```python
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
from datetime import datetime
import statsmodels.api as sm
import matplotlib.dates as mdates
```

```python
OFFSET = 570 #corresponds to minutes in day up to 9:30 am
custom_date_parser = lambda x: datetime.strptime(x, "%Y%m%d")

df = pd.read_csv("/Users/quinnhollister/Downloads/ibm_intraday_200306.txt",
                parse_dates=["DATE"],
                date_parser = custom_date_parser, delim_whitespace = True)

df["minsSinceOpen"] = (df["TIME"].str.split(':')).apply(lambda x: (int(x[0])*60 + int(x[1]) + int(x[2])*(1/
```

```python
print(len(df))
df = df[df['minsSinceOpen'] != 390.0]
print(len(df))


print(df.head())
#Now, I want to create 5-minute intervals throughout the trading day so i can run my
#analysis on trends. I'll copy this dataframe so that I don't lose any information, then
#I also want to erase the exact 4pm trades as they will contaminate the analysis.
```

```
163811
163796
        DATE      TIME   PRICE   SIZE   minsSinceOpen
0 2003-06-02   9:30:08   89.0   89800      0.133333
1 2003-06-02   9:30:09   89.0     200      0.150000
2 2003-06-02   9:30:09   89.0     100      0.150000
3 2003-06-02   9:30:09   89.0     300      0.150000
4 2003-06-02   9:30:09   89.0     200      0.150000
```

```python
df["5minInt"] = pd.cut(df["minsSinceOpen"], np.arange(-0.000000000001, 395, 5), include_lowest=True, label
df["DAY"] = df["DATE"].dt.day
df.loc[:, 'tidx'] = pd.to_datetime(df['DATE'].astype(str) + ' ' + df['TIME'].astype(str))
print(df.head(10000))
```

```
                DATE      TIME   PRICE    SIZE   minsSinceOpen   5minInt   DAY  \
0      2003-06-02   9:30:08   89.00   89800      0.133333          0     2
1      2003-06-02   9:30:09   89.00     200      0.150000          0     2
2      2003-06-02   9:30:09   89.00     100      0.150000          0     2
3      2003-06-02   9:30:09   89.00     300      0.150000          0     2
4      2003-06-02   9:30:09   89.00     200      0.150000          0     2
...           ...       ...     ...     ...           ...        ...   ...
9996   2003-06-03   9:44:25   83.80   11500     14.416667          2     3
9997   2003-06-03   9:44:26   83.75    6000     14.433333          2     3
9998   2003-06-03   9:44:27   83.80     100     14.450000          2     3
9999   2003-06-03   9:44:27   83.81     500     14.450000          2     3
10000  2003-06-03   9:44:27   83.79     100     14.450000          2     3

                     tidx
0      2003-06-02 09:30:08
1      2003-06-02 09:30:09
2      2003-06-02 09:30:09
3      2003-06-02 09:30:09
4      2003-06-02 09:30:09
...                    ...
9996   2003-06-03 09:44:25
9997   2003-06-03 09:44:26
9998   2003-06-03 09:44:27
9999   2003-06-03 09:44:27
10000  2003-06-03 09:44:27

[10000 rows x 8 columns]
```

```python
#Now that we have these 5 minute ticks associated with each observation, we'll need to group_by the 5minI
#and the date, and each new grouped observations needs to sum over the transaction volume, and the last
#stock price in that interval

def intervalVals(group):
    SIZE = np.sum(group["SIZE"])
    TRADES = group["SIZE"].count()
    idx = group["minsSinceOpen"].idxmax()
```

```python
        startidx = group["minsSinceOpen"].idxmin()
        PRICE = group.loc[idx, ["PRICE"]].item()
        RET = np.log(group.loc[idx, ["PRICE"]].item()) - np.log(group.loc[startidx, ["PRICE"]].item())
        TIME = group.loc[idx, ["DATE"]].item()
        PRICE_CHANGE = group.loc[idx, ["PRICE"]].item() - group.loc[startidx, ["PRICE"]].item()
        return [SIZE,PRICE,TIME,TRADES, RET, PRICE_CHANGE]
```

```python
processed_df = df.groupby(["DAY", "5minInt"]).apply(intervalVals)
```

```python
#lets print out this SIZE series, and realizing we have a multi-index need to convert back to timeseries
processed_df.head()
reset_df = processed_df.reset_index()
reset_df.rename(columns = {'DAY': 'DAY', '5minInt': '5minInt', 0: "VALS"}, inplace=True)


reset_df[["SIZE","PRICE","TIME","TRADES", "RET", "PRICE_CHANGE"]] = pd.DataFrame(reset_df["VALS"].tolist(
reset_df.drop(columns = ["VALS"], inplace=True)

pd.set_option("display.max_rows", None, "display.max_columns", None)
print(reset_df)
```

```
     DAY  5minInt     SIZE    PRICE        TIME  TRADES       RET  \
0      2        0   271500  88.8300  2003-06-02     265 -0.001912
1      2        1   124500  88.5600  2003-06-02     102 -0.003157
2      2        2    96300  88.4200  2003-06-02     108 -0.001582
3      2        3   106200  88.4000  2003-06-02     123 -0.000113
4      2        4   105600  88.5300  2003-06-02     127  0.001470
5      2        5    98200  88.6900  2003-06-02      99  0.001693
6      2        6   171100  88.5000  2003-06-02     146 -0.002032
7      2        7   136400  88.6000  2003-06-02     137  0.001355
8      2        8   152100  88.7400  2003-06-02     148  0.001579
9      2        9    70000  88.5770  2003-06-02     109 -0.001839
10     2       10    59500  88.3600  2003-06-02     118 -0.002261
11     2       11    66600  88.6000  2003-06-02     119  0.002712
12     2       12    86400  88.3700  2003-06-02     118 -0.001244
13     2       13    69100  88.4800  2003-06-02      92  0.001244
14     2       14    56100  88.4500  2003-06-02      87 -0.000226
15     2       15    80300  88.5300  2003-06-02     109  0.001243
16     2       16   111400  88.5000  2003-06-02      95 -0.000452
17     2       17    45300  88.4900  2003-06-02      93 -0.000226
18     2       18    48100  88.4500  2003-06-02      87 -0.001037
19     2       19    94400  88.4900  2003-06-02      79  0.000226
20     2       20    58900  88.5100  2003-06-02      87  0.000226
21     2       21    54000  88.6000  2003-06-02     105  0.000564
22     2       22    77700  88.5500  2003-06-02      72 -0.000452
23     2       23    40100  88.6000  2003-06-02      74  0.000677
24     2       24    64600  88.7700  2003-06-02      79  0.001917
25     2       25    72500  88.7000  2003-06-02      89 -0.000676
26     2       26    49100  88.7100  2003-06-02      93  0.000113
27     2       27    52900  88.7600  2003-06-02      77  0.000676
28     2       28    94700  88.8100  2003-06-02      94  0.000676
29     2       29    68800  88.8500  2003-06-02      83  0.000450
30     2       30    66600  88.9300  2003-06-02      71  0.000787
31     2       31    54800  88.9200  2003-06-02      69 -0.000112
32     2       32    75500  88.7500  2003-06-02      78 -0.001914
33     2       33    28500  88.8000  2003-06-02      83  0.000789
34     2       34    34500  88.7600  2003-06-02      73 -0.000563
35     2       35    52100  88.7400  2003-06-02      96 -0.000225
36     2       36    59700  88.8100  2003-06-02      59  0.000676
37     2       37    39300  88.8100  2003-06-02      71  0.000225
38     2       38    60400  88.6500  2003-06-02      78 -0.001916
39     2       39    73700  88.7500  2003-06-02      75  0.001579
40     2       40    35800  88.6700  2003-06-02      54 -0.000451
41     2       41    27800  88.6500  2003-06-02      67 -0.000677
42     2       42    56000  88.8000  2003-06-02      86  0.001691
43     2       43    37800  88.8800  2003-06-02      79  0.000788
44     2       44    27100  88.9000  2003-06-02      66  0.000450
45     2       45    32500  88.9200  2003-06-02      77  0.000450
46     2       46    38800  88.8500  2003-06-02      71 -0.000450
47     2       47    33900  88.8600  2003-06-02      58  0.000000
48     2       48    72800  89.0000  2003-06-02      96  0.001462
49     2       49    78700  89.0200  2003-06-02     134  0.000000
50     2       50    34800  88.9000  2003-06-02      71 -0.001349
51     2       51    26700  88.9400  2003-06-02      60  0.000450
52     2       52    87500  89.0000  2003-06-02      85  0.000674
53     2       53    42800  88.8900  2003-06-02      72 -0.001574
