337:
        learn: 2.9735308
                                 total: 10.4s
                                                   remaining: 20.3s
338:
        learn: 2.9554579
                                 total: 10.4s
                                                   remaining: 20.2s
        learn: 2.9410349
339:
                                 total: 10.5s
                                                   remaining: 20.3s
340:
        learn: 2.9246226
                                 total: 10.5s
                                                   remaining: 20.2s
341:
        learn: 2.9223662
                                 total: 10.5s
                                                   remaining: 20.2s
342:
        learn: 2.9215880
                                 total: 10.6s
                                                   remaining: 20.2s
343:
        learn: 2.9073742
                                 total: 10.6s
                                                   remaining: 20.2s
344:
        learn: 2.9065226
                                 total: 10.6s
                                                   remaining: 20.1s
        learn: 2.8953553
345:
                                 total: 10.7s
                                                   remaining: 20.2s
```

```
learn: 2.8701464
346:
                                  total: 10.7s
                                                   remaining: 20.1s
347:
        learn: 2.8598377
                                  total: 10.7s
                                                   remaining: 20s
        learn: 2.8269193
                                  total: 10.8s
348:
                                                   remaining: 20.1s
349:
        learn: 2.8241784
                                  total: 10.8s
                                                   remaining: 20s
350:
        learn: 2.8146708
                                  total: 10.8s
                                                   remaining: 19.9s
        learn: 2.8127949
                                  total: 10.9s
351:
                                                   remaining: 20s
352:
        learn: 2.7990419
                                  total: 10.9s
                                                   remaining: 19.9s
353:
        learn: 2.7801526
                                  total: 10.9s
                                                   remaining: 19.8s
354:
        learn: 2.7653150
                                  total: 11s
                                                   remaining: 19.9s
355:
        learn: 2.7608120
                                  total: 11s
                                                   remaining: 19.8s
356:
        learn: 2.7479213
                                  total: 11s
                                                   remaining: 19.8s
357:
        learn: 2.7386987
                                                   remaining: 19.8s
                                  total: 11.1s
358:
        learn: 2.7138835
                                  total: 11.1s
                                                   remaining: 19.8s
        learn: 2.6917885
                                  total: 11.1s
359:
                                                   remaining: 19.7s
360:
        learn: 2.6781749
                                  total: 11.2s
                                                   remaining: 19.7s
361:
        learn: 2.6654108
                                  total: 11.2s
                                                   remaining: 19.7s
362:
        learn: 2.6534372
                                  total: 11.2s
                                                   remaining: 19.6s
363:
        learn: 2.6482559
                                  total: 11.3s
                                                   remaining: 19.7s
364:
        learn: 2.6294231
                                  total: 11.3s
                                                   remaining: 19.6s
365:
        learn: 2.6136903
                                  total: 11.3s
                                                   remaining: 19.5s
        learn: 2.6056427
                                  total: 11.3s
366:
                                                   remaining: 19.6s
367:
        learn: 2.5905104
                                  total: 11.4s
                                                   remaining: 19.5s
368:
        learn: 2.5824215
                                  total: 11.4s
                                                   remaining: 19.4s
369:
        learn: 2.5713979
                                  total: 11.4s
                                                   remaining: 19.5s
                                  total: 11.5s
370:
        learn: 2.5586508
                                                   remaining: 19.4s
371:
        learn: 2.5411392
                                  total: 11.5s
                                                   remaining: 19.3s
372:
        learn: 2.5361197
                                  total: 11.5s
                                                   remaining: 19.4s
373:
        learn: 2.5290718
                                  total: 11.5s
                                                   remaining: 19.3s
374:
        learn: 2.5192047
                                  total: 11.6s
                                                   remaining: 19.3s
375:
        learn: 2.5186040
                                  total: 11.6s
                                                   remaining: 19.3s
376:
        learn: 2.5098308
                                  total: 11.6s
                                                   remaining: 19.2s
                                  total: 11.7s
377:
        learn: 2.5082397
                                                   remaining: 19.2s
378:
        learn: 2.5076285
                                  total: 11.7s
                                                   remaining: 19.1s
        learn: 2.4939511
379:
                                  total: 11.7s
                                                   remaining: 19.2s
        learn: 2.4880478
380:
                                  total: 11.7s
                                                   remaining: 19.1s
        learn: 2.4843283
                                  total: 11.8s
                                                   remaining: 19s
381:
382:
        learn: 2.4789327
                                  total: 11.8s
                                                   remaining: 19.1s
383:
        learn: 2.4649509
                                  total: 11.8s
                                                   remaining: 19s
        learn: 2.4543155
                                  total: 11.8s
384:
                                                   remaining: 18.9s
                                                   remaining: 19s
385:
        learn: 2.4407312
                                  total: 11.9s
        learn: 2.4337556
                                                   remaining: 18.9s
386:
                                  total: 11.9s
387:
        learn: 2.4319105
                                  total: 11.9s
                                                   remaining: 18.8s
        learn: 2.4300708
                                  total: 12s
388:
                                                   remaining: 18.9s
389:
        learn: 2.4242671
                                  total: 12s
                                                   remaining: 18.8s
390:
        learn: 2.4128354
                                                   remaining: 18.8s
                                  total: 12s
391:
        learn: 2.4012215
                                  total: 12.1s
                                                   remaining: 18.8s
392:
        learn: 2.3928903
                                  total: 12.1s
                                                   remaining: 18.7s
                                                   remaining: 18.7s
393:
        learn: 2.3758160
                                  total: 12.1s
394:
        learn: 2.3744725
                                  total: 12.2s
                                                   remaining: 18.7s
395:
        learn: 2.3716124
                                  total: 12.2s
                                                   remaining: 18.7s
396:
        learn: 2.3564408
                                  total: 12.2s
                                                   remaining: 18.6s
397:
        learn: 2.3547498
                                  total: 12.3s
                                                   remaining: 18.6s
398:
        learn: 2.3428597
                                  total: 12.3s
                                                   remaining: 18.6s
399:
        learn: 2.3344586
                                  total: 12.3s
                                                   remaining: 18.5s
400:
        learn: 2.3181727
                                  total: 12.4s
                                                   remaining: 18.6s
401:
        learn: 2.3031861
                                  total: 12.4s
                                                   remaining: 18.5s
402:
        learn: 2.2970949
                                  total: 12.4s
                                                   remaining: 18.4s
403:
        learn: 2.2860091
                                  total: 12.4s
                                                   remaining: 18.4s
404:
        learn: 2.2855788
                                  total: 12.5s
                                                   remaining: 18.4s
405:
        learn: 2.2779941
                                  total: 12.5s
                                                   remaining: 18.3s
        learn: 2.2701659
406:
                                  total: 12.5s
                                                   remaining: 18.3s
```

```
407:
        learn: 2.2685861
                                  total: 12.6s
                                                   remaining: 18.3s
408:
        learn: 2.2525236
                                  total: 12.6s
                                                   remaining: 18.2s
        learn: 2.2430557
                                  total: 12.6s
409:
                                                   remaining: 18.2s
410:
        learn: 2.2414907
                                  total: 12.7s
                                                   remaining: 18.2s
411:
        learn: 2.2306192
                                  total: 12.7s
                                                   remaining: 18.2s
        learn: 2.2295892
                                  total: 12.7s
412:
                                                   remaining: 18.1s
413:
        learn: 2.2224854
                                  total: 12.8s
                                                   remaining: 18.1s
414:
        learn: 2.2103362
                                                   remaining: 18.1s
                                  total: 12.8s
415:
        learn: 2.2026055
                                  total: 12.8s
                                                   remaining: 18s
416:
        learn: 2.1886435
                                  total: 12.9s
                                                   remaining: 18.1s
417:
        learn: 2.1842561
                                  total: 12.9s
                                                   remaining: 18s
418:
        learn: 2.1771470
                                                   remaining: 17.9s
                                  total: 12.9s
419:
        learn: 2.1592419
                                  total: 13s
                                                   remaining: 18s
420:
        learn: 2.1496513
                                  total: 13s
                                                   remaining: 17.9s
421:
        learn: 2.1439813
                                  total: 13.1s
                                                   remaining: 18s
422:
        learn: 2.1370690
                                  total: 13.1s
                                                   remaining: 17.9s
423:
        learn: 2.1271775
                                  total: 13.1s
                                                   remaining: 17.8s
424:
        learn: 2.1230267
                                  total: 13.2s
                                                   remaining: 17.9s
425:
        learn: 2.1133461
                                  total: 13.2s
                                                   remaining: 17.8s
426:
        learn: 2.1065178
                                  total: 13.2s
                                                   remaining: 17.7s
427:
        learn: 2.0982086
                                  total: 13.3s
                                                   remaining: 17.8s
428:
        learn: 2.0916776
                                  total: 13.3s
                                                   remaining: 17.7s
429:
        learn: 2.0847660
                                  total: 13.3s
                                                   remaining: 17.7s
430:
        learn: 2.0781578
                                  total: 13.4s
                                                   remaining: 17.7s
                                  total: 13.4s
431:
        learn: 2.0703748
                                                   remaining: 17.6s
432:
        learn: 2.0560267
                                  total: 13.4s
                                                   remaining: 17.6s
433:
        learn: 2.0546653
                                  total: 13.4s
                                                   remaining: 17.5s
434:
        learn: 2.0449491
                                  total: 13.5s
                                                   remaining: 17.5s
435:
        learn: 2.0296088
                                  total: 13.5s
                                                   remaining: 17.5s
436:
        learn: 2.0268697
                                  total: 13.5s
                                                   remaining: 17.4s
437:
        learn: 2.0249588
                                  total: 13.6s
                                                   remaining: 17.5s
                                  total: 13.6s
438:
        learn: 2.0119505
                                                   remaining: 17.4s
439:
        learn: 2.0087355
                                  total: 13.6s
                                                   remaining: 17.3s
440:
        learn: 1.9981036
                                  total: 13.7s
                                                   remaining: 17.4s
441:
        learn: 1.9843664
                                  total: 13.7s
                                                   remaining: 17.3s
                                  total: 13.7s
442:
        learn: 1.9747159
                                                   remaining: 17.2s
443:
        learn: 1.9676978
                                  total: 13.8s
                                                   remaining: 17.3s
444:
        learn: 1.9655974
                                  total: 13.8s
                                                   remaining: 17.2s
445:
        learn: 1.9558278
                                  total: 13.8s
                                                   remaining: 17.2s
446:
        learn: 1.9459374
                                  total: 13.9s
                                                   remaining: 17.2s
                                  total: 13.9s
447:
        learn: 1.9347981
                                                   remaining: 17.1s
448:
        learn: 1.9315013
                                  total: 13.9s
                                                   remaining: 17.1s
        learn: 1.9273691
449:
                                  total: 14s
                                                   remaining: 17.1s
        learn: 1.9127245
450:
                                  total: 14s
                                                   remaining: 17s
451:
        learn: 1.8984718
                                  total: 14s
                                                   remaining: 17s
452:
        learn: 1.8868743
                                  total: 14.1s
                                                   remaining: 17s
453:
        learn: 1.8725668
                                  total: 14.1s
                                                   remaining: 17s
454:
        learn: 1.8605539
                                  total: 14.1s
                                                   remaining: 16.9s
455:
        learn: 1.8590916
                                  total: 14.2s
                                                   remaining: 16.9s
456:
        learn: 1.8533125
                                  total: 14.2s
                                                   remaining: 16.9s
457:
        learn: 1.8472741
                                  total: 14.2s
                                                   remaining: 16.8s
458:
        learn: 1.8429363
                                  total: 14.3s
                                                   remaining: 16.8s
459:
        learn: 1.8373273
                                  total: 14.3s
                                                   remaining: 16.8s
460:
        learn: 1.8254120
                                  total: 14.3s
                                                   remaining: 16.7s
461:
        learn: 1.8146936
                                  total: 14.4s
                                                   remaining: 16.8s
462:
        learn: 1.8137479
                                                   remaining: 16.7s
                                  total: 14.4s
463:
        learn: 1.8075507
                                  total: 14.4s
                                                   remaining: 16.6s
        learn: 1.7987215
                                  total: 14.4s
464:
                                                   remaining: 16.6s
465:
        learn: 1.7966383
                                  total: 14.5s
                                                   remaining: 16.6s
466:
        learn: 1.7899578
                                  total: 14.5s
                                                   remaining: 16.5s
        learn: 1.7834742
467:
                                  total: 14.5s
                                                   remaining: 16.5s
```

```
learn: 1.7831137
468:
                                  total: 14.6s
                                                   remaining: 16.5s
469:
        learn: 1.7791837
                                  total: 14.6s
                                                   remaining: 16.5s
470:
                                  total: 14.6s
        learn: 1.7731437
                                                   remaining: 16.4s
471:
        learn: 1.7694400
                                  total: 14.7s
                                                   remaining: 16.4s
472:
        learn: 1.7686817
                                  total: 14.7s
                                                   remaining: 16.4s
        learn: 1.7612963
                                  total: 14.7s
473:
                                                   remaining: 16.3s
474:
        learn: 1.7552309
                                  total: 14.8s
                                                   remaining: 16.3s
475:
        learn: 1.7513883
                                  total: 14.8s
                                                   remaining: 16.3s
476:
        learn: 1.7476776
                                  total: 14.8s
                                                   remaining: 16.2s
477:
        learn: 1.7468910
                                  total: 14.9s
                                                   remaining: 16.2s
478:
                                  total: 14.9s
        learn: 1.7412371
                                                   remaining: 16.2s
479:
        learn: 1.7351986
                                                   remaining: 16.1s
                                  total: 14.9s
480:
        learn: 1.7311203
                                  total: 15s
                                                   remaining: 16.2s
        learn: 1.7233149
                                  total: 15s
481:
                                                   remaining: 16.1s
482:
        learn: 1.7158130
                                  total: 15s
                                                   remaining: 16s
483:
        learn: 1.7079753
                                  total: 15.1s
                                                   remaining: 16.1s
484:
        learn: 1.6997425
                                  total: 15.1s
                                                   remaining: 16s
                                                   remaining: 16s
485:
        learn: 1.6928085
                                  total: 15.1s
486:
        learn: 1.6861465
                                  total: 15.2s
                                                   remaining: 16s
487:
        learn: 1.6809526
                                  total: 15.2s
                                                   remaining: 15.9s
488:
        learn: 1.6751159
                                  total: 15.2s
                                                   remaining: 15.9s
        learn: 1.6685741
489:
                                  total: 15.3s
                                                   remaining: 15.9s
490:
        learn: 1.6641082
                                  total: 15.3s
                                                   remaining: 15.8s
491:
        learn: 1.6525025
                                  total: 15.3s
                                                   remaining: 15.8s
                                  total: 15.3s
492:
        learn: 1.6500134
                                                   remaining: 15.7s
493:
        learn: 1.6409381
                                  total: 15.4s
                                                   remaining: 15.7s
494:
        learn: 1.6379869
                                  total: 15.4s
                                                   remaining: 15.7s
495:
        learn: 1.6294703
                                  total: 15.4s
                                                   remaining: 15.6s
                                  total: 15.5s
496:
        learn: 1.6222181
                                                   remaining: 15.7s
497:
        learn: 1.6200563
                                  total: 15.5s
                                                   remaining: 15.6s
498:
        learn: 1.6156529
                                  total: 15.5s
                                                   remaining: 15.5s
                                  total: 15.6s
499:
        learn: 1.6141280
                                                   remaining: 15.6s
500:
        learn: 1.6128634
                                  total: 15.6s
                                                   remaining: 15.5s
501:
        learn: 1.6087176
                                  total: 15.6s
                                                   remaining: 15.4s
        learn: 1.5982036
502:
                                  total: 15.7s
                                                   remaining: 15.5s
                                  total: 15.7s
503:
        learn: 1.5965267
                                                   remaining: 15.4s
504:
        learn: 1.5914589
                                  total: 15.7s
                                                   remaining: 15.4s
505:
        learn: 1.5899748
                                  total: 15.7s
                                                   remaining: 15.3s
        learn: 1.5841488
                                  total: 15.8s
506:
                                                   remaining: 15.3s
507:
        learn: 1.5828629
                                  total: 15.8s
                                                   remaining: 15.3s
508:
        learn: 1.5767632
                                                   remaining: 15.2s
                                  total: 15.8s
509:
        learn: 1.5720094
                                  total: 15.9s
                                                   remaining: 15.2s
        learn: 1.5660731
                                  total: 15.9s
510:
                                                   remaining: 15.2s
        learn: 1.5618075
511:
                                  total: 15.9s
                                                   remaining: 15.1s
512:
        learn: 1.5530134
                                                   remaining: 15.1s
                                  total: 16s
513:
        learn: 1.5459796
                                  total: 16s
                                                   remaining: 15.1s
514:
        learn: 1.5437874
                                  total: 16s
                                                   remaining: 15s
                                                   remaining: 15.1s
515:
        learn: 1.5378941
                                  total: 16.1s
516:
        learn: 1.5340867
                                  total: 16.1s
                                                   remaining: 15s
517:
        learn: 1.5321776
                                  total: 16.1s
                                                   remaining: 14.9s
518:
        learn: 1.5252503
                                  total: 16.1s
                                                   remaining: 15s
519:
        learn: 1.5196998
                                  total: 16.2s
                                                   remaining: 14.9s
520:
        learn: 1.5156605
                                  total: 16.2s
                                                   remaining: 14.9s
521:
        learn: 1.5114784
                                  total: 16.2s
                                                   remaining: 14.9s
522:
        learn: 1.5051041
                                  total: 16.3s
                                                   remaining: 14.8s
523:
        learn: 1.5015255
                                                   remaining: 14.8s
                                  total: 16.3s
524:
        learn: 1.4937075
                                  total: 16.3s
                                                   remaining: 14.8s
525:
                                  total: 16.3s
        learn: 1.4851446
                                                   remaining: 14.7s
526:
        learn: 1.4747598
                                  total: 16.4s
                                                   remaining: 14.7s
527:
        learn: 1.4743955
                                  total: 16.4s
                                                   remaining: 14.7s
        learn: 1.4693850
528:
                                  total: 16.4s
                                                   remaining: 14.6s
```