54     2       54    51100  88.9200  2003-06-02      91  0.000450
55     2       55    46600  88.6700  2003-06-02      95 -0.002703
56     2       56    56600  88.6300  2003-06-02      72 -0.000564
57     2       57    70000  88.5800  2003-06-02      85 -0.000339
58     2       58    47000  88.6200  2003-06-02      85  0.000339
59     2       59    71300  88.6500  2003-06-02      89  0.000338
60     2       60    61400  88.6100  2003-06-02     120 -0.000361
61     2       61    32900  88.6800  2003-06-02      82  0.001015
62     2       62    65400  88.3400  2003-06-02     111 -0.003277
```

63	2	63	87900	88.2300	2003-06-02	109	-0.001586
64	2	64	190400	88.2600	2003-06-02	120	0.000340
65	2	65	127100	87.9100	2003-06-02	131	-0.003973
66	2	66	148800	88.0600	2003-06-02	151	0.001591
67	2	67	68800	87.9700	2003-06-02	116	-0.000341
68	2	68	68200	87.8500	2003-06-02	88	-0.001479
69	2	69	99200	87.5000	2003-06-02	153	-0.003878
70	2	70	166500	87.3300	2003-06-02	118	-0.002630
71	2	71	112900	87.3200	2003-06-02	131	-0.000344
72	2	72	158400	87.4300	2003-06-02	142	0.001144
73	2	73	137600	87.3900	2003-06-02	148	-0.003484
74	2	74	127600	87.4000	2003-06-02	132	0.000114
75	2	75	142700	87.4300	2003-06-02	95	0.000343
76	2	76	125900	87.3400	2003-06-02	114	-0.001030
77	2	77	166100	87.3100	2003-06-02	133	-0.000458
78	3	0	1797600	84.3500	2003-06-03	1176	0.000356
79	3	1	1106200	84.0100	2003-06-03	501	-0.004276
80	3	2	896100	83.7800	2003-06-03	635	-0.004834
81	3	3	1012200	84.0000	2003-06-03	603	0.002981
82	3	4	675400	84.0300	2003-06-03	421	0.000000
83	3	5	685700	84.2900	2003-06-03	390	0.003089
84	3	6	434700	84.2500	2003-06-03	333	-0.000356
85	3	7	519000	84.4600	2003-06-03	362	0.002608
86	3	8	424500	84.3700	2003-06-03	340	-0.001066
87	3	9	263500	84.0600	2003-06-03	258	-0.004037
88	3	10	421000	83.9000	2003-06-03	349	-0.002143
89	3	11	372700	83.7300	2003-06-03	289	-0.002028
90	3	12	483500	83.6700	2003-06-03	259	-0.000956
91	3	13	403700	83.5100	2003-06-03	340	-0.001795
92	3	14	242800	83.8300	2003-06-03	272	0.003813
93	3	15	560400	84.0000	2003-06-03	279	0.001668
94	3	16	499700	83.9400	2003-06-03	202	-0.000834
95	3	17	271800	83.9600	2003-06-03	200	0.000715
96	3	18	181100	84.0400	2003-06-03	186	0.000714
97	3	19	195700	84.0200	2003-06-03	206	-0.000714
98	3	20	154400	84.0100	2003-06-03	166	-0.000357
99	3	21	62900	84.0000	2003-06-03	117	0.000000
100	3	22	83600	84.1500	2003-06-03	129	0.001784
101	3	23	120400	84.2200	2003-06-03	147	0.000832
102	3	24	190300	84.1600	2003-06-03	118	-0.000475
103	3	25	172000	84.1000	2003-06-03	129	-0.000238
104	3	26	168600	84.0400	2003-06-03	130	-0.000476
105	3	27	103100	84.1000	2003-06-03	95	0.000714
106	3	28	187500	84.1500	2003-06-03	116	0.001189
107	3	29	125500	84.1100	2003-06-03	85	0.000000
108	3	30	90000	84.1300	2003-06-03	92	0.000476
109	3	31	88900	84.0600	2003-06-03	95	-0.000357
110	3	32	73000	84.0500	2003-06-03	91	-0.000476
111	3	33	186900	83.8500	2003-06-03	175	-0.002263
112	3	34	185000	83.9900	2003-06-03	78	0.001191
113	3	35	102600	83.8700	2003-06-03	113	-0.001430
114	3	36	79300	83.8500	2003-06-03	105	-0.000477
115	3	37	205200	83.8900	2003-06-03	120	0.000000
116	3	38	68500	83.8900	2003-06-03	92	0.000119
117	3	39	117300	83.7500	2003-06-03	123	-0.002147
118	3	40	229000	83.6000	2003-06-03	164	-0.001793
119	3	41	100900	83.6800	2003-06-03	144	0.000956
120	3	42	185200	83.7210	2003-06-03	98	0.000490
121	3	43	96400	83.6600	2003-06-03	124	-0.000729
122	3	44	169200	83.6200	2003-06-03	131	-0.000717
123	3	45	198600	83.5730	2003-06-03	147	-0.000443
124	3	46	232200	83.4700	2003-06-03	221	-0.001556
125	3	47	123400	83.4700	2003-06-03	156	0.000000
126	3	48	147200	83.4900	2003-06-03	137	0.000240
127	3	49	256400	83.4800	2003-06-03	157	-0.000240
128	3	50	177300	83.3500	2003-06-03	149	-0.001199
129	3	51	327400	83.4600	2003-06-03	152	0.001799
130	3	52	126300	83.5200	2003-06-03	131	0.000599
131	3	53	161100	83.3000	2003-06-03	175	-0.002638
132	3	54	191200	83.3300	2003-06-03	139	0.000120
133	3	55	136100	83.3300	2003-06-03	144	0.000360
134	3	56	212700	83.3500	2003-06-03	202	0.000000
135	3	57	152900	83.4600	2003-06-03	166	0.001319
136	3	58	137300	83.3600	2003-06-03	134	-0.000600
137	3	59	143500	83.4000	2003-06-03	157	0.000480
138	3	60	316700	83.3700	2003-06-03	167	0.000120
139	3	61	173700	83.4200	2003-06-03	152	0.000720
140	3	62	187200	83.4900	2003-06-03	165	0.000599
141	3	63	95000	83.4400	2003-06-03	128	-0.000599
142	3	64	120700	83.4800	2003-06-03	122	0.000359
143	3	65	99600	83.4600	2003-06-03	138	-0.000120
144	3	66	86900	83.4500	2003-06-03	122	0.000255
145	3	67	270200	83.4300	2003-06-03	135	-0.000240
146	3	68	84100	83.4500	2003-06-03	150	0.000479
147	3	69	67100	83.4610	2003-06-03	106	0.000012
148	3	70	119000	83.5000	2003-06-03	132	0.000359
149	3	71	133500	83.4600	2003-06-03	151	-0.000359
150	3	72	232400	83.5900	2003-06-03	182	0.001437
151	3	73	153500	83.6500	2003-06-03	162	0.000718
152	3	74	185200	83.6700	2003-06-03	161	0.000957
153	3	75	278700	83.7300	2003-06-03	181	0.000717
154	3	76	448500	83.9200	2003-06-03	193	0.002267
155	3	77	513400	83.8800	2003-06-03	208	-0.000358
156	4	0	499800	84.1500	2003-06-04	502	0.001784

156	4	0	499800	84.1500	2003-06-04	302	0.001784
157	4	1	277700	84.0200	2003-06-04	204	-0.000476
158	4	2	382800	84.1970	2003-06-04	147	0.001747
159	4	3	276100	84.4400	2003-06-04	186	0.002846
160	4	4	278200	84.7300	2003-06-04	214	0.002718
161	4	5	220900	84.7800	2003-06-04	211	0.000826
162	4	6	305300	84.7800	2003-06-04	178	0.000354
163	4	7	239400	84.8600	2003-06-04	202	0.000354
164	4	8	395300	84.6500	2003-06-04	175	-0.002006
165	4	9	193600	84.7500	2003-06-04	174	0.001063
166	4	10	158500	84.8400	2003-06-04	181	0.001179
167	4	11	169300	84.8400	2003-06-04	184	0.000000
168	4	12	163200	84.7600	2003-06-04	122	-0.000900
169	4	13	303800	84.5600	2003-06-04	148	-0.002480
170	4	14	203900	84.6000	2003-06-04	126	0.000473
171	4	15	122200	84.7500	2003-06-04	139	0.001890
172	4	16	120200	84.7800	2003-06-04	140	-0.000118
173	4	17	143100	84.8700	2003-06-04	122	0.000825
174	4	18	145500	84.8800	2003-06-04	158	-0.000118
175	4	19	143300	84.7200	2003-06-04	110	-0.002005
176	4	20	112200	84.6000	2003-06-04	116	-0.001063
177	4	21	137300	84.6200	2003-06-04	135	0.000236
178	4	22	127600	84.6500	2003-06-04	116	0.000014
179	4	23	97900	84.6300	2003-06-04	122	0.000118
180	4	24	101500	84.6900	2003-06-04	114	0.000995
181	4	25	102300	84.5990	2003-06-04	113	-0.000485
182	4	26	110600	84.6900	2003-06-04	109	0.000709
183	4	27	79200	84.7200	2003-06-04	108	0.000354
184	4	28	64100	84.7700	2003-06-04	104	0.000590
185	4	29	83800	84.7600	2003-06-04	117	-0.000236
186	4	30	57500	84.7700	2003-06-04	102	0.000118
187	4	31	56600	84.7200	2003-06-04	88	-0.000472
188	4	32	67800	84.8000	2003-06-04	95	0.001062
189	4	33	84600	84.8500	2003-06-04	98	0.000118
190	4	34	78300	84.8100	2003-06-04	96	-0.000472
191	4	35	49200	84.7800	2003-06-04	81	-0.000590
192	4	36	49300	84.7500	2003-06-04	89	-0.000472
193	4	37	59600	84.7500	2003-06-04	96	0.000000
194	4	38	58800	84.6900	2003-06-04	94	-0.000708
195	4	39	75400	84.7000	2003-06-04	114	0.000118
196	4	40	29800	84.6900	2003-06-04	57	-0.000118
197	4	41	74700	84.5490	2003-06-04	111	-0.001666
198	4	42	59800	84.5600	2003-06-04	72	0.000118
199	4	43	58500	84.5500	2003-06-04	63	-0.000118
200	4	44	156900	84.6000	2003-06-04	90	0.001064
201	4	45	54400	84.6700	2003-06-04	58	0.000827
202	4	46	44300	84.6600	2003-06-04	79	0.000118
203	4	47	31000	84.5800	2003-06-04	64	-0.000945
204	4	48	33000	84.5800	2003-06-04	71	0.000000
205	4	49	33400	84.6800	2003-06-04	81	0.000709
206	4	50	42000	84.6700	2003-06-04	91	-0.000118
207	4	51	52400	84.6700	2003-06-04	96	0.000000
208	4	52	70500	84.6100	2003-06-04	69	-0.000591
209	4	53	29900	84.6400	2003-06-04	73	0.000473
210	4	54	77100	84.7100	2003-06-04	106	0.000945
211	4	55	71500	84.6000	2003-06-04	97	-0.001181
212	4	56	74300	84.5800	2003-06-04	109	0.000118
213	4	57	69000	84.6200	2003-06-04	92	0.000236