```
529:
        learn: 1.4613064
                                  total: 16.4s
                                                   remaining: 14.6s
530:
        learn: 1.4533247
                                  total: 16.5s
                                                   remaining: 14.5s
                                  total: 16.5s
531:
        learn: 1.4458094
                                                   remaining: 14.6s
532:
        learn: 1.4430007
                                  total: 16.5s
                                                   remaining: 14.5s
533:
        learn: 1.4362896
                                  total: 16.6s
                                                   remaining: 14.4s
534:
        learn: 1.4354242
                                  total: 16.6s
                                                   remaining: 14.5s
535:
        learn: 1.4284845
                                  total: 16.6s
                                                   remaining: 14.4s
        learn: 1.4251050
                                  total: 16.6s
                                                   remaining: 14.4s
536:
537:
        learn: 1.4219394
                                  total: 16.7s
                                                   remaining: 14.4s
        learn: 1.4173749
                                  total: 16.7s
538:
                                                   remaining: 14.3s
539:
        learn: 1.4118903
                                  total: 16.7s
                                                   remaining: 14.3s
540:
        learn: 1.4070010
                                                   remaining: 14.2s
                                  total: 16.7s
541:
        learn: 1.4016344
                                  total: 16.8s
                                                   remaining: 14.2s
        learn: 1.3997325
                                  total: 16.8s
542:
                                                   remaining: 14.2s
543:
        learn: 1.3961975
                                  total: 16.8s
                                                   remaining: 14.1s
544:
        learn: 1.3951573
                                  total: 16.9s
                                                   remaining: 14.1s
545:
        learn: 1.3925090
                                  total: 16.9s
                                                   remaining: 14.1s
546:
        learn: 1.3903211
                                  total: 16.9s
                                                   remaining: 14s
547:
        learn: 1.3887379
                                  total: 16.9s
                                                   remaining: 14s
548:
        learn: 1.3832156
                                  total: 17s
                                                   remaining: 14s
549:
        learn: 1.3792723
                                  total: 17s
                                                   remaining: 13.9s
550:
        learn: 1.3715760
                                  total: 17s
                                                   remaining: 13.9s
551:
        learn: 1.3653211
                                  total: 17.1s
                                                   remaining: 13.9s
552:
        learn: 1.3587715
                                  total: 17.1s
                                                   remaining: 13.9s
                                  total: 17.1s
553:
        learn: 1.3510068
                                                   remaining: 13.8s
554:
        learn: 1.3486488
                                  total: 17.2s
                                                   remaining: 13.8s
555:
        learn: 1.3424252
                                  total: 17.2s
                                                   remaining: 13.8s
556:
        learn: 1.3315857
                                  total: 17.2s
                                                   remaining: 13.7s
                                  total: 17.3s
557:
        learn: 1.3241039
                                                   remaining: 13.7s
        learn: 1.3218741
558:
                                  total: 17.3s
                                                   remaining: 13.7s
559:
        learn: 1.3174351
                                  total: 17.3s
                                                   remaining: 13.6s
                                  total: 17.4s
560:
        learn: 1.3120752
                                                   remaining: 13.6s
561:
        learn: 1.3112046
                                  total: 17.4s
                                                   remaining: 13.6s
562:
        learn: 1.3081076
                                  total: 17.4s
                                                   remaining: 13.5s
        learn: 1.3061177
563:
                                  total: 17.4s
                                                   remaining: 13.5s
                                  total: 17.5s
564:
        learn: 1.2979950
                                                   remaining: 13.5s
565:
        learn: 1.2967330
                                  total: 17.5s
                                                   remaining: 13.4s
566:
        learn: 1.2873730
                                  total: 17.6s
                                                   remaining: 13.5s
567:
        learn: 1.2737146
                                  total: 17.6s
                                                   remaining: 13.4s
568:
        learn: 1.2682494
                                  total: 17.6s
                                                   remaining: 13.4s
569:
        learn: 1.2623368
                                  total: 17.6s
                                                   remaining: 13.3s
570:
        learn: 1.2562880
                                  total: 17.7s
                                                   remaining: 13.3s
571:
        learn: 1.2529811
                                  total: 17.7s
                                                   remaining: 13.3s
        learn: 1.2466955
572:
                                  total: 17.7s
                                                   remaining: 13.2s
        learn: 1.2440696
                                  total: 17.8s
                                                   remaining: 13.2s
573:
574:
        learn: 1.2409841
                                  total: 17.8s
                                                   remaining: 13.2s
575:
        learn: 1.2387477
                                  total: 17.8s
                                                   remaining: 13.1s
                                                   remaining: 13.1s
576:
        learn: 1.2384950
                                  total: 17.9s
577:
        learn: 1.2289578
                                  total: 17.9s
                                                   remaining: 13.1s
578:
        learn: 1.2232130
                                  total: 17.9s
                                                   remaining: 13s
579:
        learn: 1.2174420
                                  total: 17.9s
                                                   remaining: 13s
580:
        learn: 1.2101914
                                  total: 18s
                                                   remaining: 13s
581:
        learn: 1.2074812
                                  total: 18s
                                                   remaining: 12.9s
582:
        learn: 1.2014671
                                  total: 18s
                                                   remaining: 12.9s
        learn: 1.1941629
583:
                                  total: 18.1s
                                                   remaining: 12.9s
584:
        learn: 1.1912419
                                                   remaining: 12.9s
                                  total: 18.1s
585:
        learn: 1.1873870
                                  total: 18.1s
                                                   remaining: 12.8s
586:
        learn: 1.1833517
                                  total: 18.2s
                                                   remaining: 12.8s
587:
        learn: 1.1791177
                                  total: 18.2s
                                                   remaining: 12.8s
588:
        learn: 1.1740495
                                  total: 18.3s
                                                   remaining: 12.8s
        learn: 1.1680838
589:
                                  total: 18.3s
                                                   remaining: 12.7s
```

```
590:
        learn: 1.1656212
                                  total: 18.3s
                                                   remaining: 12.7s
591:
        learn: 1.1642621
                                  total: 18.3s
                                                   remaining: 12.6s
        learn: 1.1603529
                                  total: 18.4s
592:
                                                   remaining: 12.6s
593:
        learn: 1.1567945
                                  total: 18.4s
                                                   remaining: 12.6s
594:
        learn: 1.1522609
                                  total: 18.4s
                                                   remaining: 12.5s
595:
        learn: 1.1449527
                                  total: 18.5s
                                                   remaining: 12.5s
596:
        learn: 1.1411724
                                  total: 18.5s
                                                   remaining: 12.5s
597:
        learn: 1.1382516
                                  total: 18.5s
                                                   remaining: 12.4s
598:
        learn: 1.1357714
                                  total: 18.6s
                                                   remaining: 12.5s
        learn: 1.1324566
                                  total: 18.6s
599:
                                                   remaining: 12.4s
600:
        learn: 1.1293232
                                  total: 18.6s
                                                   remaining: 12.4s
        learn: 1.1228888
                                                   remaining: 12.4s
601:
                                  total: 18.7s
602:
        learn: 1.1186303
                                  total: 18.7s
                                                   remaining: 12.3s
                                  total: 18.7s
603:
        learn: 1.1177313
                                                   remaining: 12.3s
604:
        learn: 1.1123559
                                  total: 18.8s
                                                   remaining: 12.3s
605:
        learn: 1.1083003
                                  total: 18.8s
                                                   remaining: 12.2s
606.
        learn: 1.1034742
                                  total: 18.8s
                                                   remaining: 12.2s
607:
        learn: 1.0983178
                                  total: 18.8s
                                                   remaining: 12.1s
608:
        learn: 1.0949078
                                  total: 18.9s
                                                   remaining: 12.1s
609:
        learn: 1.0926113
                                  total: 18.9s
                                                   remaining: 12.1s
        learn: 1.0905816
                                  total: 18.9s
610:
                                                   remaining: 12s
        learn: 1.0897281
611:
                                  total: 19s
                                                   remaining: 12s
612:
        learn: 1.0886080
                                  total: 19s
                                                   remaining: 12s
613:
        learn: 1.0856898
                                  total: 19s
                                                   remaining: 11.9s
614:
        learn: 1.0822793
                                  total: 19.1s
                                                   remaining: 12s
615:
        learn: 1.0793966
                                  total: 19.1s
                                                   remaining: 11.9s
616:
        learn: 1.0777401
                                  total: 19.1s
                                                   remaining: 11.9s
                                                   remaining: 11.8s
617:
        learn: 1.0753368
                                  total: 19.1s
                                  total: 19.2s
618:
        learn: 1.0722442
                                                   remaining: 11.8s
619:
        learn: 1.0673635
                                  total: 19.2s
                                                   remaining: 11.8s
620:
        learn: 1.0642028
                                  total: 19.2s
                                                   remaining: 11.7s
                                  total: 19.3s
621:
        learn: 1.0616204
                                                   remaining: 11.7s
622:
        learn: 1.0519650
                                  total: 19.3s
                                                   remaining: 11.7s
623:
        learn: 1.0496188
                                  total: 19.3s
                                                   remaining: 11.6s
        learn: 1.0480740
624:
                                  total: 19.4s
                                                   remaining: 11.6s
                                  total: 19.4s
625:
        learn: 1.0428914
                                                   remaining: 11.6s
626:
        learn: 1.0386603
                                  total: 19.4s
                                                   remaining: 11.5s
627:
        learn: 1.0371402
                                  total: 19.5s
                                                   remaining: 11.5s
628:
        learn: 1.0366236
                                  total: 19.5s
                                                   remaining: 11.5s
        learn: 1.0309947
                                  total: 19.5s
629:
                                                   remaining: 11.4s
630:
        learn: 1.0271294
                                  total: 19.5s
                                                   remaining: 11.4s
631:
        learn: 1.0218239
                                  total: 19.6s
                                                   remaining: 11.4s
        learn: 1.0193341
                                  total: 19.6s
632:
                                                   remaining: 11.4s
        learn: 1.0134455
633:
                                  total: 19.6s
                                                   remaining: 11.3s
        learn: 1.0095498
                                                   remaining: 11.3s
634:
                                  total: 19.7s
635:
        learn: 1.0045838
                                  total: 19.7s
                                                   remaining: 11.3s
        learn: 0.9960850
                                  total: 19.7s
636:
                                                   remaining: 11.2s
                                                   remaining: 11.2s
637:
        learn: 0.9934379
                                  total: 19.8s
638:
        learn: 0.9899137
                                  total: 19.8s
                                                   remaining: 11.2s
639:
        learn: 0.9838752
                                  total: 19.8s
                                                   remaining: 11.1s
640:
        learn: 0.9818058
                                  total: 19.9s
                                                   remaining: 11.1s
641:
        learn: 0.9766783
                                  total: 19.9s
                                                   remaining: 11.1s
642:
        learn: 0.9745739
                                  total: 19.9s
                                                   remaining: 11s
        learn: 0.9710708
643:
                                  total: 19.9s
                                                   remaining: 11s
        learn: 0.9699222
644:
                                  total: 20s
                                                   remaining: 11s
                                                   remaining: 10.9s
645:
        learn: 0.9624738
                                  total: 20s
646:
        learn: 0.9596407
                                  total: 20s
                                                   remaining: 10.9s
647:
        learn: 0.9569891
                                  total: 20.1s
                                                   remaining: 10.9s
648:
        learn: 0.9566382
                                  total: 20.1s
                                                   remaining: 10.9s
649:
        learn: 0.9517626
                                  total: 20.1s
                                                   remaining: 10.8s
650:
        learn: 0.9482369
                                  total: 20.2s
                                                   remaining: 10.8s
```

```
learn: 0.9453593
651:
                                  total: 20.2s
                                                   remaining: 10.8s
652:
        learn: 0.9437314
                                  total: 20.2s
                                                   remaining: 10.7s
                                  total: 20.2s
653:
        learn: 0.9405028
                                                   remaining: 10.7s
654:
        learn: 0.9353677
                                  total: 20.3s
                                                   remaining: 10.7s
655:
        learn: 0.9306765
                                  total: 20.3s
                                                   remaining: 10.6s
                                  total: 20.3s
656:
        learn: 0.9298151
                                                   remaining: 10.6s
657:
        learn: 0.9256835
                                  total: 20.4s
                                                   remaining: 10.6s
        learn: 0.9251812
                                  total: 20.4s
                                                   remaining: 10.5s
658:
659:
        learn: 0.9239326
                                  total: 20.4s
                                                   remaining: 10.5s
        learn: 0.9216662
                                  total: 20.5s
660:
                                                   remaining: 10.5s
661:
        learn: 0.9176220
                                  total: 20.5s
                                                   remaining: 10.5s
662:
        learn: 0.9126243
                                  total: 20.5s
                                                   remaining: 10.4s
663:
        learn: 0.9087257
                                  total: 20.6s
                                                   remaining: 10.4s
        learn: 0.9041362
                                  total: 20.6s
664:
                                                   remaining: 10.4s
665:
        learn: 0.9020111
                                  total: 20.6s
                                                   remaining: 10.3s
666:
        learn: 0.8987603
                                  total: 20.7s
                                                   remaining: 10.3s
667:
        learn: 0.8948531
                                  total: 20.7s
                                                   remaining: 10.3s
668:
        learn: 0.8892089
                                  total: 20.7s
                                                   remaining: 10.2s
669:
        learn: 0.8859368
                                  total: 20.7s
                                                   remaining: 10.2s
670:
        learn: 0.8807705
                                  total: 20.8s
                                                   remaining: 10.2s
        learn: 0.8776342
                                  total: 20.8s
671:
                                                   remaining: 10.1s
672:
        learn: 0.8774482
                                  total: 20.8s
                                                   remaining: 10.1s
        learn: 0.8769127
                                  total: 20.9s
                                                   remaining: 10.1s
673:
674:
        learn: 0.8764531
                                  total: 20.9s
                                                   remaining: 10s
                                  total: 20.9s
675:
        learn: 0.8724330
                                                   remaining: 10s
676:
        learn: 0.8693636
                                  total: 21s
                                                   remaining: 10s
677:
        learn: 0.8687771
                                  total: 21s
                                                   remaining: 9.95s
678:
        learn: 0.8662334
                                  total: 21s
                                                   remaining: 9.91s
                                  total: 21.1s
679:
        learn: 0.8633330
                                                   remaining: 9.91s
680:
        learn: 0.8623208
                                  total: 21.1s
                                                   remaining: 9.86s
681:
        learn: 0.8582650
                                  total: 21.1s
                                                   remaining: 9.82s
                                  total: 21.2s
682:
        learn: 0.8548222
                                                   remaining: 9.82s
683:
        learn: 0.8527447
                                  total: 21.2s
                                                   remaining: 9.77s
684:
        learn: 0.8519648
                                  total: 21.2s
                                                   remaining: 9.73s
685:
        learn: 0.8471336
                                  total: 21.2s
                                                   remaining: 9.69s
                                  total: 21.3s
        learn: 0.8417739
686:
                                                   remaining: 9.68s
687:
        learn: 0.8383554
                                  total: 21.3s
                                                   remaining: 9.64s
688:
        learn: 0.8366025
                                  total: 21.3s
                                                   remaining: 9.6s
689:
        learn: 0.8337891
                                  total: 21.3s
                                                   remaining: 9.59s
                                  total: 21.4s
690:
        learn: 0.8319823
                                                   remaining: 9.55s
691:
        learn: 0.8287859
                                  total: 21.4s
                                                   remaining: 9.51s
692:
        learn: 0.8270594
                                  total: 21.4s
                                                   remaining: 9.5s
                                  total: 21.4s
693:
        learn: 0.8228610
                                                   remaining: 9.46s
        learn: 0.8187314
                                  total: 21.5s
694:
                                                   remaining: 9.41s
                                                   remaining: 9.41s
695:
        learn: 0.8155074
                                  total: 21.5s
696:
        learn: 0.8123388
                                  total: 21.5s
                                                   remaining: 9.37s
697:
                                  total: 21.6s
        learn: 0.8063992
                                                   remaining: 9.32s
698:
        learn: 0.8038815
                                  total: 21.6s
                                                   remaining: 9.28s
699:
        learn: 0.7985680
                                  total: 21.6s
                                                   remaining: 9.28s
700:
        learn: 0.7952580
                                  total: 21.6s
                                                   remaining: 9.23s
701:
        learn: 0.7933206
                                  total: 21.6s
                                                   remaining: 9.19s
702:
        learn: 0.7898552
                                  total: 21.7s
                                                   remaining: 9.19s
703:
        learn: 0.7875866
                                  total: 21.7s
                                                   remaining: 9.14s
704:
        learn: 0.7864618
                                  total: 21.7s
                                                   remaining: 9.1s
705:
        learn: 0.7823253
                                  total: 21.8s
                                                   remaining: 9.09s
706:
        learn: 0.7799349
                                  total: 21.8s
                                                   remaining: 9.05s
707:
        learn: 0.7747011
                                  total: 21.8s
                                                   remaining: 9.01s
708:
        learn: 0.7733074
                                  total: 21.9s
                                                   remaining: 9s
709:
        learn: 0.7725252
                                  total: 21.9s
                                                   remaining: 8.96s
710:
        learn: 0.7681997
                                  total: 21.9s
                                                   remaining: 8.92s
711:
        learn: 0.7637386
                                  total: 22s
                                                   remaining: 8.91s
```

```
712:
        learn: 0.7610029
                                  total: 22s
                                                   remaining: 8.87s
713:
        learn: 0.7559484
                                  total: 22s
                                                   remaining: 8.83s
714:
                                  total: 22.1s
        learn: 0.7551144
                                                   remaining: 8.82s
715:
        learn: 0.7525520
                                  total: 22.1s
                                                   remaining: 8.78s
716:
        learn: 0.7514412
                                  total: 22.1s
                                                   remaining: 8.74s
717:
        learn: 0.7509283
                                  total: 22.1s
                                                   remaining: 8.7s
718:
        learn: 0.7481151
                                  total: 22.2s
                                                   remaining: 8.69s
719:
        learn: 0.7455029
                                  total: 22.2s
                                                   remaining: 8.65s
720:
        learn: 0.7429150
                                  total: 22.2s
                                                   remaining: 8.61s
721:
        learn: 0.7401924
                                  total: 22.3s
                                                   remaining: 8.6s
        learn: 0.7390820
                                  total: 22.3s
722:
                                                   remaining: 8.56s
723:
        learn: 0.7362431
                                  total: 22.3s
                                                   remaining: 8.52s
724:
        learn: 0.7331192
                                  total: 22.4s
                                                   remaining: 8.51s
725:
        learn: 0.7312402
                                  total: 22.4s
                                                   remaining: 8.47s
726:
        learn: 0.7286408
                                  total: 22.4s
                                                   remaining: 8.43s
727:
        learn: 0.7254814
                                  total: 22.5s
                                                   remaining: 8.42s
728:
        learn: 0.7228328
                                  total: 22.5s
                                                   remaining: 8.38s
729:
        learn: 0.7188843
                                  total: 22.5s
                                                   remaining: 8.33s
730:
        learn: 0.7157293
                                  total: 22.6s
                                                   remaining: 8.32s
731:
        learn: 0.7145672
                                  total: 22.6s
                                                   remaining: 8.28s
732:
        learn: 0.7090581
                                  total: 22.6s
                                                   remaining: 8.24s
733:
        learn: 0.7082523
                                  total: 22.7s
                                                   remaining: 8.23s
734:
        learn: 0.7078642
                                  total: 22.7s
                                                   remaining: 8.19s
735:
        learn: 0.7049153
                                  total: 22.7s
                                                   remaining: 8.15s
                                  total: 22.8s
736:
        learn: 0.7018110
                                                   remaining: 8.14s
737:
        learn: 0.7006350
                                  total: 22.8s
                                                   remaining: 8.1s
738:
        learn: 0.6991360
                                  total: 22.8s
                                                   remaining: 8.06s
                                                   remaining: 8.05s
739:
        learn: 0.6960750
                                  total: 22.9s
                                  total: 22.9s
740:
        learn: 0.6932287
                                                   remaining: 8.01s
741:
        learn: 0.6922808
                                  total: 22.9s
                                                   remaining: 7.97s
742:
        learn: 0.6901750
                                  total: 23s
                                                   remaining: 7.96s
743:
        learn: 0.6877387
                                  total: 23s
                                                   remaining: 7.92s
744:
        learn: 0.6856896
                                  total: 23s
                                                   remaining: 7.88s
745:
        learn: 0.6834856
                                  total: 23s
                                                   remaining: 7.84s
746:
        learn: 0.6797002
                                  total: 23.1s
                                                   remaining: 7.83s
                                  total: 23.1s
747:
        learn: 0.6764244
                                                   remaining: 7.79s
748:
        learn: 0.6745660
                                  total: 23.1s
                                                   remaining: 7.75s
749:
        learn: 0.6701842
                                  total: 23.2s
                                                   remaining: 7.74s
750:
        learn: 0.6681661
                                  total: 23.2s
                                                   remaining: 7.7s
                                  total: 23.2s
751:
        learn: 0.6658434
                                                   remaining: 7.66s
752:
        learn: 0.6625608
                                  total: 23.3s
                                                   remaining: 7.64s
753:
        learn: 0.6613044
                                  total: 23.3s
                                                   remaining: 7.61s
754:
        learn: 0.6590645
                                  total: 23.3s
                                                   remaining: 7.57s
755:
        learn: 0.6572720
                                  total: 23.4s
                                                   remaining: 7.55s
756:
        learn: 0.6533461
                                  total: 23.4s
                                                   remaining: 7.51s
757:
        learn: 0.6498483
                                  total: 23.4s
                                                   remaining: 7.47s
758:
        learn: 0.6485880
                                  total: 23.4s
                                                   remaining: 7.43s
                                                   remaining: 7.42s
759:
        learn: 0.6454666
                                  total: 23.5s
760:
        learn: 0.6429738
                                  total: 23.5s
                                                   remaining: 7.38s
        learn: 0.6396517
761:
                                  total: 23.5s
                                                   remaining: 7.34s
762:
        learn: 0.6374904
                                  total: 23.6s
                                                   remaining: 7.33s
763:
        learn: 0.6358997
                                  total: 23.6s
                                                   remaining: 7.29s
764:
        learn: 0.6318946
                                  total: 23.6s
                                                   remaining: 7.25s
        learn: 0.6305101
765:
                                  total: 23.7s
                                                   remaining: 7.24s
766:
                                  total: 23.7s
        learn: 0.6297419
                                                   remaining: 7.2s
767:
        learn: 0.6270787
                                  total: 23.7s
                                                   remaining: 7.16s
768:
        learn: 0.6234947
                                  total: 23.8s
                                                   remaining: 7.15s
769:
        learn: 0.6216157
                                  total: 23.8s
                                                   remaining: 7.11s
770:
        learn: 0.6190717
                                  total: 23.8s
                                                   remaining: 7.07s
771:
        learn: 0.6172774
                                  total: 23.9s
                                                   remaining: 7.06s
        learn: 0.6141955
772:
                                  total: 23.9s
                                                   remaining: 7.02s
```

```
773:
        learn: 0.6102021
                                  total: 23.9s
                                                   remaining: 6.98s
774:
        learn: 0.6084217
                                  total: 24s
                                                   remaining: 6.97s
775:
                                  total: 24s
        learn: 0.6061695
                                                   remaining: 6.93s
776:
        learn: 0.6039782
                                  total: 24s
                                                   remaining: 6.89s
777:
        learn: 0.6025718
                                  total: 24s
                                                   remaining: 6.85s
                                                   remaining: 6.83s
778:
        learn: 0.6012268
                                  total: 24.1s
779:
        learn: 0.6000479
                                  total: 24.1s
                                                   remaining: 6.8s
780:
        learn: 0.5971284
                                  total: 24.1s
                                                   remaining: 6.76s
781:
        learn: 0.5942934
                                  total: 24.2s
                                                   remaining: 6.74s
                                  total: 24.2s
782:
        learn: 0.5916840
                                                   remaining: 6.71s
783:
                                  total: 24.2s
        learn: 0.5890138
                                                   remaining: 6.67s
784:
        learn: 0.5870799
                                  total: 24.3s
                                                   remaining: 6.65s
785:
        learn: 0.5837307
                                  total: 24.3s
                                                   remaining: 6.62s
786:
        learn: 0.5827031
                                  total: 24.3s
                                                   remaining: 6.58s
787:
        learn: 0.5823692
                                  total: 24.3s
                                                   remaining: 6.54s
788:
        learn: 0.5789554
                                  total: 24.4s
                                                   remaining: 6.52s
789:
        learn: 0.5748857
                                  total: 24.4s
                                                   remaining: 6.48s
790:
        learn: 0.5734118
                                  total: 24.4s
                                                   remaining: 6.45s
791:
        learn: 0.5718805
                                  total: 24.5s
                                                   remaining: 6.43s
792:
        learn: 0.5698510
                                  total: 24.5s
                                                   remaining: 6.39s
793:
        learn: 0.5691338
                                  total: 24.5s
                                                   remaining: 6.36s
794:
        learn: 0.5666906
                                  total: 24.6s
                                                   remaining: 6.34s
795:
        learn: 0.5648455
                                  total: 24.6s
                                                   remaining: 6.3s
796:
        learn: 0.5607392
                                  total: 24.6s
                                                   remaining: 6.26s
797:
                                  total: 24.7s
        learn: 0.5597776
                                                   remaining: 6.25s
798:
        learn: 0.5568399
                                  total: 24.7s
                                                   remaining: 6.21s
799:
        learn: 0.5554718
                                  total: 24.7s
                                                   remaining: 6.17s
                                                   remaining: 6.13s
800:
        learn: 0.5544482
                                  total: 24.7s
                                  total: 24.8s
801:
        learn: 0.5520833
                                                   remaining: 6.12s
802:
                                  total: 24.8s
        learn: 0.5501595
                                                   remaining: 6.08s
803:
        learn: 0.5485989
                                  total: 24.8s
                                                   remaining: 6.04s
                                  total: 24.9s
804:
        learn: 0.5457447
                                                   remaining: 6.03s
805:
        learn: 0.5428066
                                  total: 24.9s
                                                   remaining: 5.99s
806:
        learn: 0.5415584
                                  total: 24.9s
                                                   remaining: 5.95s
807:
        learn: 0.5410686
                                  total: 25s
                                                   remaining: 5.93s
                                  total: 25s
                                                   remaining: 5.9s
808:
        learn: 0.5394182
809:
        learn: 0.5380367
                                  total: 25s
                                                   remaining: 5.86s
810:
        learn: 0.5348347
                                  total: 25s
                                                   remaining: 5.82s
811:
        learn: 0.5327689
                                  total: 25.1s
                                                   remaining: 5.81s
                                  total: 25.1s
812:
        learn: 0.5309739
                                                   remaining: 5.77s
813:
        learn: 0.5290802
                                  total: 25.1s
                                                   remaining: 5.73s
814:
        learn: 0.5254211
                                  total: 25.2s
                                                   remaining: 5.71s
815:
                                  total: 25.2s
        learn: 0.5236546
                                                   remaining: 5.68s
        learn: 0.5228190
                                  total: 25.2s
816:
                                                   remaining: 5.64s
817:
        learn: 0.5201983
                                  total: 25.3s
                                                   remaining: 5.62s
818:
        learn: 0.5185139
                                  total: 25.3s
                                                   remaining: 5.59s
819:
        learn: 0.5175245
                                  total: 25.3s
                                                   remaining: 5.55s
                                                   remaining: 5.53s
820:
        learn: 0.5167174
                                  total: 25.4s
821:
        learn: 0.5126116
                                  total: 25.4s
                                                   remaining: 5.5s
822:
        learn: 0.5118932
                                  total: 25.4s
                                                   remaining: 5.46s
823:
        learn: 0.5096655
                                  total: 25.5s
                                                   remaining: 5.44s
824:
        learn: 0.5078432
                                  total: 25.5s
                                                   remaining: 5.4s
825:
        learn: 0.5065159
                                  total: 25.5s
                                                   remaining: 5.37s
826:
        learn: 0.5034892
                                  total: 25.6s
                                                   remaining: 5.35s
827:
        learn: 0.5008096
                                  total: 25.6s
                                                   remaining: 5.31s
828:
        learn: 0.5003971
                                  total: 25.6s
                                                   remaining: 5.28s
829:
        learn: 0.4979852
                                  total: 25.7s
                                                   remaining: 5.26s
830:
                                  total: 25.7s
        learn: 0.4965076
                                                   remaining: 5.22s
831:
        learn: 0.4960015
                                  total: 25.7s
                                                   remaining: 5.18s
832:
        learn: 0.4955005
                                  total: 25.7s
                                                   remaining: 5.15s
        learn: 0.4947573
833:
                                  total: 25.8s
                                                   remaining: 5.13s
```

834:	learn:	0.4943221	total:	25.8s	remaining:	5.09s
835:	learn:	0.4926328	total:	25.8s	remaining:	5.06s
836:	learn:	0.4917942	total:	25.9s	remaining:	5.04s
837:		0.4902086	total:		remaining:	
838:		0.4871422	total:		remaining:	
839:		0.4866425	total:		remaining:	
					_	
840:		0.4850915	total:		remaining:	
841:	learn:	0.4837217	total:	26s	remaining:	4.87s
842:	learn:	0.4818884	total:	26.1s	remaining:	4.85s
843:	learn:	0.4815298	total:	26.1s	remaining:	4.82s
844:	learn:	0.4795648	total:	26.1s	remaining:	
845:		0.4770649	total:		remaining:	
846:		0.4765303	total:		remaining:	
					_	
847:		0.4754029	total:		remaining:	
848:		0.4742683	total:		remaining:	
849:	learn:	0.4716146	total:		remaining:	
850:	learn:	0.4704311	total:	26.3s	remaining:	4.6s
851:	learn:	0.4686064	total:	26.4s	remaining:	4.58s
852:	learn:	0.4661975	total:	26.4s	remaining:	4.54s
853:		0.4636540	total:		remaining:	
854:		0.4622840	total:		remaining:	
855:					remaining:	
		0.4609082	total:		_	
856:		0.4600238	total:		remaining:	
857:		0.4595431	total:		remaining:	
858:	learn:	0.4592156	total:	26.6s	remaining:	4.36s
859:	learn:	0.4572725	total:	26.6s	remaining:	4.32s
860:	learn:	0.4561476	total:	26.6s	remaining:	4.29s
861:	learn:	0.4552575	total:	26.6s	remaining:	4.27s
862:		0.4546509	total:		remaining:	
863:		0.4541092	total:		remaining:	
864:		0.4526692	total:		remaining:	
					_	
865:		0.4516418	total:		remaining:	
866:		0.4491520	total:		remaining:	
867:		0.4480316	total:		remaining:	
868:	learn:	0.4477227	total:	26.8s	remaining:	4.05s
869:	learn:	0.4453253	total:	26.9s	remaining:	4.01s
870:	learn:	0.4434173	total:	26.9s	remaining:	3.99s
871:	learn:	0.4413049	total:		remaining:	
872:		0.4404245	total:		remaining:	
873:		0.4392396	total:		remaining:	
					_	
874:		0.4382288	total:		remaining:	
875:		0.4367491	total:		remaining:	
876:		0.4336942	total:		remaining:	
877:	learn:	0.4307599	total:		remaining:	3.77s
878:	learn:	0.4294610	total:	27.1s	remaining:	3.74s
879:	learn:	0.4268933	total:	27.1s	remaining:	3.7s
880:	learn:	0.4253987	total:	27.2s	remaining:	3.68s
881:		0.4232487	total:		remaining:	
882:		0.4217116	total:		remaining:	
883:		0.4193354	total:		remaining:	
884:		0.4184161	total:		remaining:	
885:		0.4170872	total:		remaining:	
886:		0.4166208	total:		remaining:	
887:		0.4140001	total:		remaining:	
888:	learn:	0.4138624	total:	27.4s	remaining:	3.43s
889:	learn:	0.4124131	total:	27.5s	remaining:	3.4s
890:	learn:	0.4119295	total:	27.5s	remaining:	
891:		0.4116986	total:		remaining:	
892:		0.4107970	total:		remaining:	
893:		0.4084400	total:		remaining:	
					_	
894:	тearn:	0.4064507	total:	2/.65	remaining:	3.24 S

```
learn: 0.4056293
895:
                                  total: 27.6s
                                                   remaining: 3.21s
896:
        learn: 0.4039600
                                  total: 27.7s
                                                   remaining: 3.18s
897:
                                  total: 27.7s
        learn: 0.4030990
                                                   remaining: 3.15s
898:
        learn: 0.4020169
                                  total: 27.8s
                                                   remaining: 3.13s
899:
        learn: 0.4012682
                                  total: 27.8s
                                                   remaining: 3.09s
        learn: 0.4002251
                                  total: 27.8s
900:
                                                   remaining: 3.06s
901:
        learn: 0.3991543
                                  total: 27.9s
                                                   remaining: 3.03s
902:
        learn: 0.3976579
                                  total: 27.9s
                                                   remaining: 3s
903:
        learn: 0.3961487
                                  total: 27.9s
                                                   remaining: 2.97s
                                  total: 28s
904:
        learn: 0.3954468
                                                   remaining: 2.94s
        learn: 0.3924128
905:
                                  total: 28s
                                                   remaining: 2.91s
906:
        learn: 0.3892232
                                  total: 28s
                                                   remaining: 2.87s
907:
        learn: 0.3877690
                                  total: 28.1s
                                                   remaining: 2.85s
908:
        learn: 0.3866033
                                  total: 28.1s
                                                   remaining: 2.81s
909:
        learn: 0.3846954
                                  total: 28.1s
                                                   remaining: 2.78s
910:
        learn: 0.3836465
                                  total: 28.1s
                                                   remaining: 2.75s
911:
        learn: 0.3826404
                                  total: 28.2s
                                                   remaining: 2.72s
912:
        learn: 0.3807896
                                  total: 28.2s
                                                   remaining: 2.69s
913:
        learn: 0.3802808
                                  total: 28.2s
                                                   remaining: 2.66s
914:
        learn: 0.3782146
                                  total: 28.3s
                                                   remaining: 2.63s
915:
        learn: 0.3770727
                                  total: 28.3s
                                                   remaining: 2.6s
916:
        learn: 0.3742004
                                  total: 28.3s
                                                   remaining: 2.56s
917:
        learn: 0.3729152
                                  total: 28.4s
                                                   remaining: 2.54s
918:
        learn: 0.3716506
                                  total: 28.4s
                                                   remaining: 2.5s
919:
                                  total: 28.4s
        learn: 0.3709386
                                                   remaining: 2.47s
920:
        learn: 0.3699115
                                  total: 28.5s
                                                   remaining: 2.44s
921:
        learn: 0.3691679
                                  total: 28.5s
                                                   remaining: 2.41s
922:
        learn: 0.3682478
                                  total: 28.5s
                                                   remaining: 2.38s
923:
                                  total: 28.6s
        learn: 0.3664809
                                                   remaining: 2.35s
924:
        learn: 0.3658651
                                  total: 28.6s
                                                   remaining: 2.32s
925:
        learn: 0.3635695
                                  total: 28.6s
                                                   remaining: 2.29s
                                  total: 28.7s
926:
        learn: 0.3631079
                                                   remaining: 2.26s
927:
        learn: 0.3623525
                                  total: 28.7s
                                                   remaining: 2.23s
928:
        learn: 0.3609175
                                  total: 28.7s
                                                   remaining: 2.19s
929:
        learn: 0.3595980
                                  total: 28.8s
                                                   remaining: 2.17s
                                  total: 28.8s
                                                   remaining: 2.13s
930:
        learn: 0.3583400
931:
        learn: 0.3563082
                                  total: 28.8s
                                                   remaining: 2.1s
932:
        learn: 0.3557158
                                  total: 28.9s
                                                   remaining: 2.08s
933:
        learn: 0.3547230
                                  total: 28.9s
                                                   remaining: 2.04s
934:
        learn: 0.3532286
                                  total: 28.9s
                                                   remaining: 2.01s
935:
        learn: 0.3525367
                                  total: 28.9s
                                                   remaining: 1.98s
936:
        learn: 0.3517211
                                  total: 29s
                                                   remaining: 1.95s
937:
        learn: 0.3508069
                                  total: 29s
                                                   remaining: 1.92s
        learn: 0.3495114
938:
                                  total: 29s
                                                   remaining: 1.88s
939:
        learn: 0.3480895
                                  total: 29.1s
                                                   remaining: 1.86s
940:
        learn: 0.3476097
                                  total: 29.1s
                                                   remaining: 1.82s
941:
        learn: 0.3469424
                                  total: 29.1s
                                                   remaining: 1.79s
                                                   remaining: 1.76s
942:
        learn: 0.3466358
                                  total: 29.2s
943:
        learn: 0.3452580
                                  total: 29.2s
                                                   remaining: 1.73s
944:
        learn: 0.3438520
                                  total: 29.2s
                                                   remaining: 1.7s
                                  total: 29.3s
945:
        learn: 0.3432283
                                                   remaining: 1.67s
946:
        learn: 0.3418072
                                  total: 29.3s
                                                   remaining: 1.64s
947:
        learn: 0.3414487
                                  total: 29.3s
                                                   remaining: 1.61s
948:
        learn: 0.3394649
                                  total: 29.3s
                                                   remaining: 1.57s
949:
        learn: 0.3389737
                                  total: 29.4s
                                                   remaining: 1.55s
950:
        learn: 0.3384951
                                  total: 29.4s
                                                   remaining: 1.51s
951:
        learn: 0.3377028
                                  total: 29.4s
                                                   remaining: 1.48s
952:
        learn: 0.3367382
                                  total: 29.5s
                                                   remaining: 1.45s
953:
        learn: 0.3354461
                                  total: 29.5s
                                                   remaining: 1.42s
954:
        learn: 0.3338474
                                  total: 29.5s
                                                   remaining: 1.39s
        learn: 0.3330853
955:
                                  total: 29.6s
                                                   remaining: 1.36s
```

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956:
        learn: 0.3323514
                                  total: 29.6s
                                                   remaining: 1.33s
957:
        learn: 0.3306284
                                  total: 29.6s
                                                   remaining: 1.3s
        learn: 0.3296701
                                  total: 29.7s
958:
                                                   remaining: 1.27s
959:
        learn: 0.3284783
                                  total: 29.7s
                                                   remaining: 1.24s
960:
        learn: 0.3281916
                                  total: 29.7s
                                                   remaining: 1.21s
961:
        learn: 0.3266044
                                  total: 29.7s
                                                   remaining: 1.17s
962:
        learn: 0.3262202
                                  total: 29.8s
                                                   remaining: 1.14s
963:
        learn: 0.3257894
                                  total: 29.8s
                                                   remaining: 1.11s
        learn: 0.3237052
                                  total: 29.8s
                                                   remaining: 1.08s
964:
965:
        learn: 0.3217829
                                  total: 29.9s
                                                   remaining: 1.05s
                                  total: 29.9s
966:
        learn: 0.3203449
                                                   remaining: 1.02s
967:
        learn: 0.3194403
                                  total: 29.9s
                                                   remaining: 988ms
968:
        learn: 0.3181982
                                  total: 30s
                                                   remaining: 959ms
        learn: 0.3167472
                                  total: 30s
969:
                                                   remaining: 927ms
970:
        learn: 0.3148623
                                  total: 30s
                                                   remaining: 896ms
971:
        learn: 0.3124241
                                  total: 30.1s
                                                   remaining: 866ms
                                                   remaining: 835ms
972:
        learn: 0.3120947
                                  total: 30.1s
973:
        learn: 0.3107956
                                  total: 30.1s
                                                   remaining: 803ms
974:
        learn: 0.3096581
                                  total: 30.2s
                                                   remaining: 774ms
975:
        learn: 0.3087803
                                  total: 30.2s
                                                   remaining: 742ms
976:
        learn: 0.3081516
                                  total: 30.2s
                                                   remaining: 711ms
977:
        learn: 0.3066997
                                  total: 30.3s
                                                   remaining: 681ms
978:
        learn: 0.3059940
                                  total: 30.3s
                                                   remaining: 649ms
979:
        learn: 0.3052044
                                  total: 30.3s
                                                   remaining: 618ms
                                  total: 30.4s
980:
        learn: 0.3037017
                                                   remaining: 588ms
981:
        learn: 0.3020956
                                  total: 30.4s
                                                   remaining: 557ms
982:
        learn: 0.3012421
                                  total: 30.4s
                                                   remaining: 525ms
983:
        learn: 0.3006952
                                  total: 30.5s
                                                   remaining: 495ms
                                  total: 30.5s
984:
        learn: 0.2995496
                                                   remaining: 464ms
985:
        learn: 0.2977188
                                  total: 30.5s
                                                   remaining: 433ms
986:
        learn: 0.2970538
                                  total: 30.5s
                                                   remaining: 401ms
                                  total: 30.6s
987:
        learn: 0.2964003
                                                   remaining: 371ms
                                                   remaining: 340ms
988:
        learn: 0.2951033
                                  total: 30.6s
989:
                                                   remaining: 309ms
        learn: 0.2942515
                                  total: 30.6s
990:
        learn: 0.2938183
                                  total: 30.7s
                                                   remaining: 278ms
                                  total: 30.7s
991:
        learn: 0.2937895
                                                   remaining: 247ms
992:
        learn: 0.2931778
                                  total: 30.7s
                                                   remaining: 216ms
993:
                                                   remaining: 186ms
        learn: 0.2913520
                                  total: 30.8s
994:
        learn: 0.2901354
                                  total: 30.8s
                                                   remaining: 155ms
995:
                                  total: 30.8s
        learn: 0.2891858
                                                   remaining: 124ms
996:
                                  total: 30.9s
        learn: 0.2880957
                                                   remaining: 92.9ms
997:
        learn: 0.2869536
                                  total: 30.9s
                                                   remaining: 61.9ms
        learn: 0.2866359
                                  total: 30.9s
998:
                                                   remaining: 30.9ms
999:
        learn: 0.2860888
                                  total: 31s
                                                   remaining: Ous
0:
        learn: 17.7495853
                                                   remaining: 5.41s
                                  total: 5.42ms
1:
        learn: 17.7046327
                                  total: 10.4ms
                                                   remaining: 5.21s
2:
        learn: 17.5861208
                                  total: 57.2ms
                                                   remaining: 19s
3:
        learn: 17.5415398
                                  total: 62.2ms
                                                   remaining: 15.5s
4:
        learn: 17.4547145
                                  total: 154ms
                                                   remaining: 30.6s
5:
        learn: 17.4158269
                                  total: 159ms
                                                   remaining: 26.3s
6:
        learn: 17.3827534
                                  total: 164ms
                                                   remaining: 23.3s
7:
        learn: 17.2570962
                                  total: 256ms
                                                   remaining: 31.7s
8:
        learn: 17.2177432
                                  total: 263ms
                                                   remaining: 28.9s
9:
        learn: 17.1791373
                                  total: 353ms
                                                   remaining: 35s
        learn: 17.1410872
10:
                                  total: 359ms
                                                   remaining: 32.2s
11:
        learn: 17.0206652
                                                   remaining: 30s
                                  total: 364ms
12:
        learn: 16.9865836
                                  total: 446ms
                                                   remaining: 33.9s
13:
        learn: 16.8913426
                                  total: 453ms
                                                   remaining: 31.9s
14:
        learn: 16.8545160
                                  total: 544ms
                                                   remaining: 35.7s
15:
        learn: 16.8219405
                                  total: 548ms
                                                   remaining: 33.7s
        learn: 16.7292808
16:
                                  total: 559ms
                                                   remaining: 32.3s
```