214	4	58	66600	84.5700	2003-06-04	115	-0.000236
215	4	59	121600	84.4300	2003-06-04	105	-0.001539
216	4	60	90300	84.5490	2003-06-04	137	0.001290
217	4	61	79600	84.5700	2003-06-04	99	0.000591
218	4	62	199400	84.5000	2003-06-04	98	-0.000828
219	4	63	134500	84.5000	2003-06-04	114	0.000000
220	4	64	114000	84.5300	2003-06-04	103	0.000118
221	4	65	87000	84.5200	2003-06-04	125	-0.000237
222	4	66	50500	84.5000	2003-06-04	90	-0.000118
223	4	67	73700	84.4500	2003-06-04	98	-0.000592
224	4	68	69800	84.5200	2003-06-04	90	0.000817
225	4	69	87900	84.6100	2003-06-04	136	0.000946
226	4	70	93900	84.6350	2003-06-04	73	-0.000177
227	4	71	94800	84.6800	2003-06-04	82	0.000591
228	4	72	155800	84.6900	2003-06-04	108	0.000118
229	4	73	109600	84.6000	2003-06-04	82	-0.000709
230	4	74	188500	84.5600	2003-06-04	125	-0.000473
231	4	75	208100	84.5000	2003-06-04	139	-0.001065
232	4	76	228800	84.4500	2003-06-04	146	-0.000710
233	4	77	393400	84.3000	2003-06-04	149	-0.001659
234	5	0	536800	83.9100	2003-06-05	327	-0.001072
235	5	1	228600	83.6900	2003-06-05	176	-0.002625
236	5	2	228200	83.7400	2003-06-05	112	0.000478
237	5	3	122500	83.6500	2003-06-05	132	-0.001243
238	5	4	229600	83.6900	2003-06-05	139	-0.003221
239	5	5	160200	83.8000	2003-06-05	90	0.000000
240	5	6	138500	83.7800	2003-06-05	136	-0.000239
241	5	7	103100	83.7500	2003-06-05	141	-0.000239
242	5	8	68300	83.7400	2003-06-05	112	0.000000
243	5	9	181200	83.6600	2003-06-05	110	-0.000717
244	5	10	138500	83.5100	2003-06-05	96	-0.001686
245	5	11	275900	83.5400	2003-06-05	147	0.000479
246	5	12	184700	83.7400	2003-06-05	110	0.003095
247	5	13	140500	83.6600	2003-06-05	97	-0.001075
248	5	14	245900	83.7300	2003-06-05	73	0.000460
249	5	15	149000	83.9100	2003-06-05	82	0.001909

250	5	16	173500	83.6100	2003-06-05	128	-0.003701
251	5	17	167800	83.5200	2003-06-05	113	-0.002153
252	5	18	111100	83.5500	2003-06-05	102	-0.001386
253	5	19	106300	83.4400	2003-06-05	133	-0.000719
254	5	20	157800	83.4100	2003-06-05	91	-0.000479
255	5	21	69200	83.4900	2003-06-05	122	0.000359
256	5	22	462700	83.5900	2003-06-05	79	0.001795
257	5	23	55200	83.5700	2003-06-05	99	-0.000239
258	5	24	236000	83.4900	2003-06-05	80	-0.000958
259	5	25	189400	83.3700	2003-06-05	152	-0.001199
260	5	26	98200	83.2800	2003-06-05	126	-0.000840
261	5	27	52700	83.3300	2003-06-05	71	0.000600
262	5	28	53100	83.3500	2003-06-05	72	0.000600
263	5	29	118900	83.3280	2003-06-05	103	-0.000264
264	5	30	181800	83.2700	2003-06-05	124	-0.000329
265	5	31	115300	83.3500	2003-06-05	95	0.000960
266	5	32	103800	83.3600	2003-06-05	87	0.000360
267	5	33	141000	83.3800	2003-06-05	124	0.000240
268	5	34	49600	83.3700	2003-06-05	86	-0.000053
269	5	35	82800	83.3900	2003-06-05	100	0.000240
270	5	36	23600	83.3900	2003-06-05	73	-0.000120
271	5	37	55000	83.4300	2003-06-05	67	0.000599
272	5	38	74800	83.4300	2003-06-05	79	0.000198
273	5	39	48300	83.5000	2003-06-05	65	0.000959
274	5	40	115300	83.6000	2003-06-05	86	0.001197
275	5	41	156100	83.4600	2003-06-05	108	-0.001317
276	5	42	57100	83.4000	2003-06-05	72	-0.002177
277	5	43	123900	83.3500	2003-06-05	81	-0.000600
278	5	44	54200	83.3200	2003-06-05	82	-0.001217
279	5	45	44200	83.4000	2003-06-05	71	0.001200
280	5	46	20800	83.3900	2003-06-05	50	0.000194
281	5	47	51500	83.4000	2003-06-05	48	0.000000
282	5	48	101700	83.3700	2003-06-05	54	0.000240
283	5	49	56300	83.4000	2003-06-05	51	0.000360
284	5	50	48700	83.4200	2003-06-05	64	0.000446
285	5	51	46300	83.3300	2003-06-05	62	-0.001079
286	5	52	96700	83.2910	2003-06-05	72	-0.001447
287	5	53	157800	83.1000	2003-06-05	126	-0.002056
288	5	54	396100	82.9200	2003-06-05	283	-0.002168
289	5	55	178300	82.9600	2003-06-05	129	0.000482
290	5	56	136500	82.9000	2003-06-05	106	-0.000844
291	5	57	207900	82.8600	2003-06-05	153	-0.000483
292	5	58	132800	82.9400	2003-06-05	90	0.000540
293	5	59	104400	82.9000	2003-06-05	102	-0.000603
294	5	60	174900	82.7900	2003-06-05	113	-0.001269
295	5	61	306300	82.7600	2003-06-05	160	-0.000483
296	5	62	57000	82.7400	2003-06-05	92	-0.000363
297	5	63	85600	82.7000	2003-06-05	99	-0.000484
298	5	64	123700	82.7200	2003-06-05	89	0.000242
299	5	65	119600	82.7900	2003-06-05	97	0.000846
300	5	66	168700	82.7200	2003-06-05	136	-0.000846
301	5	67	281100	82.5300	2003-06-05	184	-0.002420
302	5	68	255900	82.5700	2003-06-05	142	-0.000121
303	5	69	217400	82.4100	2003-06-05	125	-0.001697
304	5	70	201500	82.5300	2003-06-05	122	0.002183
305	5	71	215700	82.5120	2003-06-05	112	-0.000218
306	5	72	231200	82.4100	2003-06-05	126	-0.001241
307	5	73	310800	82.2800	2003-06-05	142	-0.001457
308	5	74	345000	82.2900	2003-06-05	179	-0.000486
309	5	75	367200	82.2400	2003-06-05	189	-0.000608
310	5	76	557800	82.1500	2003-06-05	200	-0.001095
311	5	77	1331800	82.0000	2003-06-05	301	-0.001828
312	6	0	792100	82.7600	2003-06-06	544	0.006181
313	6	1	466300	82.7500	2003-06-06	215	-0.000362
314	6	2	335400	82.5300	2003-06-06	210	-0.002662
315	6	3	339900	82.4900	2003-06-06	240	-0.000606
316	6	4	307300	82.3700	2003-06-06	203	-0.001577
317	6	5	200800	82.3900	2003-06-06	156	0.000121
318	6	6	528400	82.6030	2003-06-06	169	0.002810
319	6	7	186600	82.8000	2003-06-06	168	0.002334
320	6	8	270300	83.0000	2003-06-06	243	0.002413
321	6	9	197900	83.0000	2003-06-06	184	-0.000120
322	6	10	205500	82.9200	2003-06-06	185	-0.001326
323	6	11	393000	82.8900	2003-06-06	142	-0.000362
324	6	12	181000	82.8000	2003-06-06	147	-0.001207
325	6	13	162100	82.6200	2003-06-06	145	-0.002297
326	6	14	241500	82.5500	2003-06-06	166	-0.000727
327	6	15	104800	82.5200	2003-06-06	125	-0.000848
328	6	16	182000	82.5600	2003-06-06	145	0.000606
329	6	17	140400	82.5900	2003-06-06	103	0.000363
330	6	18	196400	82.3500	2003-06-06	121	-0.003031
331	6	19	161600	82.3000	2003-06-06	124	-0.000729
332	6	20	195700	82.4000	2003-06-06	143	0.001093
333	6	21	146200	82.2200	2003-06-06	128	-0.002430
334	6	22	161600	82.1700	2003-06-06	134	-0.000608
335	6	23	109600	82.1100	2003-06-06	122	-0.000487
336	6	24	104100	82.2100	2003-06-06	119	0.000974
337	6	25	200500	82.0600	2003-06-06	210	-0.001826
338	6	26	112200	82.1100	2003-06-06	135	0.000244
339	6	27	223200	82.1600	2003-06-06	110	0.000609
340	6	28	59000	82.1600	2003-06-06	110	0.000122
341	6	29	127700	82.2600	2003-06-06	96	0.001216
342	6	30	94600	82.1250	2003-06-06	105	-0.001521
343	6	31	171600	82.1200	2003-06-06	109	0.000244

344	6	32	102400	81.9800	2003-06-06	121	-0.001584
345	6	33	149800	81.8600	2003-06-06	158	-0.000855
346	6	34	96900	81.9400	2003-06-06	119	0.000733
347	6	35	64600	81.8700	2003-06-06	102	-0.000855
348	6	36	227600	81.4400	2003-06-06	198	-0.005234
349	6	37	176900	81.3200	2003-06-06	162	-0.001597
350	6	38	119400	81.4800	2003-06-06	129	0.001105
351	6	39	63200	81.4500	2003-06-06	112	-0.000491
352	6	40	42100	81.4700	2003-06-06	75	-0.000245
353	6	41	72500	81.2200	2003-06-06	111	-0.002951
354	6	42	150600	81.2900	2003-06-06	129	0.000985
355	6	43	137600	81.3100	2003-06-06	103	0.000246
356	6	44	130900	81.3200	2003-06-06	134	0.000000
357	6	45	84800	81.4500	2003-06-06	91	0.001474
358	6	46	60600	81.4800	2003-06-06	113	0.000737
359	6	47	90500	81.3600	2003-06-06	102	-0.001351
360	6	48	142000	81.3300	2003-06-06	94	-0.001106
361	6	49	93100	81.2200	2003-06-06	111	-0.001230
362	6	50	126200	81.2500	2003-06-06	115	0.000492
363	6	51	79100	81.3700	2003-06-06	91	0.000984
364	6	52	72300	81.2500	2003-06-06	86	-0.001230
365	6	53	72400	81.3300	2003-06-06	101	0.000738
366	6	54	88200	81.3900	2003-06-06	101	0.000000
367	6	55	56900	81.4000	2003-06-06	102	0.000000
368	6	56	182100	81.5200	2003-06-06	115	0.001473
369	6	57	102200	81.5000	2003-06-06	126	-0.000245
370	6	58	65700	81.4500	2003-06-06	97	-0.000614
371	6	59	53100	81.4400	2003-06-06	89	0.000000
372	6	60	140200	81.2900	2003-06-06	119	-0.001844
373	6	61	204200	81.2400	2003-06-06	132	-0.000615
374	6	62	96100	81.0900	2003-06-06	126	-0.001725
375	6	63	88800	81.0500	2003-06-06	115	-0.000493
376	6	64	184300	80.9600	2003-06-06	277	-0.001111