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17:
        learn: 16.6885069
                                 total: 643ms
                                                   remaining: 35.1s
18:
        learn: 16.6531547
                                 total: 650ms
                                                   remaining: 33.6s
        learn: 16.6197545
                                 total: 741ms
19:
                                                   remaining: 36.3s
20:
        learn: 16.5192725
                                 total: 746ms
                                                   remaining: 34.8s
21:
        learn: 16.4825026
                                 total: 839ms
                                                   remaining: 37.3s
22:
        learn: 16.4584439
                                 total: 844ms
                                                   remaining: 35.9s
23:
        learn: 16.3605509
                                 total: 945ms
                                                   remaining: 38.4s
24:
        learn: 16.3279056
                                                   remaining: 37.3s
                                 total: 955ms
25:
        learn: 16.2498532
                                 total: 963ms
                                                   remaining: 36.1s
        learn: 16.2195795
                                 total: 1.04s
                                                   remaining: 37.4s
26:
27:
        learn: 16.1905274
                                 total: 1.04s
                                                   remaining: 36.2s
28:
        learn: 16.1617551
                                 total: 1.13s
                                                   remaining: 37.9s
29:
        learn: 16.0563628
                                 total: 1.14s
                                                   remaining: 36.9s
        learn: 15.9737044
                                 total: 1.23s
30:
                                                   remaining: 38.4s
31:
        learn: 15.9000165
                                 total: 1.24s
                                                   remaining: 37.4s
32:
        learn: 15.8299977
                                 total: 1.24s
                                                   remaining: 36.4s
33:
        learn: 15.7584570
                                 total: 1.33s
                                                   remaining: 37.8s
34:
        learn: 15.7294146
                                 total: 1.33s
                                                   remaining: 36.8s
35:
        learn: 15.6957343
                                 total: 1.43s
                                                   remaining: 38.2s
36:
        learn: 15.6666990
                                 total: 1.43s
                                                   remaining: 37.3s
37:
        learn: 15.5990499
                                 total: 1.44s
                                                   remaining: 36.5s
38:
        learn: 15.5708590
                                 total: 1.53s
                                                   remaining: 37.7s
39:
        learn: 15.5389722
                                 total: 1.53s
                                                   remaining: 36.8s
40:
        learn: 15.4583156
                                 total: 1.63s
                                                   remaining: 38s
                                                   remaining: 37.2s
41:
        learn: 15.3899897
                                 total: 1.63s
42:
        learn: 15.3625285
                                 total: 1.64s
                                                   remaining: 36.4s
43:
        learn: 15.3384006
                                 total: 1.73s
                                                   remaining: 37.5s
44:
        learn: 15.3111932
                                 total: 1.73s
                                                   remaining: 36.7s
45:
        learn: 15.2878577
                                 total: 1.82s
                                                   remaining: 37.8s
        learn: 15.2642044
46:
                                 total: 1.82s
                                                   remaining: 37s
47:
        learn: 15.2377940
                                 total: 1.83s
                                                   remaining: 36.3s
        learn: 15.2147173
48:
                                 total: 1.92s
                                                   remaining: 37.3s
                                                   remaining: 36.6s
49:
        learn: 15.1297315
                                 total: 1.93s
50:
        learn: 15.1045252
                                 total: 2.02s
                                                   remaining: 37.5s
51:
        learn: 15.0501173
                                 total: 2.02s
                                                   remaining: 36.9s
52:
        learn: 14.9741001
                                 total: 2.03s
                                                   remaining: 36.2s
53:
        learn: 14.9518035
                                 total: 2.12s
                                                   remaining: 37.2s
        learn: 14.9296278
54:
                                 total: 2.13s
                                                   remaining: 36.6s
55:
        learn: 14.8425109
                                 total: 2.22s
                                                   remaining: 37.4s
        learn: 14.8186498
56:
                                 total: 2.22s
                                                   remaining: 36.8s
57:
        learn: 14.7967512
                                 total: 2.23s
                                                   remaining: 36.2s
58:
        learn: 14.7381995
                                                   remaining: 36.9s
                                 total: 2.32s
59:
        learn: 14.7194287
                                 total: 2.32s
                                                   remaining: 36.3s
        learn: 14.6968217
60:
                                 total: 2.32s
                                                   remaining: 35.8s
        learn: 14.6193052
                                 total: 2.42s
                                                   remaining: 36.5s
61:
62:
        learn: 14.5972322
                                 total: 2.42s
                                                   remaining: 36s
        learn: 14.5430730
                                 total: 2.51s
63:
                                                   remaining: 36.7s
                                 total: 2.52s
64:
        learn: 14.5065956
                                                   remaining: 36.2s
65:
        learn: 14.4862816
                                 total: 2.52s
                                                   remaining: 35.7s
                                 total: 2.61s
66:
        learn: 14.4224569
                                                   remaining: 36.4s
67:
        learn: 14.3986209
                                 total: 2.62s
                                                   remaining: 35.9s
68:
        learn: 14.3756495
                                 total: 2.71s
                                                   remaining: 36.6s
69:
        learn: 14.3543534
                                 total: 2.71s
                                                   remaining: 36.1s
        learn: 14.3294235
70:
                                 total: 2.81s
                                                   remaining: 36.7s
71:
        learn: 14.2623726
                                 total: 2.81s
                                                   remaining: 36.3s
72:
        learn: 14.2426113
                                                   remaining: 36.9s
                                 total: 2.9s
73:
        learn: 14.2242990
                                 total: 2.91s
                                                   remaining: 36.4s
74:
        learn: 14.2068712
                                 total: 2.92s
                                                   remaining: 36s
75:
        learn: 14.1889529
                                 total: 3.01s
                                                   remaining: 36.6s
76:
        learn: 14.1712634
                                 total: 3.01s
                                                   remaining: 36.1s
        learn: 14.1255651
77:
                                 total: 3.1s
                                                   remaining: 36.7s
```

```
learn: 14.1087574
78:
                                  total: 3.11s
                                                   remaining: 36.2s
79:
        learn: 14.0644459
                                  total: 3.12s
                                                   remaining: 35.9s
        learn: 14.0289313
80:
                                  total: 3.2s
                                                   remaining: 36.4s
81:
        learn: 13.9856050
                                  total: 3.21s
                                                   remaining: 35.9s
82:
        learn: 13.9351192
                                  total: 3.3s
                                                   remaining: 36.5s
        learn: 13.8778001
83:
                                  total: 3.31s
                                                   remaining: 36.1s
84:
        learn: 13.8612961
                                  total: 3.4s
                                                   remaining: 36.6s
85:
        learn: 13.8431618
                                                   remaining: 36.2s
                                  total: 3.4s
        learn: 13.8035368
                                                   remaining: 36.7s
86:
                                  total: 3.5s
87:
        learn: 13.7615285
                                  total: 3.5s
                                                   remaining: 36.3s
88:
        learn: 13.7393153
                                  total: 3.51s
                                                   remaining: 35.9s
89:
                                                   remaining: 36.4s
        learn: 13.7206032
                                  total: 3.6s
90:
        learn: 13.7059808
                                  total: 3.6s
                                                   remaining: 36s
                                  total: 3.69s
91:
        learn: 13.6639179
                                                   remaining: 36.4s
92:
        learn: 13.6354847
                                  total: 3.7s
                                                   remaining: 36.1s
93:
        learn: 13.6119580
                                  total: 3.71s
                                                   remaining: 35.7s
94:
        learn: 13.5946096
                                  total: 3.79s
                                                   remaining: 36.1s
95:
        learn: 13.5762537
                                  total: 3.8s
                                                   remaining: 35.8s
96:
        learn: 13.5624985
                                  total: 3.89s
                                                   remaining: 36.2s
97:
        learn: 13.5498937
                                                   remaining: 35.8s
                                  total: 3.89s
98:
        learn: 13.5324919
                                  total: 3.9s
                                                   remaining: 35.5s
        learn: 13.5184957
99:
                                  total: 3.99s
                                                   remaining: 35.9s
100:
        learn: 13.5044842
                                                   remaining: 35.6s
                                  total: 4s
101:
        learn: 13.4717243
                                  total: 4.09s
                                                   remaining: 36s
        learn: 13.4565073
                                  total: 4.09s
102:
                                                   remaining: 35.6s
                                                   remaining: 35.3s
103:
        learn: 13.4088590
                                  total: 4.1s
104:
        learn: 13.3484940
                                  total: 4.19s
                                                   remaining: 35.7s
                                                   remaining: 35.4s
105:
        learn: 13.3171749
                                  total: 4.19s
106:
        learn: 13.2748634
                                  total: 4.29s
                                                   remaining: 35.8s
107:
        learn: 13.2209270
                                  total: 4.29s
                                                   remaining: 35.4s
108:
        learn: 13.2064419
                                  total: 4.29s
                                                   remaining: 35.1s
        learn: 13.1947653
109:
                                  total: 4.39s
                                                   remaining: 35.5s
        learn: 13.1814110
                                  total: 4.39s
110:
                                                   remaining: 35.2s
111:
        learn: 13.1297000
                                  total: 4.48s
                                                   remaining: 35.5s
112:
        learn: 13.0807819
                                  total: 4.49s
                                                   remaining: 35.2s
                                                   remaining: 35.6s
113:
        learn: 13.0207466
                                  total: 4.58s
114:
        learn: 12.9866978
                                  total: 4.58s
                                                   remaining: 35.3s
115:
        learn: 12.9729190
                                  total: 4.59s
                                                   remaining: 35s
                                                   remaining: 35.3s
116:
        learn: 12.9480469
                                  total: 4.68s
                                                   remaining: 35s
117:
        learn: 12.9366769
                                  total: 4.69s
        learn: 12.9221431
                                  total: 4.78s
                                                   remaining: 35.4s
118:
119:
        learn: 12.8991237
                                  total: 4.79s
                                                   remaining: 35.1s
        learn: 12.8843343
120:
                                  total: 4.87s
                                                   remaining: 35.4s
        learn: 12.8284046
121:
                                  total: 4.88s
                                                   remaining: 35.1s
122:
        learn: 12.7884015
                                                   remaining: 34.8s
                                  total: 4.89s
123:
        learn: 12.7782522
                                  total: 4.98s
                                                   remaining: 35.2s
        learn: 12.7615387
                                  total: 4.99s
124:
                                                   remaining: 34.9s
                                                   remaining: 35.2s
125:
        learn: 12.7211394
                                  total: 5.07s
126:
        learn: 12.6840946
                                  total: 5.08s
                                                   remaining: 34.9s
127:
        learn: 12.6696508
                                  total: 5.17s
                                                   remaining: 35.2s
128:
        learn: 12.6602931
                                  total: 5.18s
                                                   remaining: 35s
129:
        learn: 12.6375660
                                  total: 5.18s
                                                   remaining: 34.7s
130:
        learn: 12.6261398
                                  total: 5.27s
                                                   remaining: 35s
131:
        learn: 12.5971877
                                  total: 5.28s
                                                   remaining: 34.7s
132:
        learn: 12.5791148
                                  total: 5.37s
                                                   remaining: 35s
        learn: 12.5473763
                                                   remaining: 34.7s
133:
                                  total: 5.38s
134:
        learn: 12.5032798
                                  total: 5.46s
                                                   remaining: 35s
        learn: 12.4822739
                                  total: 5.47s
                                                   remaining: 34.8s
135:
136:
        learn: 12.4731381
                                  total: 5.48s
                                                   remaining: 34.5s
137:
        learn: 12.4639333
                                  total: 5.57s
                                                   remaining: 34.8s
        learn: 12.4304470
138:
                                  total: 5.58s
                                                   remaining: 34.5s
```

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139:
        learn: 12.4192729
                                  total: 5.67s
                                                   remaining: 34.8s
140:
        learn: 12.3743388
                                  total: 5.67s
                                                   remaining: 34.6s
        learn: 12.3329739
141:
                                  total: 5.76s
                                                   remaining: 34.8s
142:
        learn: 12.3228244
                                  total: 5.77s
                                                   remaining: 34.6s
143:
        learn: 12.2817896
                                  total: 5.78s
                                                   remaining: 34.3s
        learn: 12.2729569
144:
                                  total: 5.86s
                                                   remaining: 34.6s
145:
        learn: 12.2231878
                                  total: 5.87s
                                                   remaining: 34.3s
        learn: 12.2133610
                                                   remaining: 34.6s
146:
                                  total: 5.96s
147:
        learn: 12.1858445
                                  total: 5.96s
                                                   remaining: 34.3s
        learn: 12.1763660
                                  total: 6.05s
148:
                                                   remaining: 34.6s
149:
        learn: 12.1565624
                                  total: 6.06s
                                                   remaining: 34.3s
        learn: 12.1447098
                                                   remaining: 34.1s
150:
                                  total: 6.07s
151:
        learn: 12.1239782
                                  total: 6.16s
                                                   remaining: 34.4s
        learn: 12.0823184
152:
                                  total: 6.16s
                                                   remaining: 34.1s
153:
        learn: 12.0666389
                                  total: 6.25s
                                                   remaining: 34.4s
154:
        learn: 12.0588336
                                  total: 6.26s
                                                   remaining: 34.1s
155:
        learn: 12.0395102
                                  total: 6.35s
                                                   remaining: 34.4s
156:
        learn: 12.0245695
                                  total: 6.36s
                                                   remaining: 34.1s
157:
        learn: 12.0109177
                                  total: 6.36s
                                                   remaining: 33.9s
        learn: 11.9943617
                                  total: 6.46s
                                                   remaining: 34.1s
158:
        learn: 11.9628026
                                  total: 6.46s
159:
                                                   remaining: 33.9s
160:
        learn: 11.9188005
                                  total: 6.55s
                                                   remaining: 34.1s
        learn: 11.8832438
                                  total: 6.56s
                                                   remaining: 33.9s
161:
162:
        learn: 11.8716007
                                  total: 6.65s
                                                   remaining: 34.1s
                                                   remaining: 33.9s
        learn: 11.8526553
                                  total: 6.65s
163:
164:
        learn: 11.8451155
                                  total: 6.66s
                                                   remaining: 33.7s
165:
        learn: 11.8281409
                                  total: 6.75s
                                                   remaining: 33.9s
                                                   remaining: 33.7s
        learn: 11.8233765
                                  total: 6.75s
166:
167:
        learn: 11.8166176
                                  total: 6.75s
                                                   remaining: 33.4s
        learn: 11.7740671
168:
                                  total: 6.84s
                                                   remaining: 33.7s
169:
        learn: 11.7482229
                                  total: 6.85s
                                                   remaining: 33.4s
170:
        learn: 11.7066123
                                  total: 6.86s
                                                   remaining: 33.2s
        learn: 11.6896177
                                  total: 6.95s
171:
                                                   remaining: 33.4s
172:
        learn: 11.6773743
                                  total: 6.95s
                                                   remaining: 33.2s
173:
        learn: 11.6693472
                                  total: 6.95s
                                                   remaining: 33s
                                                   remaining: 33.2s
174:
        learn: 11.6633765
                                  total: 7.04s
175:
        learn: 11.6462344
                                  total: 7.05s
                                                   remaining: 33s
176:
        learn: 11.6165999
                                  total: 7.14s
                                                   remaining: 33.2s
177:
        learn: 11.6037848
                                  total: 7.15s
                                                   remaining: 33s
178:
        learn: 11.5978167
                                  total: 7.24s
                                                   remaining: 33.2s
179:
        learn: 11.5839428
                                                   remaining: 33s
                                  total: 7.24s
        learn: 11.5767411
                                                   remaining: 32.8s
180:
                                  total: 7.25s
        learn: 11.5586958
                                  total: 7.34s
181:
                                                   remaining: 33s
182:
        learn: 11.5379532
                                  total: 7.35s
                                                   remaining: 32.8s
                                                   remaining: 33s
        learn: 11.5094447
183:
                                  total: 7.44s
184:
        learn: 11.4996789
                                  total: 7.44s
                                                   remaining: 32.8s
        learn: 11.4950711
                                  total: 7.45s
185:
                                                   remaining: 32.6s
                                                   remaining: 32.8s
        learn: 11.4874574
                                  total: 7.54s
186:
187:
        learn: 11.4612613
                                  total: 7.54s
                                                   remaining: 32.6s
188:
        learn: 11.4341394
                                  total: 7.64s
                                                   remaining: 32.8s
189:
        learn: 11.3987256
                                  total: 7.64s
                                                   remaining: 32.6s
190:
        learn: 11.3692315
                                  total: 7.73s
                                                   remaining: 32.8s
191:
        learn: 11.3591481
                                  total: 7.74s
                                                   remaining: 32.6s
192:
        learn: 11.3453712
                                  total: 7.75s
                                                   remaining: 32.4s
        learn: 11.3257169
193:
                                  total: 7.83s
                                                   remaining: 32.6s
194:
        learn: 11.3222059
                                                   remaining: 32.3s
                                  total: 7.83s
195:
        learn: 11.3051716
                                  total: 7.84s
                                                   remaining: 32.2s
        learn: 11.2624313
                                  total: 7.93s
                                                   remaining: 32.3s
196:
197:
        learn: 11.2501449
                                  total: 7.94s
                                                   remaining: 32.2s
198:
        learn: 11.2351465
                                  total: 8.03s
                                                   remaining: 32.3s
        learn: 11.2076321
199:
                                  total: 8.04s
                                                   remaining: 32.1s
```

```
200:
        learn: 11.1716951
                                 total: 8.13s
                                                   remaining: 32.3s
201:
        learn: 11.1583118
                                 total: 8.13s
                                                   remaining: 32.1s
        learn: 11.1253773
202:
                                 total: 8.14s
                                                   remaining: 31.9s
203:
        learn: 11.1181852
                                 total: 8.23s
                                                   remaining: 32.1s
204:
        learn: 11.1110801
                                 total: 8.23s
                                                   remaining: 31.9s
205:
        learn: 11.0979161
                                 total: 8.32s
                                                   remaining: 32.1s
206:
        learn: 11.0884207
                                 total: 8.33s
                                                   remaining: 31.9s
207:
        learn: 11.0614929
                                 total: 8.33s
                                                   remaining: 31.7s
208:
        learn: 11.0561390
                                 total: 8.43s
                                                   remaining: 31.9s
209:
        learn: 11.0272449
                                 total: 8.43s
                                                   remaining: 31.7s
210:
        learn: 11.0149130
                                 total: 8.52s
                                                   remaining: 31.9s
211:
        learn: 11.0110657
                                                   remaining: 31.7s
                                 total: 8.53s
212:
        learn: 10.9973540
                                 total: 8.62s
                                                   remaining: 31.8s
        learn: 10.9887030
213:
                                 total: 8.62s
                                                   remaining: 31.7s
214:
        learn: 10.9716787
                                 total: 8.63s
                                                   remaining: 31.5s
215:
        learn: 10.9574704
                                 total: 8.72s
                                                   remaining: 31.7s
216:
        learn: 10.9505653
                                 total: 8.73s
                                                   remaining: 31.5s
217:
        learn: 10.9412079
                                 total: 8.82s
                                                   remaining: 31.6s
218:
        learn: 10.9322463
                                 total: 8.82s
                                                   remaining: 31.5s
219:
        learn: 10.9201913
                                 total: 8.91s
                                                   remaining: 31.6s
220:
        learn: 10.9043731
                                 total: 8.92s
                                                   remaining: 31.4s
        learn: 10.8772629
221:
                                 total: 8.93s
                                                   remaining: 31.3s
222:
        learn: 10.8653838
                                 total: 9.02s
                                                   remaining: 31.4s
223:
        learn: 10.8572085
                                 total: 9.02s
                                                   remaining: 31.3s
                                                   remaining: 31.4s
224:
        learn: 10.8508586
                                 total: 9.11s
225:
        learn: 10.8473171
                                 total: 9.12s
                                                   remaining: 31.2s
226:
        learn: 10.8264499
                                 total: 9.13s
                                                   remaining: 31.1s
227:
        learn: 10.8194906
                                 total: 9.21s
                                                   remaining: 31.2s
228:
        learn: 10.8079439
                                 total: 9.22s
                                                   remaining: 31s
229:
        learn: 10.8029548
                                 total: 9.31s
                                                   remaining: 31.2s
230:
        learn: 10.7997903
                                 total: 9.32s
                                                   remaining: 31s
        learn: 10.7886710
231:
                                 total: 9.41s
                                                   remaining: 31.1s
232:
        learn: 10.7751738
                                 total: 9.41s
                                                   remaining: 31s
233:
        learn: 10.7594556
                                 total: 9.51s
                                                   remaining: 31.1s
234:
        learn: 10.7529588
                                 total: 9.51s
                                                   remaining: 31s
                                                   remaining: 30.8s
235:
        learn: 10.7482600
                                 total: 9.52s
236:
        learn: 10.7455562
                                 total: 9.61s
                                                   remaining: 30.9s
237:
        learn: 10.7410998
                                 total: 9.61s
                                                   remaining: 30.8s
238:
        learn: 10.7088173
                                 total: 9.7s
                                                   remaining: 30.9s
        learn: 10.7036804
239:
                                 total: 9.71s
                                                   remaining: 30.7s
240:
        learn: 10.6996273
                                 total: 9.71s
                                                   remaining: 30.6s
241:
        learn: 10.6926025
                                 total: 9.8s
                                                   remaining: 30.7s
        learn: 10.6810583
242:
                                 total: 9.81s
                                                   remaining: 30.6s
        learn: 10.6732949
243:
                                 total: 9.9s
                                                   remaining: 30.7s
                                                   remaining: 30.5s
244:
        learn: 10.6619313
                                 total: 9.9s
245:
        learn: 10.6579742
                                 total: 9.91s
                                                   remaining: 30.4s
        learn: 10.6331107
246:
                                 total: 10s
                                                   remaining: 30.5s
                                                   remaining: 30.3s
247:
        learn: 10.6258139
                                 total: 10s
248:
        learn: 10.6153541
                                 total: 10.1s
                                                   remaining: 30.5s
249:
        learn: 10.6113958
                                 total: 10.1s
                                                   remaining: 30.3s
250:
        learn: 10.5955849
                                 total: 10.1s
                                                   remaining: 30.2s
251:
        learn: 10.5860277
                                                   remaining: 30.3s
                                 total: 10.2s
252:
        learn: 10.5731513
                                                   remaining: 30.1s
                                 total: 10.2s
253:
        learn: 10.5639999
                                 total: 10.3s
                                                   remaining: 30.2s
254:
        learn: 10.5577660
                                 total: 10.3s
                                                   remaining: 30.1s
255:
        learn: 10.5521200
                                                   remaining: 30s
                                 total: 10.3s
256:
        learn: 10.5484359
                                 total: 10.4s
                                                   remaining: 30.1s
257:
        learn: 10.5409338
                                 total: 10.4s
                                                   remaining: 29.9s
258:
        learn: 10.5379550
                                 total: 10.5s
                                                   remaining: 30s
259:
        learn: 10.5356548
                                 total: 10.5s
                                                   remaining: 29.9s
260:
        learn: 10.5241897
                                 total: 10.6s
                                                   remaining: 30s
```

```
learn: 10.5100895
261:
                                  total: 10.6s
                                                   remaining: 29.8s
262:
        learn: 10.5051256
                                  total: 10.6s
                                                   remaining: 29.7s
                                  total: 10.7s
263:
        learn: 10.4960553
                                                   remaining: 29.8s
264:
        learn: 10.4927006
                                  total: 10.7s
                                                   remaining: 29.7s
265:
        learn: 10.4802847
                                  total: 10.8s
                                                   remaining: 29.8s
        learn: 10.4653258
                                  total: 10.8s
266:
                                                   remaining: 29.6s
267:
        learn: 10.4592043
                                  total: 10.8s
                                                   remaining: 29.5s
        learn: 10.4522103
                                                   remaining: 29.6s
268:
                                  total: 10.9s
269:
        learn: 10.4255823
                                  total: 10.9s
                                                   remaining: 29.5s
270:
        learn: 10.4186393
                                  total: 11s
                                                   remaining: 29.5s
271:
        learn: 10.4104117
                                  total: 11s
                                                   remaining: 29.4s
272:
        learn: 10.3968928
                                                   remaining: 29.5s
                                  total: 11.1s
273:
        learn: 10.3843045
                                  total: 11.1s
                                                   remaining: 29.4s
        learn: 10.3681796
                                  total: 11.2s
274:
                                                   remaining: 29.5s
275:
        learn: 10.3635201
                                  total: 11.2s
                                                   remaining: 29.4s
276:
        learn: 10.3390993
                                  total: 11.3s
                                                   remaining: 29.4s
277:
        learn: 10.3362176
                                  total: 11.3s
                                                   remaining: 29.3s
278:
        learn: 10.3199191
                                  total: 11.3s
                                                   remaining: 29.2s
279:
        learn: 10.3122145
                                  total: 11.4s
                                                   remaining: 29.3s
280:
        learn: 10.2975279
                                  total: 11.4s
                                                   remaining: 29.1s
281:
        learn: 10.2942078
                                  total: 11.5s
                                                   remaining: 29.2s
        learn: 10.2832269
282:
                                  total: 11.5s
                                                   remaining: 29.1s
283:
        learn: 10.2756805
                                  total: 11.5s
                                                   remaining: 29s
284:
        learn: 10.2681069
                                  total: 11.6s
                                                   remaining: 29s
                                                   remaining: 28.9s
285:
        learn: 10.2515118
                                  total: 11.6s
286:
        learn: 10.2479028
                                  total: 11.7s
                                                   remaining: 29s
287:
        learn: 10.2399618
                                  total: 11.7s
                                                   remaining: 28.9s
288:
        learn: 10.2251789
                                  total: 11.7s
                                                   remaining: 28.8s
289:
        learn: 10.2067777
                                  total: 11.8s
                                                   remaining: 28.8s
290:
        learn: 10.2038431
                                  total: 11.8s
                                                   remaining: 28.7s
291:
        learn: 10.2019268
                                  total: 11.8s
                                                   remaining: 28.6s
        learn: 10.1804498
292:
                                  total: 11.9s
                                                   remaining: 28.6s
293:
        learn: 10.1749090
                                  total: 11.9s
                                                   remaining: 28.5s
294:
        learn: 10.1731629
                                  total: 12s
                                                   remaining: 28.6s
295:
        learn: 10.1498360
                                  total: 12s
                                                   remaining: 28.5s
                                  total: 12.1s
                                                   remaining: 28.6s
296:
        learn: 10.1474002
297:
        learn: 10.1355664
                                  total: 12.1s
                                                   remaining: 28.4s
298:
        learn: 10.1151872
                                  total: 12.1s
                                                   remaining: 28.3s
299:
        learn: 10.1033164
                                  total: 12.2s
                                                   remaining: 28.4s
300:
        learn: 10.0934666
                                  total: 12.2s
                                                   remaining: 28.3s
        learn: 10.0630068
                                                   remaining: 28.3s
301:
                                  total: 12.3s
302:
        learn: 10.0560114
                                  total: 12.3s
                                                   remaining: 28.2s
        learn: 10.0503013
                                  total: 12.4s
303:
                                                   remaining: 28.3s
        learn: 10.0447271
304:
                                  total: 12.4s
                                                   remaining: 28.2s
                                                   remaining: 28.1s
305:
        learn: 10.0181829
                                  total: 12.4s
306:
        learn: 10.0075960
                                  total: 12.5s
                                                   remaining: 28.2s
307:
                                  total: 12.5s
        learn: 10.0017242
                                                   remaining: 28.1s
                                                   remaining: 28.1s
308:
        learn: 9.9998534
                                  total: 12.6s
309:
        learn: 9.9788301
                                  total: 12.6s
                                                   remaining: 28s
310:
        learn: 9.9661979
                                  total: 12.7s
                                                   remaining: 28s
311:
        learn: 9.9533549
                                  total: 12.7s
                                                   remaining: 27.9s
312:
        learn: 9.9266164
                                  total: 12.8s
                                                   remaining: 28s
313:
        learn: 9.9033293
                                  total: 12.8s
                                                   remaining: 27.9s
314:
        learn: 9.9014152
                                  total: 12.8s
                                                   remaining: 27.8s
        learn: 9.8860235
315:
                                  total: 12.9s
                                                   remaining: 27.8s
        learn: 9.8805958
                                                   remaining: 27.7s
316:
                                  total: 12.9s
317:
        learn: 9.8672640
                                  total: 13s
                                                   remaining: 27.8s
318:
        learn: 9.8541911
                                  total: 13s
                                                   remaining: 27.7s
319:
        learn: 9.8385038
                                  total: 13.1s
                                                   remaining: 27.7s
320:
        learn: 9.8304027
                                  total: 13.1s
                                                   remaining: 27.6s
321:
        learn: 9.8285635
                                  total: 13.1s
                                                   remaining: 27.5s
```

```
learn: 9.8233086
322:
                                  total: 13.2s
                                                   remaining: 27.6s
323:
        learn: 9.8173045
                                  total: 13.2s
                                                   remaining: 27.4s
        learn: 9.8075875
                                  total: 13.2s
324:
                                                   remaining: 27.5s
325:
        learn: 9.8025051
                                  total: 13.3s
                                                   remaining: 27.4s
326:
        learn: 9.7958688
                                  total: 13.3s
                                                   remaining: 27.3s
327:
        learn: 9.7913028
                                  total: 13.3s
                                                   remaining: 27.3s
328:
        learn: 9.7885118
                                  total: 13.4s
                                                   remaining: 27.2s
329:
        learn: 9.7851837
                                  total: 13.4s
                                                   remaining: 27.3s
330:
        learn: 9.7745365
                                  total: 13.5s
                                                   remaining: 27.2s
331:
        learn: 9.7689500
                                  total: 13.5s
                                                   remaining: 27.2s
        learn: 9.7473517
332:
                                  total: 13.5s
                                                   remaining: 27.1s
333:
        learn: 9.7423788
                                  total: 13.6s
                                                   remaining: 27s
334:
        learn: 9.7353973
                                  total: 13.6s
                                                   remaining: 27.1s
        learn: 9.7253029
                                  total: 13.7s
335:
                                                   remaining: 27s
336:
        learn: 9.7219645
                                  total: 13.7s
                                                   remaining: 27s
337:
        learn: 9.7171496
                                  total: 13.7s
                                                   remaining: 26.9s
338:
        learn: 9.6979015
                                  total: 13.8s
                                                   remaining: 27s
339:
        learn: 9.6957997
                                  total: 13.8s
                                                   remaining: 26.9s
340:
        learn: 9.6942408
                                  total: 13.9s
                                                   remaining: 26.9s
341:
        learn: 9.6836063
                                  total: 13.9s
                                                   remaining: 26.8s
342:
        learn: 9.6757056
                                  total: 13.9s
                                                   remaining: 26.7s
343:
        learn: 9.6663514
                                  total: 14s
                                                   remaining: 26.8s
344:
        learn: 9.6572817
                                                   remaining: 26.7s
                                  total: 14s
345:
        learn: 9.6425631
                                  total: 14.1s
                                                   remaining: 26.7s
346:
                                  total: 14.1s
        learn: 9.6385973
                                                   remaining: 26.6s
347:
        learn: 9.6265453
                                  total: 14.1s
                                                   remaining: 26.5s
348:
        learn: 9.6224595
                                  total: 14.2s
                                                   remaining: 26.6s
349:
        learn: 9.6065427
                                  total: 14.2s
                                                   remaining: 26.4s
                                  total: 14.2s
350:
        learn: 9.6028349
                                                   remaining: 26.3s
        learn: 9.5795038
                                  total: 14.3s
351:
                                                   remaining: 26.4s
352:
        learn: 9.5723041
                                  total: 14.3s
                                                   remaining: 26.3s
                                  total: 14.4s
353:
        learn: 9.5626164
                                                   remaining: 26.3s
354:
        learn: 9.5535293
                                  total: 14.4s
                                                   remaining: 26.2s
355:
        learn: 9.5479168
                                  total: 14.5s
                                                   remaining: 26.3s
        learn: 9.5431151
356:
                                  total: 14.5s
                                                   remaining: 26.2s
                                  total: 14.6s
357:
        learn: 9.5211205
                                                   remaining: 26.2s
358:
        learn: 9.5183759
                                  total: 14.6s
                                                   remaining: 26.1s
359:
        learn: 9.5171780
                                  total: 14.6s
                                                   remaining: 26s
        learn: 9.5082624
                                  total: 14.7s
360:
                                                   remaining: 26.1s
361:
        learn: 9.4944686
                                  total: 14.7s
                                                   remaining: 26s
362:
        learn: 9.4799475
                                  total: 14.8s
                                                   remaining: 26s
        learn: 9.4701006
                                                   remaining: 25.9s
363:
                                  total: 14.8s
        learn: 9.4561839
                                  total: 14.9s
364:
                                                   remaining: 26s
        learn: 9.4500254
                                  total: 14.9s
365:
                                                   remaining: 25.9s
        learn: 9.4367767
                                                   remaining: 25.9s
366:
                                  total: 15s
367:
        learn: 9.4307723
                                  total: 15s
                                                   remaining: 25.8s
        learn: 9.4262017
                                  total: 15.1s
368:
                                                   remaining: 25.9s
                                                   remaining: 25.8s
369:
        learn: 9.4207646
                                  total: 15.2s
370:
        learn: 9.4117214
                                  total: 15.2s
                                                   remaining: 25.8s
371:
        learn: 9.4041405
                                  total: 15.2s
                                                   remaining: 25.7s
372:
        learn: 9.3950852
                                  total: 15.3s
                                                   remaining: 25.7s
373:
        learn: 9.3889281
                                  total: 15.3s
                                                   remaining: 25.6s
374:
        learn: 9.3846488
                                  total: 15.4s
                                                   remaining: 25.7s
375:
        learn: 9.3723019
                                  total: 15.4s
                                                   remaining: 25.6s
        learn: 9.3618426
376:
                                  total: 15.4s
                                                   remaining: 25.5s
377:
        learn: 9.3492016
                                  total: 15.5s
                                                   remaining: 25.5s
378:
        learn: 9.3202101
                                  total: 15.5s
                                                   remaining: 25.4s
379:
        learn: 9.3081333
                                  total: 15.6s
                                                   remaining: 25.5s
380:
        learn: 9.3000387
                                  total: 15.6s
                                                   remaining: 25.4s
381:
        learn: 9.2944397
                                  total: 15.7s
                                                   remaining: 25.4s
        learn: 9.2905274
382:
                                  total: 15.7s
                                                   remaining: 25.3s
```