377	6	65	127600	80.8300	2003-06-06	163	-0.001607
378	6	66	98200	80.8300	2003-06-06	126	-0.001170
379	6	67	133500	80.6300	2003-06-06	156	-0.002106
380	6	68	277000	80.6500	2003-06-06	161	0.000000
381	6	69	184900	80.8900	2003-06-06	158	0.000495
382	6	70	164500	80.7900	2003-06-06	161	-0.000371
383	6	71	300200	80.6400	2003-06-06	229	-0.001982
384	6	72	398200	80.4600	2003-06-06	208	-0.001614
385	6	73	244200	80.3700	2003-06-06	175	-0.001616
386	6	74	434200	80.1500	2003-06-06	263	-0.002119
387	6	75	364300	80.0400	2003-06-06	225	-0.001498
388	6	76	644200	80.1000	2003-06-06	535	0.000749
389	6	77	458500	80.0600	2003-06-06	203	-0.000500
390	9	0	330000	80.3500	2003-06-09	375	0.004365
391	9	1	253200	80.7100	2003-06-09	196	0.001364
392	9	2	185100	80.6900	2003-06-09	104	-0.000248
393	9	3	132000	80.8000	2003-06-09	113	0.001238
394	9	4	222300	81.0800	2003-06-09	154	0.003459
395	9	5	237000	81.2200	2003-06-09	167	0.001602
396	9	6	455100	81.1100	2003-06-09	151	-0.002955
397	9	7	182800	81.2000	2003-06-09	147	0.000493
398	9	8	143200	81.2700	2003-06-09	119	0.000492
399	9	9	123600	80.9430	2003-06-09	124	-0.003909
400	9	10	109700	80.9400	2003-06-09	153	-0.000247
401	9	11	128100	80.6100	2003-06-09	135	-0.004085
402	9	12	92900	80.6800	2003-06-09	113	0.000744
403	9	13	115200	80.8300	2003-06-09	141	0.001734
404	9	14	135500	80.8400	2003-06-09	122	0.000124
405	9	15	139500	80.9800	2003-06-09	140	0.001607
406	9	16	151500	81.2000	2003-06-09	114	0.004738
407	9	17	166900	81.3600	2003-06-09	116	0.001845
408	9	18	120300	81.3600	2003-06-09	130	-0.000123
409	9	19	152300	81.4500	2003-06-09	128	0.000860
410	9	20	100000	81.3800	2003-06-09	128	0.000642
411	9	21	71300	81.2000	2003-06-09	88	-0.002214
412	9	22	92400	81.2200	2003-06-09	102	0.000493
413	9	23	66800	81.1200	2003-06-09	85	-0.001478
414	9	24	57300	81.2500	2003-06-09	97	0.001340
415	9	25	98600	81.2500	2003-06-09	60	-0.000123
416	9	26	129100	81.1480	2003-06-09	72	-0.001625
417	9	27	160500	81.1700	2003-06-09	78	0.000123
418	9	28	39800	81.2100	2003-06-09	55	0.000246
419	9	29	88400	81.1500	2003-06-09	55	-0.000616
420	9	30	66400	81.3700	2003-06-09	83	0.002215
421	9	31	73300	81.3950	2003-06-09	108	0.000307
422	9	32	75300	81.4800	2003-06-09	111	0.000737
423	9	33	54200	81.4200	2003-06-09	94	-0.000614
424	9	34	82400	81.4500	2003-06-09	120	0.000368
425	9	35	62800	81.3800	2003-06-09	98	-0.000860
426	9	36	81800	81.3200	2003-06-09	88	-0.002071
427	9	37	67100	81.2700	2003-06-09	66	-0.000984
428	9	38	65000	81.2900	2003-06-09	79	0.000369
429	9	39	147400	81.2800	2003-06-09	90	0.000000
430	9	40	33200	81.2700	2003-06-09	53	-0.000144
431	9	41	57600	81.3200	2003-06-09	69	0.000492
432	9	42	35800	81.2800	2003-06-09	71	-0.000492
433	9	43	40000	81.3500	2003-06-09	53	0.000861
434	9	44	53800	81.3000	2003-06-09	64	-0.000738
435	9	45	72200	81.4000	2003-06-09	67	0.001229
436	9	46	43900	81.4200	2003-06-09	65	0.001133
437	9	47	160500	81.5000	2003-06-09	69	0.000982

437	9	47	160500	81.5000	2003-06-09	69	0.000982
438	9	48	90600	81.6300	2003-06-09	93	0.001361
439	9	49	66600	81.6000	2003-06-09	78	-0.000613
440	9	50	108600	81.6500	2003-06-09	79	0.000613
441	9	51	138000	81.5410	2003-06-09	88	-0.000846
442	9	52	211200	81.6500	2003-06-09	113	0.001348
443	9	53	171500	81.8600	2003-06-09	136	0.001956
444	9	54	85900	81.7680	2003-06-09	161	-0.000990
445	9	55	82200	81.8000	2003-06-09	108	0.000367
446	9	56	60300	81.7500	2003-06-09	63	-0.000734
447	9	57	123800	81.5000	2003-06-09	85	-0.003063
448	9	58	89700	81.5700	2003-06-09	87	0.000638
449	9	59	75900	81.6100	2003-06-09	96	0.000245
450	9	60	84200	81.5500	2003-06-09	87	-0.000735
451	9	61	125100	81.6100	2003-06-09	87	0.000613
452	9	62	73300	81.6100	2003-06-09	68	-0.000245
453	9	63	101000	81.7600	2003-06-09	89	0.001959
454	9	64	90000	81.6000	2003-06-09	102	-0.001959
455	9	65	68900	81.5800	2003-06-09	75	-0.000245
456	9	66	132400	81.6800	2003-06-09	73	0.001225
457	9	67	150900	81.6300	2003-06-09	85	-0.001469
458	9	68	171500	81.7200	2003-06-09	76	0.001102
459	9	69	49800	81.7400	2003-06-09	58	0.000122
460	9	70	135400	81.6500	2003-06-09	65	-0.001102
461	9	71	186200	81.7300	2003-06-09	80	0.000245
462	9	72	98400	81.7400	2003-06-09	129	0.000122
463	9	73	175600	81.7500	2003-06-09	95	0.000245
464	9	74	120400	81.7500	2003-06-09	101	0.000367
465	9	75	153800	81.7900	2003-06-09	112	0.000489
466	9	76	179200	81.8900	2003-06-09	130	0.001222
467	9	77	224000	81.9200	2003-06-09	185	0.000244
468	10	0	516400	82.6400	2003-06-10	249	0.003515
469	10	1	347100	82.8000	2003-06-10	142	0.001813
470	10	2	408700	82.6800	2003-06-10	131	-0.002054
471	10	3	222100	82.5700	2003-06-10	109	-0.001331
472	10	4	163400	82.2600	2003-06-10	122	-0.004004
473	10	5	183800	82.4600	2003-06-10	128	0.003036
474	10	6	176300	82.7000	2003-06-10	129	0.003270
475	10	7	228200	82.6500	2003-06-10	142	-0.000254
476	10	8	123600	82.4200	2003-06-10	106	-0.002545
477	10	9	129700	82.1500	2003-06-10	118	-0.003281
478	10	10	121800	82.2700	2003-06-10	123	0.001338
479	10	11	163400	82.3180	2003-06-10	98	0.000583
480	10	12	72400	82.3100	2003-06-10	93	-0.000364
481	10	13	158500	82.3200	2003-06-10	81	-0.000121
482	10	14	125300	82.3500	2003-06-10	110	0.000121
483	10	15	247600	82.2600	2003-06-10	90	-0.001093
484	10	16	49200	82.2000	2003-06-10	100	-0.000730
485	10	17	125100	82.3100	2003-06-10	97	0.001337
486	10	18	181800	82.3700	2003-06-10	115	0.001093
487	10	19	104600	82.3200	2003-06-10	56	-0.000607
488	10	20	81400	82.3580	2003-06-10	78	0.000340
489	10	21	115400	82.4000	2003-06-10	105	0.001093
490	10	22	137500	82.4300	2003-06-10	101	0.000595
491	10	23	106200	82.4100	2003-06-10	104	-0.001092
492	10	24	31900	82.4200	2003-06-10	78	0.000000
493	10	25	233100	82.5300	2003-06-10	78	0.001212
494	10	26	56800	82.4400	2003-06-10	69	-0.001212
495	10	27	77600	82.4100	2003-06-10	100	0.000121
496	10	28	29500	82.3500	2003-06-10	81	-0.000607
497	10	29	31500	82.3980	2003-06-10	65	0.000340
498	10	30	38800	82.5000	2003-06-10	66	0.001334
499	10	31	39600	82.4900	2003-06-10	65	0.000000
500	10	32	45000	82.5500	2003-06-10	69	0.000848
501	10	33	50000	82.5200	2003-06-10	62	-0.000363
502	10	34	27000	82.5700	2003-06-10	60	0.000606
503	10	35	36100	82.5200	2003-06-10	53	-0.000606
504	10	36	43900	82.4600	2003-06-10	54	-0.000606
505	10	37	9500	82.4700	2003-06-10	27	0.000000
506	10	38	24200	82.4200	2003-06-10	37	-0.000485
507	10	39	31200	82.4700	2003-06-10	47	0.000606
508	10	40	75200	82.3700	2003-06-10	47	-0.001335
509	10	41	26000	82.4600	2003-06-10	42	0.000971
510	10	42	45900	82.5200	2003-06-10	103	0.000727
511	10	43	48100	82.4600	2003-06-10	55	0.000121
512	10	44	36100	82.5000	2003-06-10	55	0.000364
513	10	45	27800	82.3500	2003-06-10	65	-0.000121
514	10	46	31000	82.3700	2003-06-10	39	0.000000
515	10	47	21100	82.4000	2003-06-10	34	0.000243
516	10	48	45900	82.3800	2003-06-10	54	-0.000243
517	10	49	28800	82.3800	2003-06-10	59	0.000121
518	10	50	100100	82.3800	2003-06-10	60	0.000486
519	10	51	78200	82.4200	2003-06-10	65	0.000485
520	10	52	43400	82.4000	2003-06-10	44	-0.000243
521	10	53	23400	82.3700	2003-06-10	42	-0.000364
522	10	54	111900	82.2600	2003-06-10	80	-0.000122
523	10	55	62900	82.2700	2003-06-10	99	0.000122
524	10	56	53800	82.2800	2003-06-10	86	-0.000220
525	10	57	40200	82.2300	2003-06-10	73	-0.000365
526	10	58	30700	82.2100	2003-06-10	76	-0.000243
527	10	59	83200	82.1300	2003-06-10	80	-0.000852
528	10	60	133200	81.9000	2003-06-10	114	-0.002683
529	10	61	117900	81.8900	2003-06-10	106	0.001344
530	10	62	48800	81.8500	2003-06-10	94	-0.000366

531	10	63	310000	81.6400	2003-06-10	101	-0.002447
532	10	64	170900	81.6900	2003-06-10	95	0.000735
533	10	65	69800	81.5800	2003-06-10	98	-0.001470
534	10	66	139700	81.5200	2003-06-10	107	-0.000736
535	10	67	84100	81.3100	2003-06-10	85	-0.002579
536	10	68	123200	81.3200	2003-06-10	95	-0.000123
537	10	69	136900	81.4700	2003-06-10	102	0.001597
538	10	70	92900	81.5200	2003-06-10	89	0.000000
539	10	71	64500	81.5400	2003-06-10	90	0.000859