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383:
        learn: 9.2803023
                                  total: 15.7s
                                                   remaining: 25.2s
384:
        learn: 9.2700271
                                  total: 15.8s
                                                   remaining: 25.3s
        learn: 9.2423269
                                  total: 15.8s
385:
                                                   remaining: 25.2s
386:
        learn: 9.2341850
                                  total: 15.9s
                                                   remaining: 25.2s
387:
        learn: 9.2119770
                                  total: 15.9s
                                                   remaining: 25.1s
388:
        learn: 9.1977002
                                  total: 16s
                                                   remaining: 25.1s
389:
        learn: 9.1887859
                                  total: 16s
                                                   remaining: 25.1s
390:
        learn: 9.1808033
                                                   remaining: 25.1s
                                  total: 16.1s
391:
        learn: 9.1631754
                                  total: 16.1s
                                                   remaining: 25s
392:
        learn: 9.1457884
                                  total: 16.1s
                                                   remaining: 24.9s
        learn: 9.1396569
393:
                                  total: 16.2s
                                                   remaining: 24.9s
394:
        learn: 9.1128373
                                                   remaining: 24.8s
                                  total: 16.2s
395:
        learn: 9.0962405
                                  total: 16.3s
                                                   remaining: 24.9s
396:
        learn: 9.0841076
                                  total: 16.3s
                                                   remaining: 24.8s
397:
        learn: 9.0596044
                                  total: 16.4s
                                                   remaining: 24.8s
398:
        learn: 9.0477277
                                  total: 16.4s
                                                   remaining: 24.7s
399:
        learn: 9.0189292
                                  total: 16.4s
                                                   remaining: 24.6s
400:
        learn: 9.0057270
                                  total: 16.5s
                                                   remaining: 24.6s
401:
        learn: 8.9869702
                                  total: 16.5s
                                                   remaining: 24.5s
402:
        learn: 8.9704037
                                  total: 16.6s
                                                   remaining: 24.6s
        learn: 8.9600878
403:
                                  total: 16.6s
                                                   remaining: 24.5s
404:
        learn: 8.9494043
                                  total: 16.7s
                                                   remaining: 24.5s
405:
        learn: 8.9332935
                                  total: 16.8s
                                                   remaining: 24.6s
406:
        learn: 8.9267139
                                  total: 16.8s
                                                   remaining: 24.5s
                                  total: 16.9s
407:
        learn: 8.9201608
                                                   remaining: 24.5s
408:
        learn: 8.9052947
                                  total: 16.9s
                                                   remaining: 24.4s
409:
        learn: 8.8905681
                                  total: 17s
                                                   remaining: 24.4s
410:
        learn: 8.8804301
                                  total: 17s
                                                   remaining: 24.4s
411:
        learn: 8.8533723
                                  total: 17.1s
                                                   remaining: 24.4s
412:
        learn: 8.8430337
                                  total: 17.1s
                                                   remaining: 24.3s
413:
        learn: 8.8366142
                                  total: 17.2s
                                                   remaining: 24.3s
                                  total: 17.2s
414:
        learn: 8.8262388
                                                   remaining: 24.3s
415:
        learn: 8.8229132
                                  total: 17.3s
                                                   remaining: 24.3s
416:
        learn: 8.8161752
                                  total: 17.3s
                                                   remaining: 24.2s
417:
        learn: 8.7951361
                                  total: 17.4s
                                                   remaining: 24.2s
                                  total: 17.4s
                                                   remaining: 24.1s
418:
        learn: 8.7891156
419:
        learn: 8.7800800
                                  total: 17.5s
                                                   remaining: 24.1s
420:
        learn: 8.7609984
                                  total: 17.5s
                                                   remaining: 24s
421:
        learn: 8.7385198
                                  total: 17.5s
                                                   remaining: 24s
422:
        learn: 8.7291922
                                  total: 17.6s
                                                   remaining: 24s
423:
        learn: 8.7206830
                                  total: 17.6s
                                                   remaining: 23.9s
424:
        learn: 8.7070519
                                                   remaining: 23.9s
                                  total: 17.7s
        learn: 8.6867667
425:
                                  total: 17.8s
                                                   remaining: 23.9s
        learn: 8.6784652
426:
                                  total: 17.8s
                                                   remaining: 23.9s
427:
        learn: 8.6720594
                                                   remaining: 23.9s
                                  total: 17.9s
428:
        learn: 8.6687450
                                  total: 17.9s
                                                   remaining: 23.8s
429:
        learn: 8.6634243
                                  total: 17.9s
                                                   remaining: 23.7s
                                                   remaining: 23.6s
430:
        learn: 8.6591850
                                  total: 17.9s
431:
        learn: 8.6459939
                                  total: 18s
                                                   remaining: 23.6s
432:
        learn: 8.6416713
                                  total: 18s
                                                   remaining: 23.6s
433:
        learn: 8.6392578
                                  total: 18s
                                                   remaining: 23.5s
434:
        learn: 8.6190262
                                                   remaining: 23.5s
                                  total: 18.1s
435:
        learn: 8.6052687
                                  total: 18.1s
                                                   remaining: 23.4s
436:
        learn: 8.5889376
                                  total: 18.2s
                                                   remaining: 23.4s
437:
        learn: 8.5736553
                                  total: 18.2s
                                                   remaining: 23.3s
438:
        learn: 8.5591144
                                                   remaining: 23.4s
                                  total: 18.3s
439:
        learn: 8.5538976
                                  total: 18.3s
                                                   remaining: 23.3s
440:
        learn: 8.5436114
                                  total: 18.4s
                                                   remaining: 23.3s
441:
        learn: 8.5258107
                                  total: 18.4s
                                                   remaining: 23.2s
442:
        learn: 8.5043820
                                  total: 18.5s
                                                   remaining: 23.2s
        learn: 8.4921996
443:
                                  total: 18.5s
                                                   remaining: 23.1s
```

```
444:
        learn: 8.4787630
                                  total: 18.5s
                                                   remaining: 23.1s
445:
        learn: 8.4652221
                                  total: 18.6s
                                                   remaining: 23.1s
        learn: 8.4612133
                                  total: 18.6s
446:
                                                   remaining: 23s
447:
        learn: 8.4478872
                                  total: 18.7s
                                                   remaining: 23s
448:
        learn: 8.4385115
                                  total: 18.7s
                                                   remaining: 22.9s
449:
        learn: 8.4353636
                                  total: 18.8s
                                                   remaining: 22.9s
450:
        learn: 8.4264508
                                  total: 18.8s
                                                   remaining: 22.9s
451:
        learn: 8.4178971
                                  total: 18.8s
                                                   remaining: 22.8s
452:
        learn: 8.4068177
                                  total: 18.9s
                                                   remaining: 22.8s
453:
        learn: 8.3905129
                                  total: 18.9s
                                                   remaining: 22.7s
454:
        learn: 8.3754332
                                  total: 19s
                                                   remaining: 22.7s
455:
        learn: 8.3722878
                                                   remaining: 22.6s
                                  total: 19s
456:
        learn: 8.3688953
                                  total: 19s
                                                   remaining: 22.6s
457:
        learn: 8.3582467
                                  total: 19.1s
                                                   remaining: 22.6s
458:
        learn: 8.3471706
                                  total: 19.1s
                                                   remaining: 22.5s
459:
        learn: 8.3378093
                                  total: 19.2s
                                                   remaining: 22.5s
460:
        learn: 8.3240711
                                  total: 19.2s
                                                   remaining: 22.4s
461:
        learn: 8.3137360
                                  total: 19.3s
                                                   remaining: 22.4s
462:
        learn: 8.2921980
                                  total: 19.3s
                                                   remaining: 22.4s
463:
        learn: 8.2795966
                                  total: 19.4s
                                                   remaining: 22.4s
464:
        learn: 8.2612601
                                  total: 19.4s
                                                   remaining: 22.3s
465:
        learn: 8.2483827
                                  total: 19.4s
                                                   remaining: 22.2s
466:
        learn: 8.2344831
                                  total: 19.5s
                                                   remaining: 22.2s
467:
        learn: 8.2314518
                                  total: 19.5s
                                                   remaining: 22.1s
                                  total: 19.6s
                                                   remaining: 22.2s
468:
        learn: 8.2206790
469:
        learn: 8.2088029
                                  total: 19.6s
                                                   remaining: 22.1s
470:
        learn: 8.1997115
                                  total: 19.7s
                                                   remaining: 22.1s
471:
        learn: 8.1911594
                                  total: 19.7s
                                                   remaining: 22s
                                  total: 19.8s
472:
        learn: 8.1880957
                                                   remaining: 22s
473:
        learn: 8.1685228
                                  total: 19.8s
                                                   remaining: 21.9s
474:
        learn: 8.1525731
                                  total: 19.8s
                                                   remaining: 21.9s
                                  total: 19.9s
475:
        learn: 8.1360120
                                                   remaining: 21.9s
476:
        learn: 8.1236628
                                  total: 19.9s
                                                   remaining: 21.8s
477:
        learn: 8.1155196
                                  total: 20s
                                                   remaining: 21.8s
478:
        learn: 8.1121435
                                  total: 20s
                                                   remaining: 21.7s
479:
                                  total: 20.1s
                                                   remaining: 21.7s
        learn: 8.1037911
480:
        learn: 8.0920810
                                  total: 20.1s
                                                   remaining: 21.6s
481:
        learn: 8.0796318
                                  total: 20.1s
                                                   remaining: 21.6s
482:
        learn: 8.0653905
                                  total: 20.2s
                                                   remaining: 21.6s
483:
        learn: 8.0545868
                                  total: 20.2s
                                                   remaining: 21.5s
484:
        learn: 8.0509660
                                  total: 20.3s
                                                   remaining: 21.5s
485:
        learn: 8.0429832
                                  total: 20.3s
                                                   remaining: 21.4s
        learn: 8.0371749
                                  total: 20.3s
486:
                                                   remaining: 21.3s
        learn: 8.0267815
                                  total: 20.4s
487:
                                                   remaining: 21.4s
488:
        learn: 8.0177842
                                  total: 20.4s
                                                   remaining: 21.3s
489:
        learn: 8.0065482
                                  total: 20.5s
                                                   remaining: 21.3s
490:
        learn: 7.9994149
                                  total: 20.5s
                                                   remaining: 21.2s
                                                   remaining: 21.2s
491:
        learn: 7.9907659
                                  total: 20.5s
492:
        learn: 7.9779230
                                  total: 20.6s
                                                   remaining: 21.1s
493:
        learn: 7.9749254
                                  total: 20.6s
                                                   remaining: 21.1s
494:
        learn: 7.9663519
                                  total: 20.6s
                                                   remaining: 21.1s
495:
        learn: 7.9564067
                                  total: 20.7s
                                                   remaining: 21s
496:
        learn: 7.9518414
                                  total: 20.7s
                                                   remaining: 21s
497:
        learn: 7.9381154
                                  total: 20.8s
                                                   remaining: 20.9s
498:
        learn: 7.9292866
                                  total: 20.8s
                                                   remaining: 20.9s
499:
        learn: 7.9246432
                                  total: 20.9s
                                                   remaining: 20.9s
500:
        learn: 7.9164685
                                  total: 20.9s
                                                   remaining: 20.8s
                                  total: 20.9s
501:
        learn: 7.9064129
                                                   remaining: 20.8s
502:
        learn: 7.8992650
                                  total: 21s
                                                   remaining: 20.7s
503:
        learn: 7.8959660
                                  total: 21s
                                                   remaining: 20.7s
        learn: 7.8878202
504:
                                  total: 21s
                                                   remaining: 20.6s
```

```
learn: 7.8723276
505:
                                  total: 21.1s
                                                   remaining: 20.6s
506:
        learn: 7.8636012
                                  total: 21.1s
                                                   remaining: 20.6s
507:
        learn: 7.8603526
                                  total: 21.1s
                                                   remaining: 20.5s
508:
        learn: 7.8485339
                                  total: 21.2s
                                                   remaining: 20.5s
509:
        learn: 7.8468721
                                  total: 21.2s
                                                   remaining: 20.4s
        learn: 7.8389202
                                  total: 21.3s
510:
                                                   remaining: 20.4s
511:
        learn: 7.8305493
                                  total: 21.3s
                                                   remaining: 20.3s
512:
        learn: 7.8270788
                                  total: 21.4s
                                                   remaining: 20.3s
513:
        learn: 7.8143438
                                  total: 21.4s
                                                   remaining: 20.3s
514:
        learn: 7.8066681
                                  total: 21.4s
                                                   remaining: 20.2s
515:
        learn: 7.8027410
                                  total: 21.5s
                                                   remaining: 20.2s
516:
        learn: 7.7934776
                                  total: 21.5s
                                                   remaining: 20.1s
517:
        learn: 7.7914421
                                  total: 21.5s
                                                   remaining: 20s
        learn: 7.7894155
                                  total: 21.6s
518:
                                                   remaining: 20.1s
519:
        learn: 7.7806300
                                  total: 21.6s
                                                   remaining: 20s
520:
        learn: 7.7700571
                                  total: 21.7s
                                                   remaining: 20s
521:
        learn: 7.7603437
                                  total: 21.7s
                                                   remaining: 19.9s
522:
        learn: 7.7546388
                                  total: 21.8s
                                                   remaining: 19.9s
523:
        learn: 7.7464445
                                  total: 21.8s
                                                   remaining: 19.8s
524:
        learn: 7.7442055
                                  total: 21.8s
                                                   remaining: 19.8s
525:
        learn: 7.7325805
                                  total: 21.9s
                                                   remaining: 19.8s
526:
        learn: 7.7233194
                                  total: 21.9s
                                                   remaining: 19.7s
527:
        learn: 7.7184036
                                  total: 21.9s
                                                   remaining: 19.6s
        learn: 7.7139082
528:
                                  total: 22s
                                                   remaining: 19.6s
        learn: 7.7027658
                                  total: 22s
529:
                                                   remaining: 19.5s
530:
        learn: 7.6977780
                                  total: 22.1s
                                                   remaining: 19.5s
531:
        learn: 7.6957402
                                  total: 22.1s
                                                   remaining: 19.5s
532:
        learn: 7.6868289
                                  total: 22.2s
                                                   remaining: 19.5s
                                  total: 22.2s
533:
        learn: 7.6778650
                                                   remaining: 19.4s
534:
        learn: 7.6765506
                                  total: 22.2s
                                                   remaining: 19.3s
535:
        learn: 7.6622991
                                  total: 22.3s
                                                   remaining: 19.3s
                                  total: 22.3s
        learn: 7.6613134
536:
                                                   remaining: 19.3s
537:
        learn: 7.6519410
                                  total: 22.3s
                                                   remaining: 19.2s
538:
        learn: 7.6438577
                                  total: 22.4s
                                                   remaining: 19.2s
539:
        learn: 7.6336627
                                  total: 22.4s
                                                   remaining: 19.1s
                                  total: 22.5s
540:
        learn: 7.6251608
                                                   remaining: 19.1s
541:
        learn: 7.6103345
                                  total: 22.5s
                                                   remaining: 19s
542:
        learn: 7.6046940
                                  total: 22.6s
                                                   remaining: 19s
543:
        learn: 7.5962659
                                  total: 22.6s
                                                   remaining: 19s
                                                   remaining: 19s
544:
        learn: 7.5898588
                                  total: 22.7s
545:
        learn: 7.5792568
                                  total: 22.7s
                                                   remaining: 18.9s
546:
        learn: 7.5708830
                                  total: 22.7s
                                                   remaining: 18.8s
547:
        learn: 7.5647206
                                  total: 22.8s
                                                   remaining: 18.8s
                                  total: 22.8s
548:
        learn: 7.5528606
                                                   remaining: 18.7s
549:
        learn: 7.5416506
                                  total: 22.9s
                                                   remaining: 18.7s
550:
        learn: 7.5334408
                                  total: 22.9s
                                                   remaining: 18.7s
551:
        learn: 7.5274585
                                  total: 22.9s
                                                   remaining: 18.6s
                                                   remaining: 18.6s
552:
        learn: 7.5252280
                                  total: 23s
553:
        learn: 7.5219774
                                  total: 23s
                                                   remaining: 18.5s
554:
        learn: 7.5199079
                                  total: 23s
                                                   remaining: 18.5s
555:
        learn: 7.5128368
                                  total: 23.1s
                                                   remaining: 18.5s
556:
        learn: 7.4985027
                                  total: 23.1s
                                                   remaining: 18.4s
557:
        learn: 7.4898719
                                  total: 23.2s
                                                   remaining: 18.4s
558:
        learn: 7.4777613
                                  total: 23.2s
                                                   remaining: 18.3s
        learn: 7.4770449
559:
                                  total: 23.3s
                                                   remaining: 18.3s
560:
        learn: 7.4654326
                                  total: 23.3s
                                                   remaining: 18.2s
561:
        learn: 7.4558306
                                  total: 23.3s
                                                   remaining: 18.2s
562:
        learn: 7.4534624
                                  total: 23.4s
                                                   remaining: 18.2s
563:
        learn: 7.4449155
                                  total: 23.4s
                                                   remaining: 18.1s
564:
        learn: 7.4434707
                                  total: 23.5s
                                                   remaining: 18.1s
        learn: 7.4341430
                                  total: 23.5s
565:
                                                   remaining: 18s
```

```
learn: 7.4271215
566:
                                  total: 23.5s
                                                   remaining: 18s
567:
        learn: 7.4174201
                                  total: 23.6s
                                                   remaining: 18s
        learn: 7.4156052
                                  total: 23.6s
568:
                                                   remaining: 17.9s
569:
        learn: 7.4053136
                                  total: 23.7s
                                                   remaining: 17.9s
570:
        learn: 7.3968845
                                  total: 23.7s
                                                   remaining: 17.8s
                                                   remaining: 17.8s
571:
        learn: 7.3956160
                                  total: 23.8s
572:
        learn: 7.3944233
                                  total: 23.8s
                                                   remaining: 17.7s
        learn: 7.3854002
                                  total: 23.8s
                                                   remaining: 17.7s
573:
574:
        learn: 7.3711780
                                  total: 23.9s
                                                   remaining: 17.7s
575:
        learn: 7.3631340
                                  total: 23.9s
                                                   remaining: 17.6s
576:
        learn: 7.3495723
                                  total: 24s
                                                   remaining: 17.6s
        learn: 7.3396527
                                                   remaining: 17.5s
577:
                                  total: 24s
578:
        learn: 7.3292124
                                  total: 24s
                                                   remaining: 17.5s
        learn: 7.3197168
                                  total: 24.1s
579:
                                                   remaining: 17.5s
580:
        learn: 7.3165087
                                  total: 24.1s
                                                   remaining: 17.4s
581:
        learn: 7.3130504
                                  total: 24.2s
                                                   remaining: 17.4s
582:
        learn: 7.3120126
                                  total: 24.2s
                                                   remaining: 17.3s
583:
        learn: 7.3073429
                                  total: 24.3s
                                                   remaining: 17.3s
584:
        learn: 7.2959578
                                  total: 24.3s
                                                   remaining: 17.2s
585:
        learn: 7.2853101
                                  total: 24.3s
                                                   remaining: 17.2s
        learn: 7.2792618
                                  total: 24.4s
586:
                                                   remaining: 17.2s
587:
        learn: 7.2780113
                                  total: 24.4s
                                                   remaining: 17.1s
588:
        learn: 7.2677500
                                  total: 24.5s
                                                   remaining: 17.1s
589:
        learn: 7.2578399
                                  total: 24.5s
                                                   remaining: 17s
        learn: 7.2489642
                                  total: 24.6s
590:
                                                   remaining: 17s
591:
        learn: 7.2441444
                                  total: 24.6s
                                                   remaining: 17s
592:
        learn: 7.2298299
                                  total: 24.6s
                                                   remaining: 16.9s
                                                   remaining: 16.9s
593:
        learn: 7.2280411
                                  total: 24.7s
                                  total: 24.7s
594:
        learn: 7.2186629
                                                   remaining: 16.8s
595:
                                  total: 24.8s
        learn: 7.2107236
                                                   remaining: 16.8s
596:
        learn: 7.2060242
                                  total: 24.8s
                                                   remaining: 16.7s
        learn: 7.1984189
                                  total: 24.9s
597:
                                                   remaining: 16.7s
598:
        learn: 7.1888215
                                  total: 24.9s
                                                   remaining: 16.7s
599:
        learn: 7.1781488
                                  total: 25s
                                                   remaining: 16.7s
        learn: 7.1632076
600:
                                  total: 25s
                                                   remaining: 16.6s
                                  total: 25.1s
601:
        learn: 7.1572615
                                                   remaining: 16.6s
602:
        learn: 7.1494541
                                  total: 25.1s
                                                   remaining: 16.5s
603:
        learn: 7.1473905
                                  total: 25.1s
                                                   remaining: 16.5s
604:
        learn: 7.1420846
                                  total: 25.2s
                                                   remaining: 16.4s
        learn: 7.1278014
                                  total: 25.2s
605:
                                                   remaining: 16.4s
        learn: 7.1215524
                                  total: 25.3s
                                                   remaining: 16.4s
606:
        learn: 7.1106209
607:
                                  total: 25.3s
                                                   remaining: 16.3s
        learn: 7.1095696
                                  total: 25.3s
608:
                                                   remaining: 16.2s
        learn: 7.0991736
609:
                                  total: 25.4s
                                                   remaining: 16.2s
                                                   remaining: 16.2s
        learn: 7.0916822
                                  total: 25.4s
610:
611:
        learn: 7.0846391
                                  total: 25.5s
                                                   remaining: 16.2s
        learn: 7.0698898
                                  total: 25.5s
612:
                                                   remaining: 16.1s
                                                   remaining: 16.1s
613:
        learn: 7.0654749
                                  total: 25.6s
614:
        learn: 7.0573912
                                  total: 25.6s
                                                   remaining: 16s
615:
        learn: 7.0509601
                                  total: 25.6s
                                                   remaining: 15.9s
616:
        learn: 7.0387161
                                  total: 25.7s
                                                   remaining: 15.9s
617:
        learn: 7.0282831
                                  total: 25.7s
                                                   remaining: 15.9s
618:
        learn: 7.0224846
                                  total: 25.8s
                                                   remaining: 15.9s
619:
        learn: 7.0167797
                                  total: 25.8s
                                                   remaining: 15.8s
        learn: 7.0044063
620:
                                  total: 25.9s
                                                   remaining: 15.8s
621:
        learn: 6.9959678
                                  total: 25.9s
                                                   remaining: 15.7s
622:
        learn: 6.9906442
                                  total: 25.9s
                                                   remaining: 15.7s
623:
        learn: 6.9805423
                                  total: 26s
                                                   remaining: 15.7s
624:
        learn: 6.9706738
                                  total: 26s
                                                   remaining: 15.6s
625:
        learn: 6.9614979
                                  total: 26.1s
                                                   remaining: 15.6s
        learn: 6.9500301
626:
                                  total: 26.1s
                                                   remaining: 15.5s
```

```
learn: 6.9424969
627:
                                  total: 26.2s
                                                   remaining: 15.5s
628:
        learn: 6.9378664
                                  total: 26.2s
                                                   remaining: 15.4s
629:
                                  total: 26.2s
        learn: 6.9286848
                                                   remaining: 15.4s
630:
        learn: 6.9214049
                                  total: 26.3s
                                                   remaining: 15.4s
631:
        learn: 6.9139775
                                  total: 26.3s
                                                   remaining: 15.3s
        learn: 6.9092091
                                  total: 26.4s
632:
                                                   remaining: 15.3s
633:
        learn: 6.9034654
                                  total: 26.4s
                                                   remaining: 15.2s
634:
        learn: 6.8972051
                                                   remaining: 15.2s
                                  total: 26.4s
635:
        learn: 6.8963865
                                  total: 26.5s
                                                   remaining: 15.1s
        learn: 6.8919608
                                  total: 26.5s
636:
                                                   remaining: 15.1s
637:
        learn: 6.8907606
                                  total: 26.6s
                                                   remaining: 15.1s
        learn: 6.8783157
                                                   remaining: 15s
638:
                                  total: 26.6s
639:
        learn: 6.8776735
                                  total: 26.6s
                                                   remaining: 14.9s
        learn: 6.8674833
                                  total: 26.7s
640:
                                                   remaining: 14.9s
641:
        learn: 6.8614089
                                  total: 26.7s
                                                   remaining: 14.9s
642:
        learn: 6.8544391
                                  total: 26.7s
                                                   remaining: 14.8s
        learn: 6.8485341
643:
                                  total: 26.8s
                                                   remaining: 14.8s
644:
        learn: 6.8346319
                                  total: 26.8s
                                                   remaining: 14.7s
645:
        learn: 6.8286557
                                  total: 26.9s
                                                   remaining: 14.7s
646:
        learn: 6.8239426
                                  total: 26.9s
                                                   remaining: 14.7s
647:
        learn: 6.8187130
                                  total: 27s
                                                   remaining: 14.6s
648:
        learn: 6.8112475
                                  total: 27s
                                                   remaining: 14.6s
649:
        learn: 6.8052476
                                  total: 27.1s
                                                   remaining: 14.6s
650:
        learn: 6.8010898
                                  total: 27.1s
                                                   remaining: 14.5s
                                  total: 27.2s
        learn: 6.8002860
651:
                                                   remaining: 14.5s
652:
        learn: 6.7936489
                                  total: 27.2s
                                                   remaining: 14.4s
653:
        learn: 6.7897192
                                  total: 27.3s
                                                   remaining: 14.4s
654:
        learn: 6.7799411
                                  total: 27.3s
                                                   remaining: 14.4s
                                  total: 27.4s
655:
        learn: 6.7742779
                                                   remaining: 14.3s
        learn: 6.7700025
656:
                                  total: 27.4s
                                                   remaining: 14.3s
657:
        learn: 6.7632481
                                  total: 27.4s
                                                   remaining: 14.2s
                                  total: 27.5s
658:
        learn: 6.7626430
                                                   remaining: 14.2s
659:
        learn: 6.7566459
                                  total: 27.5s
                                                   remaining: 14.1s
660:
        learn: 6.7470474
                                  total: 27.5s
                                                   remaining: 14.1s
661:
        learn: 6.7397732
                                  total: 27.6s
                                                   remaining: 14.1s
                                  total: 27.6s
        learn: 6.7383017
662:
                                                   remaining: 14s
663:
        learn: 6.7286115
                                  total: 27.6s
                                                   remaining: 14s
664:
        learn: 6.7206533
                                  total: 27.7s
                                                   remaining: 13.9s
665:
        learn: 6.7116088
                                  total: 27.7s
                                                   remaining: 13.9s
666:
        learn: 6.7111779
                                  total: 27.8s
                                                   remaining: 13.9s
        learn: 6.7049783
                                  total: 27.8s
                                                   remaining: 13.8s
667:
        learn: 6.7005279
668:
                                  total: 27.9s
                                                   remaining: 13.8s
        learn: 6.6955924
                                  total: 27.9s
669:
                                                   remaining: 13.7s
                                  total: 27.9s
670:
        learn: 6.6882913
                                                   remaining: 13.7s
        learn: 6.6782038
                                  total: 28s
                                                   remaining: 13.6s
671:
672:
        learn: 6.6715416
                                  total: 28s
                                                   remaining: 13.6s
                                  total: 28s
673:
        learn: 6.6664460
                                                   remaining: 13.6s
                                                   remaining: 13.5s
674:
        learn: 6.6658854
                                  total: 28.1s
675:
        learn: 6.6586845
                                  total: 28.1s
                                                   remaining: 13.5s
676:
        learn: 6.6513349
                                  total: 28.1s
                                                   remaining: 13.4s
677:
        learn: 6.6450340
                                  total: 28.2s
                                                   remaining: 13.4s
678:
        learn: 6.6437093
                                  total: 28.2s
                                                   remaining: 13.4s
679:
        learn: 6.6431676
                                  total: 28.2s
                                                   remaining: 13.3s
680:
        learn: 6.6375102
                                  total: 28.3s
                                                   remaining: 13.3s
681:
        learn: 6.6327235
                                  total: 28.3s
                                                   remaining: 13.2s
682:
        learn: 6.6322612
                                  total: 28.4s
                                                   remaining: 13.2s
683:
        learn: 6.6240416
                                  total: 28.4s
                                                   remaining: 13.1s
        learn: 6.6167728
                                  total: 28.5s
684:
                                                   remaining: 13.1s
685:
        learn: 6.6094198
                                  total: 28.5s
                                                   remaining: 13.1s
686:
        learn: 6.6054068
                                  total: 28.6s
                                                   remaining: 13s
        learn: 6.5938146
687:
                                  total: 28.6s
                                                   remaining: 13s
```