540	10	72	153500	81.6400	2003-06-10	111	0.001226
541	10	73	71300	81.6500	2003-06-10	100	0.000122
542	10	74	99100	81.6400	2003-06-10	95	0.000701
543	10	75	134300	81.7000	2003-06-10	104	0.000612
544	10	76	505700	81.8200	2003-06-10	85	0.001590
545	10	77	228700	81.7000	2003-06-10	105	-0.001468
546	11	0	624900	82.8000	2003-06-11	429	0.000604
547	11	1	237400	82.5200	2003-06-11	161	-0.002662
548	11	2	398500	82.2900	2003-06-11	188	-0.005335
549	11	3	293100	82.5400	2003-06-11	179	0.003094
550	11	4	205300	82.5600	2003-06-11	142	0.000363
551	11	5	257000	82.7800	2003-06-11	163	0.002782
552	11	6	185100	82.7800	2003-06-11	166	0.000000
553	11	7	293400	82.9100	2003-06-11	177	0.001690
554	11	8	194100	82.9000	2003-06-11	137	-0.000121
555	11	9	219300	83.1000	2003-06-11	219	0.002289
556	11	10	169800	83.1300	2003-06-11	170	0.000361
557	11	11	215200	83.1500	2003-06-11	174	0.000361
558	11	12	252300	83.2000	2003-06-11	155	0.000601
559	11	13	151700	83.2000	2003-06-11	160	-0.000132
560	11	14	116800	83.2100	2003-06-11	120	0.000000
561	11	15	88200	83.1900	2003-06-11	110	-0.000240
562	11	16	144100	83.2500	2003-06-11	150	0.000601
563	11	17	94100	83.3300	2003-06-11	104	0.000960
564	11	18	119500	83.4200	2003-06-11	135	0.002332
565	11	19	93300	83.3400	2003-06-11	126	-0.000600
566	11	20	65400	83.3700	2003-06-11	107	-0.000186
567	11	21	89500	83.3000	2003-06-11	116	-0.000960
568	11	22	91900	83.2800	2003-06-11	91	-0.000454
569	11	23	38400	83.2700	2003-06-11	56	0.000240
570	11	24	116600	83.1200	2003-06-11	96	-0.002042
571	11	25	114100	83.1900	2003-06-11	114	0.000493
572	11	26	54600	83.1600	2003-06-11	116	-0.000166
573	11	27	143100	83.0300	2003-06-11	151	-0.001685
574	11	28	50500	83.1000	2003-06-11	72	-0.000081
575	11	29	90800	83.2950	2003-06-11	108	0.002344
576	11	30	71400	83.2700	2003-06-11	94	0.001053
577	11	31	88800	83.3600	2003-06-11	85	0.000960
578	11	32	79300	83.3700	2003-06-11	98	0.001019
579	11	33	51200	83.3900	2003-06-11	62	0.000240
580	11	34	71200	83.4500	2003-06-11	93	0.001073
581	11	35	62200	83.4600	2003-06-11	98	0.000120
582	11	36	70000	83.4700	2003-06-11	90	0.000120
583	11	37	99200	83.4800	2003-06-11	92	0.000599
584	11	38	92300	83.4400	2003-06-11	82	-0.000240
585	11	39	23500	83.4400	2003-06-11	46	0.000000
586	11	40	47000	83.4900	2003-06-11	84	0.000599
587	11	41	29600	83.4300	2003-06-11	67	-0.000719
588	11	42	75500	83.4200	2003-06-11	88	0.006299
589	11	43	52200	83.4800	2003-06-11	66	0.000599
590	11	44	66700	83.5500	2003-06-11	75	0.000718
591	11	45	113200	83.5400	2003-06-11	38	0.000479
592	11	46	40500	83.5100	2003-06-11	47	-0.000359
593	11	47	50900	83.5600	2003-06-11	58	0.000239
594	11	48	59100	83.6600	2003-06-11	86	0.001076
595	11	49	58400	83.5920	2003-06-11	55	-0.000574
596	11	50	66100	83.6000	2003-06-11	87	0.000000
597	11	51	94100	83.4300	2003-06-11	123	-0.002275
598	11	52	57800	83.3600	2003-06-11	96	-0.000600
599	11	53	66600	83.5000	2003-06-11	86	0.001678
600	11	54	130400	83.5500	2003-06-11	93	0.000599
601	11	55	110300	83.6300	2003-06-11	77	0.000718
602	11	56	68600	83.7300	2003-06-11	63	0.001195
603	11	57	64500	83.7200	2003-06-11	84	-0.000119
604	11	58	45400	83.6500	2003-06-11	84	-0.000836
605	11	59	40900	83.6700	2003-06-11	78	0.000478
606	11	60	107100	83.6300	2003-06-11	68	-0.000371
607	11	61	63400	83.6200	2003-06-11	87	-0.000120
608	11	62	72300	83.6200	2003-06-11	66	-0.000120
609	11	63	87000	83.7450	2003-06-11	60	0.001494
610	11	64	204700	83.9500	2003-06-11	151	0.002385
611	11	65	70900	83.8700	2003-06-11	97	-0.000953
612	11	66	82900	83.9000	2003-06-11	130	0.000358
613	11	67	86600	83.9100	2003-06-11	120	0.000119
614	11	68	83500	83.8100	2003-06-11	121	-0.001312
615	11	69	72900	83.9700	2003-06-11	125	0.001907
616	11	70	63500	83.8200	2003-06-11	102	-0.001669
617	11	71	82300	83.9600	2003-06-11	130	0.001550
618	11	72	120000	83.9300	2003-06-11	135	-0.000238
619	11	73	86200	83.8600	2003-06-11	131	-0.000954
620	11	74	90800	83.9200	2003-06-11	115	-0.000077
621	11	75	254900	84.0500	2003-06-11	203	0.001667
622	11	76	218400	84.0900	2003-06-11	191	0.000464
623	11	77	247700	83.9500	2003-06-11	127	-0.001666
624	12	0	430400	84.9200	2003-06-12	327	0.001414

	~~	~~	~~	~~	~~	~~	~~
625	12	1	204900	84.7400	2003-06-12	145	-0.002828
626	12	2	173900	84.5800	2003-06-12	123	-0.000827
627	12	3	163700	84.6800	2003-06-12	126	0.000354
628	12	4	138300	84.5800	2003-06-12	144	-0.001300
629	12	5	128000	84.4000	2003-06-12	138	-0.002012
630	12	6	202100	84.3000	2003-06-12	128	-0.002961
631	12	7	190600	84.4500	2003-06-12	133	0.001896
632	12	8	165600	84.3000	2003-06-12	145	-0.000832
633	12	9	151300	84.1500	2003-06-12	142	-0.001781
634	12	10	118900	84.2800	2003-06-12	130	0.001900
635	12	11	135600	84.3000	2003-06-12	118	-0.000012
636	12	12	73700	84.4800	2003-06-12	102	0.002871
637	12	13	97300	84.5800	2003-06-12	102	0.011535
638	12	14	125300	84.5500	2003-06-12	139	0.001071
639	12	15	83600	84.5900	2003-06-12	96	0.000710
640	12	16	85200	84.7100	2003-06-12	121	0.001418
641	12	17	37700	84.6400	2003-06-12	76	-0.000827
642	12	18	75200	84.4500	2003-06-12	104	-0.002720
643	12	19	84300	84.3800	2003-06-12	104	-0.000948
644	12	20	52500	84.3900	2003-06-12	93	0.000119
645	12	21	66100	84.3500	2003-06-12	105	0.000000
646	12	22	59800	83.6500	2003-06-12	69	-0.008559
647	12	23	83100	84.6600	2003-06-12	57	0.001537
648	12	24	54900	84.6100	2003-06-12	87	0.000291
649	12	25	270100	84.5700	2003-06-12	72	-0.000473
650	12	26	51200	84.5300	2003-06-12	71	-0.000473
651	12	27	74800	84.4900	2003-06-12	70	-0.000535
652	12	28	92900	84.4990	2003-06-12	89	0.000107
653	12	29	54000	84.3300	2003-06-12	84	-0.002014
654	12	30	57800	84.3600	2003-06-12	84	-0.000237
655	12	31	46400	84.3700	2003-06-12	56	0.000000
656	12	32	30600	84.3500	2003-06-12	36	-0.000474
657	12	33	101500	84.2200	2003-06-12	91	-0.001424
658	12	34	31600	84.3100	2003-06-12	44	-0.000484
659	12	35	30700	84.3000	2003-06-12	65	-0.000119
660	12	36	47800	84.3500	2003-06-12	47	0.000593
661	12	37	51800	84.5050	2003-06-12	70	0.001741
662	12	38	43600	84.4000	2003-06-12	91	0.000056
663	12	39	32000	84.4700	2003-06-12	61	0.000474
664	12	40	25800	84.4300	2003-06-12	45	-0.000592
665	12	41	26700	84.4800	2003-06-12	49	0.000947
666	12	42	29900	84.3300	2003-06-12	57	-0.001422
667	12	43	43600	84.3400	2003-06-12	57	0.000237
668	12	44	67700	84.3600	2003-06-12	37	-0.000089
669	12	45	38800	84.3500	2003-06-12	60	0.000000
670	12	46	32500	84.4700	2003-06-12	55	0.001422
671	12	47	31800	84.4900	2003-06-12	59	0.000237
672	12	48	52100	84.4000	2003-06-12	81	-0.000322
673	12	49	44600	84.3400	2003-06-12	72	-0.000711
674	12	50	36600	84.3400	2003-06-12	43	0.000119
675	12	51	70900	84.1700	2003-06-12	73	-0.001781
676	12	52	108700	83.9900	2003-06-12	145	-0.002141
677	12	53	70400	83.9500	2003-06-12	99	-0.000476
678	12	54	73200	83.7900	2003-06-12	113	-0.002515
679	12	55	80300	83.8600	2003-06-12	124	0.000716
680	12	56	31900	83.9000	2003-06-12	68	0.000477
681	12	57	103200	84.0100	2003-06-12	63	0.001787
682	12	58	48400	83.9000	2003-06-12	87	0.000137
683	12	59	72400	83.7500	2003-06-12	99	-0.001789
684	12	60	108000	83.8100	2003-06-12	107	0.000597
685	12	61	60500	83.7300	2003-06-12	82	-0.000955
686	12	62	58200	83.8400	2003-06-12	75	0.001313
687	12	63	95400	83.8700	2003-06-12	67	0.000477
688	12	64	28700	83.8200	2003-06-12	69	-0.000954
689	12	65	36800	83.7900	2003-06-12	54	-0.000119
690	12	66	52000	83.9600	2003-06-12	87	0.001638
691	12	67	57400	83.7500	2003-06-12	77	-0.002743
692	12	68	84600	83.6000	2003-06-12	119	-0.001434
693	12	69	62800	83.8000	2003-06-12	86	0.002389
694	12	70	64500	83.9600	2003-06-12	89	0.001788
695	12	71	51500	83.9500	2003-06-12	82	-0.000119
696	12	72	64700	83.9400	2003-06-12	84	0.000205
697	12	73	63400	83.9200	2003-06-12	76	-0.000477
698	12	74	149000	83.9000	2003-06-12	88	-0.000238
699	12	75	157800	83.9980	2003-06-12	96	0.001167
700	12	76	159600	84.0500	2003-06-12	91	0.000476
701	12	77	145600	83.9800	2003-06-12	130	-0.000714
702	13	0	159100	84.1000	2003-06-13	177	-0.000594