```
learn: 6.5914901
688:
                                  total: 28.7s
                                                   remaining: 13s
689:
        learn: 6.5845101
                                  total: 28.7s
                                                   remaining: 12.9s
                                  total: 28.7s
690:
        learn: 6.5835575
                                                   remaining: 12.9s
691:
        learn: 6.5828399
                                  total: 28.8s
                                                   remaining: 12.8s
692:
        learn: 6.5733710
                                  total: 28.8s
                                                   remaining: 12.8s
        learn: 6.5685541
                                  total: 28.9s
693:
                                                   remaining: 12.8s
694:
        learn: 6.5571253
                                  total: 28.9s
                                                   remaining: 12.7s
695:
        learn: 6.5489882
                                  total: 29s
                                                   remaining: 12.7s
696:
        learn: 6.5441199
                                  total: 29s
                                                   remaining: 12.6s
697:
        learn: 6.5415002
                                  total: 29s
                                                   remaining: 12.6s
698:
                                  total: 29.1s
        learn: 6.5408119
                                                   remaining: 12.5s
699:
        learn: 6.5347679
                                  total: 29.1s
                                                   remaining: 12.5s
700:
        learn: 6.5316698
                                  total: 29.2s
                                                   remaining: 12.5s
701:
        learn: 6.5310957
                                  total: 29.2s
                                                   remaining: 12.4s
702:
        learn: 6.5234743
                                  total: 29.3s
                                                   remaining: 12.4s
703:
        learn: 6.5198871
                                  total: 29.3s
                                                   remaining: 12.3s
704:
        learn: 6.5192703
                                  total: 29.3s
                                                   remaining: 12.3s
705:
        learn: 6.5100282
                                  total: 29.4s
                                                   remaining: 12.3s
706:
        learn: 6.5033605
                                  total: 29.4s
                                                   remaining: 12.2s
707:
        learn: 6.4956118
                                  total: 29.5s
                                                   remaining: 12.2s
708:
        learn: 6.4887743
                                  total: 29.5s
                                                   remaining: 12.1s
709:
        learn: 6.4869585
                                  total: 29.6s
                                                   remaining: 12.1s
710:
        learn: 6.4863387
                                  total: 29.6s
                                                   remaining: 12s
711:
        learn: 6.4798023
                                  total: 29.6s
                                                   remaining: 12s
                                  total: 29.7s
712:
        learn: 6.4704408
                                                   remaining: 12s
713:
        learn: 6.4674424
                                  total: 29.7s
                                                   remaining: 11.9s
714:
        learn: 6.4579060
                                  total: 29.8s
                                                   remaining: 11.9s
715:
        learn: 6.4425797
                                  total: 29.8s
                                                   remaining: 11.8s
                                  total: 29.9s
716:
        learn: 6.4337240
                                                   remaining: 11.8s
717:
        learn: 6.4270144
                                  total: 29.9s
                                                   remaining: 11.8s
718:
        learn: 6.4210434
                                  total: 29.9s
                                                   remaining: 11.7s
719:
        learn: 6.4143165
                                  total: 30s
                                                   remaining: 11.7s
720:
        learn: 6.4085182
                                  total: 30s
                                                   remaining: 11.6s
721:
        learn: 6.4065402
                                  total: 30.1s
                                                   remaining: 11.6s
722:
        learn: 6.4038800
                                  total: 30.1s
                                                   remaining: 11.5s
723:
        learn: 6.3983907
                                  total: 30.1s
                                                   remaining: 11.5s
724:
        learn: 6.3923678
                                  total: 30.2s
                                                   remaining: 11.5s
725:
        learn: 6.3876124
                                  total: 30.2s
                                                   remaining: 11.4s
                                  total: 30.3s
726:
        learn: 6.3868238
                                                   remaining: 11.4s
727:
        learn: 6.3820599
                                  total: 30.3s
                                                   remaining: 11.3s
728:
        learn: 6.3776821
                                  total: 30.4s
                                                   remaining: 11.3s
729:
        learn: 6.3696645
                                  total: 30.4s
                                                   remaining: 11.2s
730:
        learn: 6.3620812
                                  total: 30.4s
                                                   remaining: 11.2s
731:
        learn: 6.3535792
                                  total: 30.5s
                                                   remaining: 11.2s
                                                   remaining: 11.1s
732:
        learn: 6.3527155
                                  total: 30.5s
733:
        learn: 6.3493742
                                  total: 30.6s
                                                   remaining: 11.1s
734:
        learn: 6.3441576
                                  total: 30.6s
                                                   remaining: 11s
735:
        learn: 6.3374127
                                  total: 30.7s
                                                   remaining: 11s
736:
        learn: 6.3313147
                                  total: 30.7s
                                                   remaining: 11s
737:
        learn: 6.3216339
                                  total: 30.7s
                                                   remaining: 10.9s
738:
        learn: 6.3144654
                                  total: 30.8s
                                                   remaining: 10.9s
739:
        learn: 6.3090622
                                  total: 30.8s
                                                   remaining: 10.8s
740:
        learn: 6.3032096
                                  total: 30.9s
                                                   remaining: 10.8s
741:
        learn: 6.2947182
                                  total: 30.9s
                                                   remaining: 10.7s
742:
        learn: 6.2859467
                                  total: 31s
                                                   remaining: 10.7s
743:
        learn: 6.2848727
                                                   remaining: 10.7s
                                  total: 31s
744:
        learn: 6.2835227
                                  total: 31.1s
                                                   remaining: 10.6s
745:
        learn: 6.2780381
                                  total: 31.1s
                                                   remaining: 10.6s
746:
        learn: 6.2765403
                                  total: 31.1s
                                                   remaining: 10.5s
747:
        learn: 6.2722860
                                  total: 31.2s
                                                   remaining: 10.5s
        learn: 6.2655203
748:
                                  total: 31.2s
                                                   remaining: 10.5s
```

```
749:
        learn: 6.2601986
                                  total: 31.3s
                                                   remaining: 10.4s
750:
        learn: 6.2534914
                                  total: 31.3s
                                                   remaining: 10.4s
751:
                                  total: 31.3s
        learn: 6.2503488
                                                   remaining: 10.3s
752:
        learn: 6.2448717
                                  total: 31.4s
                                                   remaining: 10.3s
753:
        learn: 6.2427421
                                  total: 31.4s
                                                   remaining: 10.2s
754:
        learn: 6.2413401
                                  total: 31.5s
                                                   remaining: 10.2s
755:
        learn: 6.2334668
                                  total: 31.5s
                                                   remaining: 10.2s
756:
        learn: 6.2275292
                                  total: 31.6s
                                                   remaining: 10.1s
757:
        learn: 6.2131172
                                  total: 31.6s
                                                   remaining: 10.1s
758:
        learn: 6.2059730
                                  total: 31.6s
                                                   remaining: 10s
759:
                                  total: 31.7s
        learn: 6.1997420
                                                   remaining: 10s
760:
        learn: 6.1928340
                                  total: 31.7s
                                                   remaining: 9.95s
761:
        learn: 6.1909403
                                  total: 31.8s
                                                   remaining: 9.93s
762:
        learn: 6.1853220
                                  total: 31.8s
                                                   remaining: 9.88s
763:
        learn: 6.1798551
                                  total: 31.9s
                                                   remaining: 9.85s
764:
        learn: 6.1751404
                                  total: 31.9s
                                                   remaining: 9.8s
                                                   remaining: 9.74s
765:
        learn: 6.1708383
                                  total: 31.9s
766:
        learn: 6.1632574
                                  total: 32s
                                                   remaining: 9.72s
767:
        learn: 6.1580472
                                  total: 32s
                                                   remaining: 9.66s
768:
        learn: 6.1536847
                                  total: 32.1s
                                                   remaining: 9.64s
        learn: 6.1532533
769:
                                  total: 32.1s
                                                   remaining: 9.59s
770:
        learn: 6.1471793
                                  total: 32.2s
                                                   remaining: 9.56s
771:
        learn: 6.1433692
                                  total: 32.2s
                                                   remaining: 9.51s
772:
        learn: 6.1394240
                                  total: 32.2s
                                                   remaining: 9.45s
                                  total: 32.3s
773:
        learn: 6.1326728
                                                   remaining: 9.43s
774:
        learn: 6.1300689
                                  total: 32.3s
                                                   remaining: 9.37s
775:
        learn: 6.1245109
                                  total: 32.4s
                                                   remaining: 9.35s
776:
        learn: 6.1161679
                                  total: 32.4s
                                                   remaining: 9.29s
                                  total: 32.5s
777:
        learn: 6.1114711
                                                   remaining: 9.27s
778:
        learn: 6.1031263
                                  total: 32.5s
                                                   remaining: 9.21s
779:
        learn: 6.0946788
                                  total: 32.5s
                                                   remaining: 9.16s
                                  total: 32.6s
780:
        learn: 6.0837153
                                                   remaining: 9.13s
781:
        learn: 6.0775372
                                  total: 32.6s
                                                   remaining: 9.08s
782:
                                                   remaining: 9.05s
        learn: 6.0711767
                                  total: 32.7s
783:
        learn: 6.0651317
                                  total: 32.7s
                                                   remaining: 9s
                                  total: 32.7s
784:
        learn: 6.0600072
                                                   remaining: 8.95s
785:
        learn: 6.0542492
                                  total: 32.8s
                                                   remaining: 8.92s
                                                   remaining: 8.87s
786:
        learn: 6.0472997
                                  total: 32.8s
787:
        learn: 6.0397592
                                  total: 32.9s
                                                   remaining: 8.84s
788:
                                  total: 32.9s
        learn: 6.0341880
                                                   remaining: 8.79s
789:
        learn: 6.0280158
                                  total: 33s
                                                   remaining: 8.76s
790:
        learn: 6.0221591
                                  total: 33s
                                                   remaining: 8.71s
        learn: 6.0079106
791:
                                  total: 33.1s
                                                   remaining: 8.68s
792:
        learn: 6.0008011
                                  total: 33.1s
                                                   remaining: 8.63s
793:
                                                   remaining: 8.6s
        learn: 5.9941307
                                  total: 33.2s
794:
        learn: 5.9879254
                                  total: 33.2s
                                                   remaining: 8.55s
795:
        learn: 5.9844303
                                  total: 33.2s
                                                   remaining: 8.5s
                                                   remaining: 8.47s
796:
        learn: 5.9794789
                                  total: 33.3s
797:
        learn: 5.9734382
                                  total: 33.3s
                                                   remaining: 8.42s
798:
        learn: 5.9697291
                                  total: 33.4s
                                                   remaining: 8.39s
799:
        learn: 5.9693060
                                  total: 33.4s
                                                   remaining: 8.34s
800:
        learn: 5.9618576
                                  total: 33.5s
                                                   remaining: 8.31s
801:
        learn: 5.9564835
                                  total: 33.5s
                                                   remaining: 8.26s
802:
        learn: 5.9484231
                                  total: 33.5s
                                                   remaining: 8.21s
        learn: 5.9412579
                                  total: 33.6s
803:
                                                   remaining: 8.18s
804:
        learn: 5.9367029
                                  total: 33.6s
                                                   remaining: 8.13s
805:
        learn: 5.9361998
                                  total: 33.7s
                                                   remaining: 8.1s
806:
        learn: 5.9328669
                                  total: 33.7s
                                                   remaining: 8.05s
807:
        learn: 5.9232522
                                  total: 33.8s
                                                   remaining: 8.02s
808:
        learn: 5.9218558
                                  total: 33.8s
                                                   remaining: 7.97s
809:
        learn: 5.9128931
                                  total: 33.8s
                                                   remaining: 7.92s
```

```
810:
        learn: 5.9102889
                                  total: 33.9s
                                                   remaining: 7.89s
811:
        learn: 5.9096496
                                  total: 33.9s
                                                   remaining: 7.84s
        learn: 5.9066809
812:
                                  total: 34s
                                                   remaining: 7.81s
813:
        learn: 5.9000877
                                  total: 34s
                                                   remaining: 7.76s
814:
        learn: 5.8973150
                                  total: 34.1s
                                                   remaining: 7.73s
815:
        learn: 5.8937149
                                  total: 34.1s
                                                   remaining: 7.68s
816:
        learn: 5.8873616
                                  total: 34.1s
                                                   remaining: 7.63s
817:
        learn: 5.8836232
                                  total: 34.2s
                                                   remaining: 7.6s
818:
        learn: 5.8832169
                                  total: 34.2s
                                                   remaining: 7.55s
819:
        learn: 5.8764115
                                  total: 34.3s
                                                   remaining: 7.52s
                                  total: 34.3s
820:
        learn: 5.8753591
                                                   remaining: 7.47s
821:
        learn: 5.8684165
                                                   remaining: 7.44s
                                  total: 34.3s
822:
        learn: 5.8631210
                                  total: 34.4s
                                                   remaining: 7.39s
823:
        learn: 5.8604123
                                  total: 34.4s
                                                   remaining: 7.34s
824:
        learn: 5.8596097
                                  total: 34.4s
                                                   remaining: 7.31s
825:
        learn: 5.8587236
                                  total: 34.5s
                                                   remaining: 7.26s
                                                   remaining: 7.23s
826:
        learn: 5.8576861
                                  total: 34.5s
827:
        learn: 5.8489562
                                  total: 34.6s
                                                   remaining: 7.18s
828:
        learn: 5.8386375
                                  total: 34.6s
                                                   remaining: 7.14s
829:
        learn: 5.8353462
                                  total: 34.6s
                                                   remaining: 7.1s
830:
        learn: 5.8329209
                                  total: 34.7s
                                                   remaining: 7.05s
831:
        learn: 5.8287904
                                  total: 34.7s
                                                   remaining: 7.02s
832:
        learn: 5.8270041
                                  total: 34.8s
                                                   remaining: 6.97s
833:
        learn: 5.8265551
                                  total: 34.8s
                                                   remaining: 6.93s
834:
        learn: 5.8176518
                                  total: 34.8s
                                                   remaining: 6.89s
835:
        learn: 5.8101587
                                  total: 34.9s
                                                   remaining: 6.84s
836:
        learn: 5.8036212
                                  total: 34.9s
                                                   remaining: 6.8s
837:
        learn: 5.7962795
                                  total: 34.9s
                                                   remaining: 6.76s
838:
        learn: 5.7954024
                                  total: 35s
                                                   remaining: 6.72s
839:
        learn: 5.7887289
                                  total: 35s
                                                   remaining: 6.67s
840:
        learn: 5.7851989
                                  total: 35.1s
                                                   remaining: 6.64s
        learn: 5.7802631
                                  total: 35.1s
841:
                                                   remaining: 6.59s
842:
        learn: 5.7756097
                                  total: 35.2s
                                                   remaining: 6.56s
843:
        learn: 5.7708692
                                  total: 35.2s
                                                   remaining: 6.51s
844:
        learn: 5.7675739
                                  total: 35.2s
                                                   remaining: 6.46s
                                  total: 35.3s
845:
        learn: 5.7664823
                                                   remaining: 6.43s
846:
        learn: 5.7575845
                                  total: 35.3s
                                                   remaining: 6.38s
847:
        learn: 5.7516540
                                  total: 35.4s
                                                   remaining: 6.35s
                                                   remaining: 6.3s
848:
        learn: 5.7506486
                                  total: 35.4s
849:
        learn: 5.7429880
                                  total: 35.4s
                                                   remaining: 6.25s
                                  total: 35.5s
850:
        learn: 5.7426098
                                                   remaining: 6.22s
851:
        learn: 5.7375721
                                  total: 35.5s
                                                   remaining: 6.17s
        learn: 5.7316770
                                  total: 35.6s
852:
                                                   remaining: 6.14s
        learn: 5.7308560
853:
                                  total: 35.6s
                                                   remaining: 6.09s
                                                   remaining: 6.04s
854:
        learn: 5.7263680
                                  total: 35.6s
855:
        learn: 5.7221582
                                  total: 35.7s
                                                   remaining: 6.01s
856:
        learn: 5.7169425
                                  total: 35.7s
                                                   remaining: 5.96s
                                                   remaining: 5.93s
857:
        learn: 5.7134360
                                  total: 35.8s
858:
        learn: 5.7023615
                                  total: 35.8s
                                                   remaining: 5.88s
859:
        learn: 5.6977505
                                  total: 35.8s
                                                   remaining: 5.83s
860:
        learn: 5.6959485
                                  total: 35.9s
                                                   remaining: 5.8s
861:
        learn: 5.6954436
                                  total: 35.9s
                                                   remaining: 5.75s
862:
        learn: 5.6900255
                                  total: 36s
                                                   remaining: 5.72s
863:
        learn: 5.6862005
                                  total: 36s
                                                   remaining: 5.67s
        learn: 5.6804570
864:
                                  total: 36.1s
                                                   remaining: 5.64s
865:
        learn: 5.6756496
                                                   remaining: 5.59s
                                  total: 36.1s
866:
        learn: 5.6686437
                                  total: 36.1s
                                                   remaining: 5.54s
867:
        learn: 5.6682281
                                  total: 36.2s
                                                   remaining: 5.51s
868:
        learn: 5.6631992
                                  total: 36.2s
                                                   remaining: 5.46s
869:
        learn: 5.6566367
                                  total: 36.3s
                                                   remaining: 5.43s
870:
        learn: 5.6509898
                                  total: 36.3s
                                                   remaining: 5.38s
```

```
learn: 5.6497986
871:
                                  total: 36.3s
                                                   remaining: 5.33s
872:
        learn: 5.6432446
                                  total: 36.4s
                                                   remaining: 5.3s
        learn: 5.6395905
                                  total: 36.4s
873:
                                                   remaining: 5.25s
874:
        learn: 5.6381431
                                  total: 36.5s
                                                   remaining: 5.22s
875:
        learn: 5.6331655
                                  total: 36.5s
                                                   remaining: 5.17s
        learn: 5.6269927
                                  total: 36.6s
876:
                                                   remaining: 5.13s
877:
        learn: 5.6265699
                                  total: 36.6s
                                                   remaining: 5.09s
878:
        learn: 5.6262932
                                  total: 36.6s
                                                   remaining: 5.04s
879:
        learn: 5.6208301
                                  total: 36.7s
                                                   remaining: 5.01s
        learn: 5.6146223
                                  total: 36.7s
880:
                                                   remaining: 4.96s
                                  total: 36.7s
881:
        learn: 5.6108718
                                                   remaining: 4.91s
882:
        learn: 5.6091656
                                  total: 36.8s
                                                   remaining: 4.88s
883:
        learn: 5.6027406
                                  total: 36.8s
                                                   remaining: 4.83s
884:
        learn: 5.5963627
                                  total: 36.9s
                                                   remaining: 4.8s
885:
        learn: 5.5903057
                                  total: 36.9s
                                                   remaining: 4.75s
886:
        learn: 5.5825036
                                  total: 37s
                                                   remaining: 4.71s
887:
        learn: 5.5758450
                                  total: 37s
                                                   remaining: 4.67s
888:
        learn: 5.5688535
                                  total: 37s
                                                   remaining: 4.62s
889:
        learn: 5.5682613
                                  total: 37.1s
                                                   remaining: 4.59s
890:
        learn: 5.5641794
                                  total: 37.1s
                                                   remaining: 4.54s
891:
        learn: 5.5601059
                                  total: 37.2s
                                                   remaining: 4.5s
892:
        learn: 5.5573012
                                  total: 37.2s
                                                   remaining: 4.46s
893:
        learn: 5.5569793
                                  total: 37.2s
                                                   remaining: 4.41s
894:
        learn: 5.5526939
                                  total: 37.3s
                                                   remaining: 4.38s
                                  total: 37.3s
                                                   remaining: 4.33s
895:
        learn: 5.5465883
896:
        learn: 5.5398851
                                  total: 37.4s
                                                   remaining: 4.29s
897:
        learn: 5.5332792
                                  total: 37.4s
                                                   remaining: 4.25s
898:
        learn: 5.5263926
                                  total: 37.4s
                                                   remaining: 4.2s
                                  total: 37.5s
899:
        learn: 5.5224737
                                                   remaining: 4.17s
900:
        learn: 5.5176271
                                  total: 37.5s
                                                   remaining: 4.12s
901:
        learn: 5.5132194
                                  total: 37.6s
                                                   remaining: 4.08s
                                  total: 37.6s
902:
        learn: 5.5117133
                                                   remaining: 4.04s
903:
        learn: 5.5084314
                                  total: 37.6s
                                                   remaining: 3.99s
904:
        learn: 5.5060355
                                  total: 37.7s
                                                   remaining: 3.96s
        learn: 5.5030414
905:
                                  total: 37.7s
                                                   remaining: 3.91s
                                  total: 37.8s
                                                   remaining: 3.88s
906:
        learn: 5.4955554
907:
        learn: 5.4947437
                                  total: 37.8s
                                                   remaining: 3.83s
908:
        learn: 5.4922702
                                  total: 37.9s
                                                   remaining: 3.79s
                                  total: 37.9s
909:
        learn: 5.4894588
                                                   remaining: 3.75s
910:
        learn: 5.4879829
                                  total: 38s
                                                   remaining: 3.71s
                                  total: 38s
911:
        learn: 5.4835611
                                                   remaining: 3.67s
912:
        learn: 5.4801956
                                  total: 38s
                                                   remaining: 3.62s
913:
        learn: 5.4735966
                                  total: 38.1s
                                                   remaining: 3.58s
        learn: 5.4689997
                                  total: 38.1s
914:
                                                   remaining: 3.54s
915:
                                                   remaining: 3.5s
        learn: 5.4614605
                                  total: 38.2s
916:
        learn: 5.4603017
                                  total: 38.2s
                                                   remaining: 3.46s
917:
        learn: 5.4566247
                                  total: 38.2s
                                                   remaining: 3.41s
                                                   remaining: 3.37s
918:
        learn: 5.4486881
                                  total: 38.3s
919:
        learn: 5.4473098
                                  total: 38.3s
                                                   remaining: 3.33s
920:
        learn: 5.4436716
                                  total: 38.4s
                                                   remaining: 3.29s
921:
        learn: 5.4397216
                                  total: 38.4s
                                                   remaining: 3.25s
922:
        learn: 5.4345240
                                  total: 38.4s
                                                   remaining: 3.2s
923:
        learn: 5.4274074
                                  total: 38.5s
                                                   remaining: 3.17s
        learn: 5.4237911
924:
                                  total: 38.5s
                                                   remaining: 3.12s
                                  total: 38.6s
925:
        learn: 5.4206063
                                                   remaining: 3.08s
926:
        learn: 5.4130563
                                  total: 38.6s
                                                   remaining: 3.04s
927:
        learn: 5.4083805
                                  total: 38.6s
                                                   remaining: 2.99s
928:
        learn: 5.4046190
                                  total: 38.7s
                                                   remaining: 2.96s
929:
        learn: 5.3959245
                                  total: 38.7s
                                                   remaining: 2.91s
930:
        learn: 5.3910497
                                  total: 38.8s
                                                   remaining: 2.87s
        learn: 5.3858648
931:
                                  total: 38.8s
                                                   remaining: 2.83s
```

```
932:
        learn: 5.3814567
                                  total: 38.9s
                                                   remaining: 2.79s
933:
        learn: 5.3735510
                                  total: 38.9s
                                                   remaining: 2.75s
934:
        learn: 5.3728749
                                  total: 38.9s
                                                   remaining: 2.7s
935:
        learn: 5.3700697
                                  total: 39s
                                                   remaining: 2.67s
936:
        learn: 5.3696053
                                  total: 39s
                                                   remaining: 2.62s
937:
        learn: 5.3628298
                                  total: 39.1s
                                                   remaining: 2.58s
938:
        learn: 5.3562903
                                  total: 39.1s
                                                   remaining: 2.54s
939:
        learn: 5.3530412
                                  total: 39.1s
                                                   remaining: 2.49s
940:
        learn: 5.3475948
                                  total: 39.2s
                                                   remaining: 2.46s
941:
        learn: 5.3429583
                                  total: 39.2s
                                                   remaining: 2.41s
942:
        learn: 5.3424822
                                  total: 39.2s
                                                   remaining: 2.37s
943:
        learn: 5.3380393
                                  total: 39.3s
                                                   remaining: 2.33s
944:
        learn: 5.3333848
                                  total: 39.3s
                                                   remaining: 2.29s
945:
        learn: 5.3330155
                                  total: 39.4s
                                                   remaining: 2.25s
946:
        learn: 5.3282387
                                  total: 39.4s
                                                   remaining: 2.2s
947:
        learn: 5.3219499
                                  total: 39.5s
                                                   remaining: 2.16s
948:
        learn: 5.3172645
                                  total: 39.5s
                                                   remaining: 2.12s
949:
        learn: 5.3119895
                                  total: 39.5s
                                                   remaining: 2.08s
950:
        learn: 5.3116318
                                  total: 39.6s
                                                   remaining: 2.04s
951:
        learn: 5.3104288
                                  total: 39.6s
                                                   remaining: 2s
952:
        learn: 5.3034452
                                  total: 39.6s
                                                   remaining: 1.95s
953:
        learn: 5.2992953
                                  total: 39.7s
                                                   remaining: 1.91s
954:
        learn: 5.2968972
                                  total: 39.7s
                                                   remaining: 1.87s
955:
        learn: 5.2959847
                                  total: 39.8s
                                                   remaining: 1.83s
                                  total: 39.8s
956:
        learn: 5.2898167
                                                   remaining: 1.79s
957:
        learn: 5.2889469
                                  total: 39.8s
                                                   remaining: 1.74s
958:
        learn: 5.2884852
                                  total: 39.9s
                                                   remaining: 1.7s
959:
        learn: 5.2858403
                                  total: 39.9s
                                                   remaining: 1.66s
960:
        learn: 5.2785012
                                  total: 40s
                                                   remaining: 1.62s
        learn: 5.2735220
961:
                                  total: 40s
                                                   remaining: 1.58s
962:
        learn: 5.2730505
                                  total: 40.1s
                                                   remaining: 1.54s
                                  total: 40.1s
963:
        learn: 5.2706145
                                                   remaining: 1.5s
964:
        learn: 5.2637109
                                  total: 40.1s
                                                   remaining: 1.45s
                                  total: 40.2s
965:
        learn: 5.2593159
                                                   remaining: 1.41s
        learn: 5.2572548
966:
                                  total: 40.2s
                                                   remaining: 1.37s
                                  total: 40.3s
967:
        learn: 5.2529296
                                                   remaining: 1.33s
968:
        learn: 5.2479142
                                  total: 40.3s
                                                   remaining: 1.29s
969:
        learn: 5.2448933
                                  total: 40.3s
                                                   remaining: 1.25s
970:
        learn: 5.2410762
                                  total: 40.4s
                                                   remaining: 1.21s
        learn: 5.2326319
971:
                                  total: 40.4s
                                                   remaining: 1.16s
972:
        learn: 5.2321210
                                  total: 40.5s
                                                   remaining: 1.12s
973:
        learn: 5.2298776
                                  total: 40.5s
                                                   remaining: 1.08s
974:
        learn: 5.2289305
                                  total: 40.6s
                                                   remaining: 1.04s
975:
        learn: 5.2237852
                                  total: 40.6s
                                                   remaining: 997ms
                                                   remaining: 955ms
976:
        learn: 5.2192228
                                  total: 40.6s
977:
        learn: 5.2166170
                                  total: 40.7s
                                                   remaining: 915ms
978:
        learn: 5.2137404
                                  total: 40.7s
                                                   remaining: 872ms
                                                   remaining: 832ms
979:
        learn: 5.2106056
                                  total: 40.8s
980:
        learn: 5.2061359
                                  total: 40.8s
                                                   remaining: 789ms
981:
        learn: 5.2034859
                                  total: 40.8s
                                                   remaining: 747ms
982:
        learn: 5.1976973
                                  total: 40.9s
                                                   remaining: 707ms
983:
        learn: 5.1973380
                                  total: 40.9s
                                                   remaining: 664ms
984:
        learn: 5.1897103
                                  total: 41s
                                                   remaining: 624ms
985:
        learn: 5.1852481
                                  total: 41s
                                                   remaining: 582ms
        learn: 5.1788334
986:
                                  total: 41s
                                                   remaining: 541ms
987:
        learn: 5.1723495
                                  total: 41.1s
                                                   remaining: 499ms
988:
        learn: 5.1682678
                                  total: 41.1s
                                                   remaining: 457ms
989:
        learn: 5.1625630
                                  total: 41.1s
                                                   remaining: 416ms
990:
        learn: 5.1600682
                                  total: 41.2s
                                                   remaining: 374ms
991:
        learn: 5.1561190
                                  total: 41.2s
                                                   remaining: 333ms
        learn: 5.1510472
                                  total: 41.3s
992:
                                                   remaining: 291ms
```

```
993:
       learn: 5.1480913
                               total: 41.3s
                                               remaining: 249ms
994:
       learn: 5.1474069
                               total: 41.3s
                                              remaining: 208ms
       learn: 5.1397354
                               total: 41.4s
995:
                                              remaining: 166ms
996:
       learn: 5.1376252
                               total: 41.4s
                                               remaining: 125ms
997:
       learn: 5.1329815
                               total: 41.5s
                                               remaining: 83.1ms
       learn: 5.1271431
                               total: 41.5s
                                               remaining: 41.6ms
998:
999:
       learn: 5.1228908
                               total: 41.5s
                                               remaining: Ous
BEST PARAMETERS: {'depth': 8, 'learning_rate': 0.03}
```

In [226]:

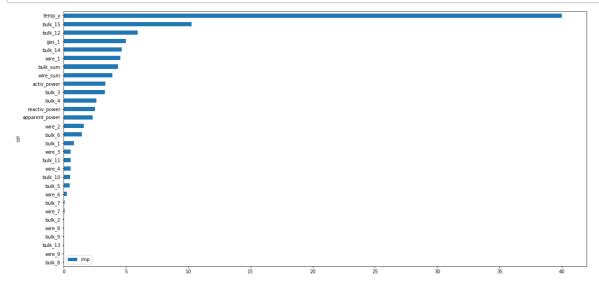
```
# обучим модель на лучших гиперпараметрах
model_CB = CatBoostRegressor(depth= 8, learning_rate= 0.03)#, depth=10, learning_rate=
0.1, L2 Leaf reg=1)
model_CB.fit(features_train, target_train, verbose=False)
predict_CB = model_CB.predict(features_train)
mae_CB = mean_absolute_error(target_train, predict_CB)
mae_CB
```

Out[226]:

4.042862790860131

In [227]:

```
#nocmpoum график Feature Importance
feature_imp = pd.DataFrame({'imp': model_CB.feature_importances_, 'col': features.colum
ns})
feature_imp = feature_imp.sort_values(['imp', 'col'], ascending=[True, False]).iloc[-30
_ = feature_imp.plot(kind='barh', x='col', y='imp', figsize=(20, 10))
plt.savefig('catboost_feature_importance.png')
```



In [214]:

```
#подберем гиперпараметры для модели LGBM
hyper_space = {'n_estimators': [300, 600, 1000, 1500, 2500],
               'max_depth': [4, 9, 15],
               'learning_rate': [0.1, 0.3]}
               #'num_leaves': [15, 63, 127]
               #'subsample': [0.6, 0.7, 0.8, 1.0],
               #'colsample_bytree': [0.6, 0.7, 0.8, 1.0]}
est = LGBMRegressor(boosting type='gbdt', random state=12345)
gs = GridSearchCV(est, hyper_space, scoring='neg_mean_absolute_error', cv=2, verbose=1)
gs_results = gs.fit(features_train, target_train)
print("BEST PARAMETERS: " + str(gs_results.best_params_))
Fitting 2 folds for each of 30 candidates, totalling 60 fits
```

```
[Parallel(n_jobs=1)]: Using backend SequentialBackend with 1 concurrent wo
rkers.
[Parallel(n jobs=1)]: Done 60 out of 60 | elapsed: 1.6min finished
BEST PARAMETERS: {'learning_rate': 0.1, 'max_depth': 4, 'n_estimators': 30
0}
```

In [228]:

```
# обучим модель на лучших гиперпараметрах
model_LGBM = LGBMRegressor( depth = 4, learning_rate = 0.1, n_estimators = 300)
model_LGBM.fit(features_train, target_train)
predict_LGBM = model_LGBM.predict(features_train)
mae_LGBM = mean_absolute_error(target_train, predict_LGBM)
mae LGBM
#https://www.kaggle.com/jens0306/easy-prediction-using-lightgbm-model
```

Out[228]:

2.005471678899581

In [216]:

```
#найдем лучшие гиперпараметры для модели случайного леса при помощи grid search
model_RF = RandomForestRegressor()
grid RF = {'max depth': [10, 40,100,300],
           'n estimators': [100, 200, 300, 500]}
rf_random = RandomizedSearchCV(estimator = model_RF, param_distributions = grid_RF, sco
ring='neg_mean_absolute_error', cv = 3)
#https://towardsdatascience.com/hyperparameter-tuning-the-random-forest-in-python-using
-scikit-learn-28d2aa77dd74
```

In [217]:

```
RF_random_results = rf_random.fit(features_train, target_train)
print("BEST PARAMETERS: " + str(RF_random_results.best_params_))
```

BEST PARAMETERS: {'n_estimators': 500, 'max_depth': 100}

In [229]:

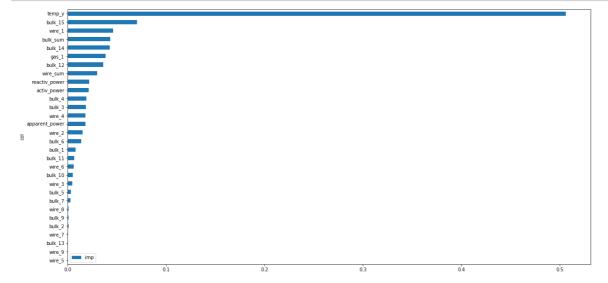
```
#обучим модель случайного леса с лучшими гиперпараметрами
model_RF = RandomForestRegressor(n_estimators= 500, max_depth= 100)
model_RF.fit(features_train,target_train)
predict_RF=model_RF.predict(features_train)
mae_RF = mean_absolute_error(target_train, predict_RF)
mae_RF
```

Out[229]:

3.340005871990607

In [235]:

```
#Feature Importance для случайного леса
feature_imp = pd.DataFrame({'imp': model_RF.feature_importances_, 'col': features.colum
feature_imp = feature_imp.sort_values(['imp', 'col'], ascending=[True, False]).iloc[-30
_ = feature_imp.plot(kind='barh', x='col', y='imp', figsize=(20, 10))
plt.savefig('rf_feature_importance.png')
```



In [219]:

```
#обучим модель xqboost с лучшими гиперпараметрами
from xgboost import XGBRegressor
model XGB = XGBRegressor()
grid_XGB = {'max_depth': [1, 30, 50, 150],
           'n_estimators': [50, 300, 500, 1000, 1500]}
#base score=0.5, booster='qbtree', colsample bylevel=1,
       colsample_bytree=1, gamma=0, importance_type='gain',
       learning_rate=0.1, max_delta_step=0, max_depth=3,
     min_child_weight=1, missing=None, n_estimators=100, n_jobs=1,
    # nthread=None, objective='reg:linear', random_state=0, reg_alpha=0,
    # reg_lambda=1, scale_pos_weight=1, seed=None, silent=True,
     # subsample=1)
XGB_random = RandomizedSearchCV(estimator = model_XGB, param_distributions = grid_XGB,
scoring='neg_mean_absolute_error', cv = 3, verbose=0, n_jobs = -1)
XGB_random_results = XGB_random.fit(features_train, target_train)
print("BEST PARAMETERS: " + str(XGB_random_results.best_params_))
```

```
[12:25:19] WARNING: /workspace/src/objective/regression obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:22] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:25] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:28] WARNING: /workspace/src/objective/regression obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:29] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:30] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:31] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:34] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:36] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:39] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:42] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:46] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:50] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:52] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:55] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:25:58] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:02] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:08] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:11] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:11] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:11] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:11] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:16] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:20] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:24] WARNING: /workspace/src/objective/regression obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:26] WARNING: /workspace/src/objective/regression obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:29] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:32] WARNING: /workspace/src/objective/regression obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:32] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:32] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
near is now deprecated in favor of reg:squarederror.
[12:26:32] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li
```

```
near is now deprecated in favor of reg:squarederror.
BEST PARAMETERS: {'n_estimators': 500, 'max_depth': 150}
```

In [236]:

```
model_XGB = XGBRegressor(n_estimators= 500, max_depth= 150)
model_XGB.fit(features_train,target_train)
predict_XGB=model_XGB.predict(features_train)
mae_XGB = mean_absolute_error(target_train, predict_XGB)
mae_XGB
```

[12:51:36] WARNING: /workspace/src/objective/regression_obj.cu:152: reg:li near is now deprecated in favor of reg:squarederror.

Out[236]:

0.0004150247265854375

Проверка моделей на тестовой выборке

In [230]:

```
%%time

predict_LR = model_LR.predict(features_test)
mae_LR = mean_absolute_error(target_test, predict_LR)
mae_LR
```

CPU times: user 5.37 ms, sys: 16.9 ms, total: 22.3 ms Wall time: 5.54 ms

Out[230]:

9.246985233391884

In [231]:

```
%%time

predict_CB = model_CB.predict(features_test)

mae_CB = mean_absolute_error(target_test, predict_CB)
mae_CB
```

CPU times: user 15.6 ms, sys: 4.59 ms, total: 20.1 ms Wall time: 13.3 ms

Out[231]:

8.373413091354486

In [232]:

```
%%time

predict_LGBM = model_LGBM.predict(features_test)
mae_LGBM = mean_absolute_error(target_test, predict_LGBM)
mae_LGBM
```

CPU times: user 49.1 ms, sys: 117 μ s, total: 49.3 ms Wall time: 46.8 ms

Out[232]:

9.01083456204969

In [233]:

```
%%time

predict_RF = model_RF.predict(features_test)
mae_RF = mean_absolute_error(target_test, predict_RF)
mae_RF
```

CPU times: user 124 ms, sys: 0 ns, total: 124 ms

Wall time: 123 ms

Out[233]:

8.321076712328768

In [237]:

```
%%time

predict_XGB = model_XGB.predict(features_test)

mae_XGB = mean_absolute_error(target_test, predict_XGB)
mae_XGB
```

CPU times: user 60.2 ms, sys: 3.94 ms, total: 64.1 ms Wall time: 62.5 ms

Out[237]:

8.762504682148972

Вывод:

Необходимые библиотеки добавлены, общая информация по датафрейму изучена.

Была провена предобработка данных. Изменены типы данных, удалены выбросы.

Данные объединины в один датафрейм для удобства дальнешней работы.

Без масштабирования значение МАЕ меньше, поэтому было решено в данном проекте масштабирование не использовать.

Были добавлены самостоятельно следующие признаки: суммарные данные по проволоке и сыпучим материалам, первый замер температуры.

Проведен анализ корреляции признаков.

Все признаки минимально коррелируют с целевым признаком, кроме самой первой температуры, суммарного объема проволоки, объема первого вида проволоки.

Модель Catboost с гиперпараметрами depth= 8, learning rate= 0.03 показала наилучшие результаты.