703	13	1	79200	83.9100	2003-06-13	108	-0.002262
704	13	2	67600	83.8700	2003-06-13	110	-0.000370
705	13	3	651700	83.5700	2003-06-13	148	-0.003583
706	13	4	159600	83.6300	2003-06-13	163	0.002034
707	13	5	118100	83.6350	2003-06-13	110	-0.000179
708	13	6	102100	83.2900	2003-06-13	119	-0.004193
709	13	7	123400	83.0400	2003-06-13	148	-0.003006
710	13	8	134500	82.9200	2003-06-13	165	-0.001446
711	13	9	132700	83.0000	2003-06-13	124	0.002413
712	13	10	90200	83.0600	2003-06-13	106	0.000964
713	13	11	75000	83.0300	2003-06-13	116	-0.000241
714	13	12	68100	83.0000	2003-06-13	128	-0.000482
715	13	13	72800	83.1300	2003-06-13	78	0.001204
716	13	14	101000	82.8500	2003-06-13	112	-0.002291
717	13	15	49200	82.9500	2003-06-13	75	0.000603
718	13	16	77200	83.0100	2003-06-13	73	0.000615

```
718    13    16    77300    83.0100    2003-06-13     72   0.000615
719    13    17    42500    82.8800    2003-06-13     74  -0.001326
720    13    18    65200    82.8800    2003-06-13    123   0.000000
721    13    19    74600    82.7600    2003-06-13    113  -0.001087
722    13    20    80400    82.8200    2003-06-13    134   0.000725
723    13    21    63100    82.7800    2003-06-13     99  -0.000604
724    13    22    46800    82.7800    2003-06-13     93  -0.000045
725    13    23    45000    82.8800    2003-06-13     63   0.001086
726    13    24    71000    82.9700    2003-06-13     93   0.001085
727    13    25    45300    83.0400    2003-06-13     78   0.000723
728    13    26    45900    82.9900    2003-06-13     83  -0.000241
729    13    27    39400    82.9300    2003-06-13     65  -0.000723
730    13    28    28900    83.0500    2003-06-13     65   0.000723
731    13    29    28200    82.9600    2003-06-13     51  -0.001084
732    13    30    36700    82.8180    2003-06-13     73  -0.002299
733    13    31    32700    82.7900    2003-06-13     68  -0.000483
734    13    32    33300    82.8700    2003-06-13     64   0.000110
735    13    33    25700    82.8900    2003-06-13     43   0.000241
736    13    34    42200    83.0200    2003-06-13     90   0.001954
737    13    35    43700    83.1000    2003-06-13     63   0.000963
738    13    36    34200    83.0600    2003-06-13     45   0.000477
739    13    37    15600    83.0500    2003-06-13     44   0.000000
740    13    38    31500    83.0900    2003-06-13     51   0.000482
741    13    39    42700    83.1000    2003-06-13     48   0.000120
742    13    40    30000    83.0700    2003-06-13     50  -0.000361
743    13    41    20100    83.0400    2003-06-13     42  -0.000241
744    13    42    21600    83.0700    2003-06-13     45   0.000602
745    13    43    17400    83.1100    2003-06-13     44   0.000481
746    13    44    16800    83.0100    2003-06-13     41  -0.001204
747    13    45    32800    82.9400    2003-06-13     70  -0.000844
748    13    46    33200    82.8900    2003-06-13     50  -0.000603
749    13    47    94700    82.8600    2003-06-13     87   0.000724
750    13    48    27400    82.8600    2003-06-13     59   0.000241
751    13    49   111900    82.7400    2003-06-13    109  -0.000966
752    13    50    35900    82.7800    2003-06-13     77   0.000604
753    13    51    23500    82.8900    2003-06-13     60   0.001207
754    13    52    20300    82.8100    2003-06-13     50  -0.000362
755    13    53    31200    82.7500    2003-06-13     50  -0.000362
756    13    54    48900    82.7000    2003-06-13     83  -0.000725
757    13    55    26200    82.8600    2003-06-13     63   0.001933
758    13    56    26500    82.9000    2003-06-13     61   0.000965
759    13    57    35100    82.8400    2003-06-13     46  -0.000724
760    13    58   106600    82.8000    2003-06-13     54  -0.000604
761    13    59   104900    82.9000    2003-06-13     72   0.001207
762    13    60    44300    82.9000    2003-06-13     62   0.000121
763    13    61    73400    82.8500    2003-06-13     90  -0.000965
764    13    62    45500    82.7600    2003-06-13     93  -0.001208
765    13    63    58100    82.6500    2003-06-13     86  -0.001209
766    13    64    44600    82.6800    2003-06-13     85   0.000121
767    13    65   145400    82.6800    2003-06-13     94   0.000484
768    13    66    63100    82.6400    2003-06-13     93  -0.000484
769    13    67    89000    82.5600    2003-06-13    109  -0.000969
770    13    68    63300    82.6300    2003-06-13     91   0.000605
771    13    69    96800    82.7600    2003-06-13    116   0.001693
772    13    70    53600    82.7200    2003-06-13     93  -0.000604
773    13    71    46900    82.8800    2003-06-13     80   0.002053
774    13    72    67900    82.9200    2003-06-13    111   0.000483
775    13    73    90000    82.9300    2003-06-13    106   0.000121
776    13    74   131500    82.8100    2003-06-13    122  -0.001086
777    13    75    93500    82.7900    2003-06-13    114  -0.000242
778    13    76   127800    82.7500    2003-06-13    106  -0.000846
779    13    77   239000    82.8100    2003-06-13    158   0.000604
780    16     0   180900    83.1900    2003-06-16    208   0.001082
781    16     1   113800    82.9940    2003-06-16    109  -0.002359
782    16     2    96400    82.8600    2003-06-16    119  -0.001206
783    16     3   104200    82.9100    2003-06-16    112   0.000121
784    16     4   146800    82.6600    2003-06-16    100  -0.002899
785    16     5   165600    82.7000    2003-06-16    129   0.000605
786    16     6   121100    82.8500    2003-06-16    143   0.001570
787    16     7    88100    82.7700    2003-06-16     91  -0.000966
788    16     8   110700    82.8000    2003-06-16    102   0.000362
789    16     9    54200    82.8100    2003-06-16     87   0.000242
790    16    10   107300    82.8700    2003-06-16     94  -0.000121
791    16    11    61000    82.9800    2003-06-16     84   0.000965
792    16    12    73800    83.0520    2003-06-16    101   0.000747
793    16    13    82900    83.1300    2003-06-16     84   0.000963
794    16    14   181100    83.5700    2003-06-16    165   0.005399
795    16    15   173500    83.6400    2003-06-16    153   0.001675
796    16    16    76800    83.6800    2003-06-16     83   0.000120
797    16    17   100400    83.5000    2003-06-16     96  -0.001197
798    16    18   116500    83.6100    2003-06-16    135   0.001796
799    16    19    49000    83.5600    2003-06-16    109  -0.000718
800    16    20    81300    83.6500    2003-06-16     92   0.000957
801    16    21    53100    83.6200    2003-06-16     81  -0.000239
802    16    22    59200    83.7000    2003-06-16     99   0.000837
803    16    23   104300    83.5400    2003-06-16     95  -0.001794
804    16    24    63300    83.6000    2003-06-16     93   0.000957
805    16    25    92800    83.7200    2003-06-16     92   0.001554
806    16    26    74300    83.5400    2003-06-16     92  -0.002152
807    16    27    53200    83.5500    2003-06-16     89   0.000000
808    16    28    36400    83.5600    2003-06-16     80   0.000000
809    16    29    42800    83.6900    2003-06-16     68   0.001674
810    16    30    42300    83.7800    2003-06-16     62   0.000609
811    16    31    52100    83.7200    2003-06-16     91  -0.000716
```

812	16	32	36000	83.6300	2003-06-16	60	-0.000825
813	16	33	55400	83.6500	2003-06-16	70	0.000239
814	16	34	42400	83.7800	2003-06-16	91	0.001433
815	16	35	66200	83.7300	2003-06-16	92	-0.000597
816	16	36	53000	83.7700	2003-06-16	95	0.000478
817	16	37	32600	83.8300	2003-06-16	70	0.000835
818	16	38	18100	83.7000	2003-06-16	53	-0.001206
819	16	39	40500	83.7400	2003-06-16	65	0.000478
820	16	40	24300	83.6700	2003-06-16	64	-0.000896
821	16	41	18800	83.6800	2003-06-16	54	0.000120
822	16	42	30900	83.6900	2003-06-16	77	0.000359
823	16	43	314600	83.5500	2003-06-16	62	-0.001555
824	16	44	159700	83.5700	2003-06-16	69	0.000239
825	16	45	44900	83.6400	2003-06-16	58	0.000598
826	16	46	46000	83.6900	2003-06-16	66	0.000359
827	16	47	26300	83.6500	2003-06-16	46	-0.000478
828	16	48	77200	83.6500	2003-06-16	60	-0.000120
829	16	49	35800	83.6300	2003-06-16	64	-0.000239
830	16	50	38500	83.6700	2003-06-16	76	0.000598
831	16	51	18700	83.6200	2003-06-16	51	-0.000717
832	16	52	22700	83.6400	2003-06-16	59	0.000120
833	16	53	17600	83.6500	2003-06-16	51	-0.000239
834	16	54	27700	83.7000	2003-06-16	78	0.000717
835	16	55	68200	83.6600	2003-06-16	47	-0.000239
836	16	56	53600	83.7100	2003-06-16	87	0.000358
837	16	57	27200	83.7000	2003-06-16	59	-0.000119
838	16	58	44200	83.7100	2003-06-16	85	0.000119
839	16	59	144600	83.7800	2003-06-16	92	0.000537
840	16	60	64400	83.8400	2003-06-16	84	0.000597
841	16	61	51500	83.7700	2003-06-16	82	-0.000955
842	16	62	58400	83.7800	2003-06-16	69	0.000119
843	16	63	17600	83.7720	2003-06-16	51	-0.000215
844	16	64	43400	83.7800	2003-06-16	59	0.000000
845	16	65	45300	83.7600	2003-06-16	60	0.000000
846	16	66	72400	83.7000	2003-06-16	78	-0.000597
847	16	67	58800	83.6500	2003-06-16	88	-0.000598
848	16	68	84200	83.8600	2003-06-16	72	0.002507
849	16	69	144800	83.6600	2003-06-16	102	-0.002269
850	16	70	80800	83.6500	2003-06-16	79	0.000359
851	16	71	78000	83.7180	2003-06-16	95	-0.000502
852	16	72	123200	83.9500	2003-06-16	106	0.002743
853	16	73	186000	84.0600	2003-06-16	158	0.001429
854	16	74	158400	84.1000	2003-06-16	130	0.000595
855	16	75	137400	84.2000	2003-06-16	153	0.001188
856	16	76	160500	84.2000	2003-06-16	138	0.000000
857	16	77	302900	84.5400	2003-06-16	174	0.004149
858	17	0	293200	84.4200	2003-06-17	244	-0.006259
859	17	1	153600	84.6400	2003-06-17	123	0.001419
860	17	2	88800	84.2500	2003-06-17	110	-0.004618
861	17	3	165500	83.9900	2003-06-17	135	-0.003091
862	17	4	176100	84.1100	2003-06-17	140	0.001309
863	17	5	83900	84.1400	2003-06-17	122	0.000594
864	17	6	144800	84.5100	2003-06-17	160	0.004388
865	17	7	152200	84.4200	2003-06-17	160	-0.001066
866	17	8	86900	84.4500	2003-06-17	144	0.000237
867	17	9	74900	84.2700	2003-06-17	117	-0.002134
868	17	10	95800	84.1000	2003-06-17	116	-0.001426
869	17	11	121900	84.1500	2003-06-17	124	0.000119
870	17	12	115200	84.2500	2003-06-17	116	0.001188
871	17	13	78500	84.0600	2003-06-17	97	-0.001783
872	17	14	93600	83.9500	2003-06-17	120	-0.000833
873	17	15	109100	83.9400	2003-06-17	146	0.000226
874	17	16	48700	84.0200	2003-06-17	79	0.001072
875	17	17	58700	84.1100	2003-06-17	89	0.000952
876	17	18	65800	84.1000	2003-06-17	94	-0.000119
877	17	19	56900	84.2000	2003-06-17	92	0.001307
878	17	20	48500	84.1700	2003-06-17	69	-0.000356
879	17	21	49300	84.2100	2003-06-17	76	0.000713
880	17	22	68800	84.2700	2003-06-17	78	0.000594
881	17	23	53800	84.3500	2003-06-17	107	0.000949
882	17	24	45000	84.2866	2003-06-17	80	0.000078
883	17	25	38700	84.3400	2003-06-17	70	0.001068
884	17	26	44400	84.3800	2003-06-17	81	0.000593
885	17	27	42200	84.3400	2003-06-17	87	-0.000593
886	17	28	26800	84.3900	2003-06-17	64	0.000830
887	17	29	83400	84.5300	2003-06-17	122	0.001658
888	17	30	147800	84.5000	2003-06-17	92	-0.000355
889	17	31	121800	84.5600	2003-06-17	94	0.000828
890	17	32	54200	84.5000	2003-06-17	75	-0.000710
891	17	33	53300	84.3300	2003-06-17	64	-0.001540
892	17	34	51200	84.3500	2003-06-17	86	0.000237
893	17	35	27600	84.4700	2003-06-17	69	0.001540
894	17	36	25500	84.4200	2003-06-17	52	-0.000474
895	17	37	50600	84.5200	2003-06-17	83	0.001302
896	17	38	38300	84.5500	2003-06-17	92	0.000473
897	17	39	57600	84.4600	2003-06-17	55	-0.000710
898	17	40	28700	84.3900	2003-06-17	64	-0.001066
899	17	41	15800	84.4900	2003-06-17	56	0.000829
900	17	42	31200	84.3700	2003-06-17	56	-0.000582
901	17	43	17800	84.3700	2003-06-17	58	-0.000119
902	17	44	29900	84.4900	2003-06-17	62	0.001184
903	17	45	18400	84.5500	2003-06-17	43	0.000592
904	17	46	34300	84.5600	2003-06-17	55	0.001393
905	17	47	76100	84.6200	2003-06-17	81	0.000591

905	17	17	70100	84.6200	2003-06-17	91	-0.000591
906	17	48	49500	84.4600	2003-06-17	97	-0.001695
907	17	49	22000	84.4700	2003-06-17	59	0.000237
908	17	50	20700	84.5000	2003-06-17	47	0.000212
909	17	51	45800	84.3600	2003-06-17	68	-0.000593
910	17	52	39100	84.3200	2003-06-17	81	-0.000593
911	17	53	71400	84.2000	2003-06-17	66	-0.001412
912	17	54	48700	84.2200	2003-06-17	75	0.000238
913	17	55	77000	84.2300	2003-06-17	77	0.000119
914	17	56	31000	84.3400	2003-06-17	78	0.001640
915	17	57	32300	84.2700	2003-06-17	63	-0.000712
916	17	58	35700	84.2800	2003-06-17	71	0.000119
917	17	59	38400	84.1700	2003-06-17	72	-0.001543
918	17	60	74000	84.2500	2003-06-17	84	0.001069
919	17	61	47500	84.1400	2003-06-17	67	-0.001306
920	17	62	35000	84.2300	2003-06-17	69	0.000334
921	17	63	48600	84.3000	2003-06-17	82	0.000712
922	17	64	81100	84.4900	2003-06-17	98	0.002832
923	17	65	78300	84.4100	2003-06-17	88	-0.000711
924	17	66	30000	84.4400	2003-06-17	86	0.000592
925	17	67	116500	84.3100	2003-06-17	100	-0.002251
926	17	68	50600	84.3800	2003-06-17	100	-0.000033
927	17	69	85300	84.2500	2003-06-17	80	-0.001660
928	17	70	160000	84.5000	2003-06-17	92	0.002963
929	17	71	49600	84.3690	2003-06-17	82	-0.001551
930	17	72	41100	84.4800	2003-06-17	99	0.001021
931	17	73	116300	84.3100	2003-06-17	112	-0.002133
932	17	74	89800	84.2900	2003-06-17	116	-0.001324
933	17	75	60500	84.2700	2003-06-17	111	-0.000119
934	17	76	108400	84.2000	2003-06-17	114	-0.000831
935	17	77	187900	84.2400	2003-06-17	109	0.000594
936	18	0	231700	84.0400	2003-06-18	236	-0.001308
937	18	1	132400	83.8500	2003-06-18	139	-0.002263
938	18	2	122900	83.7800	2003-06-18	142	-0.000119
939	18	3	100900	83.9500	2003-06-18	137	0.001192
940	18	4	89300	83.8500	2003-06-18	94	0.000086
941	18	5	110800	84.0400	2003-06-18	113	0.002263
942	18	6	85700	84.1300	2003-06-18	121	-0.000238
943	18	7	81700	84.0600	2003-06-18	154	-0.000832
944	18	8	38900	83.9800	2003-06-18	78	-0.001096
945	18	9	65100	84.0500	2003-06-18	107	0.000833
946	18	10	60100	84.0700	2003-06-18	105	0.000238
947	18	11	78000	83.7800	2003-06-18	106	-0.003455
948	18	12	57800	83.9600	2003-06-18	92	0.002015
949	18	13	63300	84.0600	2003-06-18	97	0.001190
950	18	14	96600	83.9400	2003-06-18	87	-0.000953
951	18	15	135600	84.0600	2003-06-18	110	0.001190
952	18	16	100700	84.1500	2003-06-18	148	0.001189
953	18	17	111100	84.3000	2003-06-18	120	0.001425
954	18	18	74100	84.3900	2003-06-18	97	0.001423
955	18	19	109800	84.4800	2003-06-18	105	0.002370
956	18	20	74500	84.3400	2003-06-18	116	-0.001422
957	18	21	43000	84.4300	2003-06-18	76	0.001304
958	18	22	81100	84.6100	2003-06-18	94	0.002149
959	18	23	194600	84.8100	2003-06-18	139	0.002125
960	18	24	115900	84.8100	2003-06-18	93	0.000118
961	18	25	91500	84.9400	2003-06-18	102	0.002357
962	18	26	165000	84.9300	2003-06-18	99	0.000828
963	18	27	74900	84.8800	2003-06-18	101	-0.000471
964	18	28	108700	84.8300	2003-06-18	94	-0.001244
965	18	29	76200	84.8500	2003-06-18	93	0.000000
966	18	30	71700	84.7800	2003-06-18	74	-0.001061
967	18	31	71100	84.7600	2003-06-18	65	-0.000236
968	18	32	53700	84.7900	2003-06-18	80	0.000008
969	18	33	99700	84.9000	2003-06-18	86	0.001179
970	18	34	52800	84.8300	2003-06-18	63	-0.000825
971	18	35	91500	84.6000	2003-06-18	78	-0.002715
972	18	36	77900	84.5800	2003-06-18	87	-0.000118
973	18	37	56500	84.5500	2003-06-18	69	0.000000
974	18	38	31700	84.6100	2003-06-18	54	0.000473
975	18	39	39300	84.6400	2003-06-18	63	0.000355
976	18	40	30100	84.6900	2003-06-18	67	0.001101
977	18	41	87200	84.8900	2003-06-18	80	0.002241
978	18	42	56100	84.8500	2003-06-18	67	-0.000589
979	18	43	58200	84.8700	2003-06-18	70	0.000000
980	18	44	94300	84.8300	2003-06-18	53	-0.000470
981	18	45	42000	84.8500	2003-06-18	39	0.000236
982	18	46	39600	84.6700	2003-06-18	47	-0.002006
983	18	47	62600	84.7000	2003-06-18	50	0.000354
984	18	48	54300	84.8200	2003-06-18	47	0.001168
985	18	49	23500	84.7400	2003-06-18	36	-0.000708
986	18	50	27400	84.5700	2003-06-18	46	-0.002492
987	18	51	39000	84.7400	2003-06-18	57	0.002008
988	18	52	23100	84.7200	2003-06-18	48	-0.000708
989	18	53	33900	84.8000	2003-06-18	62	0.000708
990	18	54	25000	84.7500	2003-06-18	66	-0.000177
991	18	55	27900	84.6700	2003-06-18	73	-0.000590
992	18	56	29000	84.6000	2003-06-18	69	-0.000827
993	18	57	32200	84.6300	2003-06-18	72	0.000355
994	18	58	35400	84.5900	2003-06-18	70	-0.000945
995	18	59	31700	84.6200	2003-06-18	57	0.000236
996	18	60	83700	84.5000	2003-06-18	82	-0.001072
997	18	61	51400	84.5000	2003-06-18	80	0.000118
998	18	62	64100	84.4000	2003-06-18	101	-0.001539
999	18	63	38000	84.3900	2003-06-18	71	-0.000119

```
 999    18    63     39200   84.3900  2003-06-18    71  -0.000118
1000    18    64     40400   84.4600  2003-06-18    81   0.000829
1001    18    65     56300   84.4500  2003-06-18    98  -0.000118
1002    18    66     40900   84.4400  2003-06-18    78  -0.000118
1003    18    67     30500   84.4900  2003-06-18    71   0.001066
1004    18    68     51800   84.3500  2003-06-18    87  -0.001777
1005    18    69     60800   84.3200  2003-06-18    81   0.000000
1006    18    70     54800   84.3700  2003-06-18    77   0.000711
1007    18    71     58500   84.3100  2003-06-18    59  -0.000830
1008    18    72     38400   84.2800  2003-06-18    64  -0.000888
1009    18    73     94100   84.5600  2003-06-18    71   0.001420
1010    18    74     57100   84.4100  2003-06-18    73  -0.001894
1011    18    75     75800   84.4400  2003-06-18    65   0.000237
1012    18    76    120700   84.6000  2003-06-18    70   0.001893
1013    18    77    225100   84.6900  2003-06-18   120   0.001181
1014    19     0    256000   84.9100  2003-06-19   154  -0.000471
1015    19     1    149800   84.9800  2003-06-19    99   0.000824
1016    19     2    114200   84.9400  2003-06-19   122  -0.000471
1017    19     3    113500   84.9000  2003-06-19    90  -0.000471
1018    19     4     92100   84.9000  2003-06-19    86   0.000000
1019    19     5     71000   84.8600  2003-06-19   102  -0.000377
1020    19     6    317000   84.8600  2003-06-19   315   0.000118
1021    19     7    172200   85.2400  2003-06-19   151   0.003997
1022    19     8    143700   85.1300  2003-06-19   165  -0.001057
1023    19     9     76000   85.0600  2003-06-19   100  -0.000705
1024    19    10     91000   84.9600  2003-06-19    76  -0.001529
1025    19    11    100800   84.9200  2003-06-19    73  -0.000824
1026    19    12     82500   85.0500  2003-06-19    80   0.000941
1027    19    13     95300   84.8800  2003-06-19   107  -0.001766
1028    19    14    110400   84.8800  2003-06-19    79   0.000000
1029    19    15     76800   84.9500  2003-06-19    94   0.000942
1030    19    16     67300   84.9300  2003-06-19    85  -0.000235
1031    19    17    108500   85.0700  2003-06-19    80   0.001647
1032    19    18    251500   84.9000  2003-06-19   101  -0.002001
1033    19    19     79600   84.9000  2003-06-19    83   0.000118
1034    19    20    141800   84.8400  2003-06-19    75  -0.000825
1035    19    21    111200   84.8900  2003-06-19    89   0.000589
1036    19    22     67000   84.9000  2003-06-19    69   0.000118
1037    19    23     31800   84.8600  2003-06-19    75  -0.000589
1038    19    24    109800   84.7000  2003-06-19   109  -0.001769
1039    19    25     82500   84.6500  2003-06-19    64   0.000000
1040    19    26     93000   84.7100  2003-06-19    74   0.000590
1041    19    27    119900   84.7500  2003-06-19    89   0.000118
1042    19    28     52200   84.7700  2003-06-19    74   0.000236
1043    19    29    140000   84.8300  2003-06-19    74   0.000944
1044    19    30    248700   84.7400  2003-06-19    85  -0.000944
1045    19    31     70000   84.7000  2003-06-19    86  -0.000472
1046    19    32     75200   84.6900  2003-06-19    67  -0.000118
1047    19    33     72800   84.6400  2003-06-19    60  -0.000591
1048    19    34     68600   84.7100  2003-06-19    79   0.001063
1049    19    35     53300   84.7100  2003-06-19    75   0.000118
1050    19    36    112400   84.7600  2003-06-19    84   0.000708
1051    19    37     50200   84.7800  2003-06-19    67   0.000236
1052    19    38     37800   84.7500  2003-06-19    51  -0.000472
1053    19    39     30100   84.7800  2003-06-19    48   0.000354
1054    19    40     59100   84.8600  2003-06-19    58   0.000943
1055    19    41     53300   84.9300  2003-06-19    74   0.000942
1056    19    42     95200   84.9000  2003-06-19    58  -0.000236
1057    19    43     38300   84.8000  2003-06-19    61  -0.001179
1058    19    44     29600   84.9000  2003-06-19    72   0.001179
1059    19    45     27000   84.9400  2003-06-19    57   0.000471
1060    19    46     25300   84.8900  2003-06-19    45  -0.000707
1061    19    47     21000   84.9600  2003-06-19    56   0.000824
1062    19    48     66700   85.0000  2003-06-19    98   0.000471
1063    19    49     74300   85.0000  2003-06-19    61   0.000000
1064    19    50     32600   84.9400  2003-06-19    66  -0.000706
1065    19    51     16500   85.0500  2003-06-19    43   0.001412
1066    19    52     63400   85.0490  2003-06-19    49  -0.000012
1067    19    53     44600   85.1200  2003-06-19    84   0.000705
1068    19    54     55100   85.0500  2003-06-19    85  -0.000940
1069    19    55     34700   85.0100  2003-06-19    71  -0.000470
1070    19    56     43300   84.9200  2003-06-19    85  -0.001059
1071    19    57     38000   85.0000  2003-06-19    71   0.000706
1072    19    58     51600   85.1800  2003-06-19    75   0.002233
1073    19    59     45900   85.2000  2003-06-19    81   0.000235
1074    19    60     97300   85.1600  2003-06-19    80  -0.000587
1075    19    61     36300   85.1200  2003-06-19    71  -0.000587
1076    19    62     27100   85.1300  2003-06-19    61   0.000235
1077    19    63     46900   85.0500  2003-06-19    70  -0.001058
1078    19    64     32500   85.0300  2003-06-19    60  -0.000235
1079    19    65     51400   84.9400  2003-06-19    83  -0.000941
1080    19    66     50800   84.9600  2003-06-19    88   0.000353
1081    19    67     43300   84.9600  2003-06-19    77   0.000118
1082    19    68     91500   84.9300  2003-06-19    81  -0.000235
1083    19    69    101500   84.6800  2003-06-19    96  -0.002712
1084    19    70     72300   84.6900  2003-06-19   110   0.000000
1085    19    71     83700   84.6600  2003-06-19   102  -0.000354
1086    19    72    105600   84.5500  2003-06-19   110  -0.001773
1087    19    73     52000   84.5600  2003-06-19    92   0.000118
1088    19    74    151300   84.6200  2003-06-19   126   0.001419
1089    19    75    109900   84.6100  2003-06-19    88  -0.000118
1090    19    76    146400   84.5700  2003-06-19   121  -0.000473
1091    19    77    219500   84.6600  2003-06-19   111   0.001300
1092    20     0   2153300   85.0600  2003-06-20   147   0.000706
```

```
1093   20    1   190600   84.9100   2003-06-20   124   -0.001765
1094   20    2   108500   84.9200   2003-06-20   103    0.000000
1095   20    3   165500   85.0100   2003-06-20   104    0.001177
1096   20    4   133900   84.8000   2003-06-20   112   -0.002944
1097   20    5   107800   84.9900   2003-06-20   125    0.002592
1098   20    6   331100   85.0100   2003-06-20   125    0.000235
1099   20    7   221200   84.9900   2003-06-20   113   -0.000235
1100   20    8   169200   85.0100   2003-06-20   135    0.000235
1101   20    9   111200   84.8000   2003-06-20    93   -0.002473
1102   20   10    89900   84.8500   2003-06-20    92    0.000472
1103   20   11    73500   84.8900   2003-06-20    97    0.000471
1104   20   12    87600   84.9900   2003-06-20   114    0.001095
1105   20   13    81900   84.9600   2003-06-20    95   -0.000353
1106   20   14   141800   85.1300   2003-06-20   101    0.001753
1107   20   15   127200   85.1600   2003-06-20   115    0.000705
1108   20   16    59000   85.0800   2003-06-20    80   -0.001057
1109   20   17    75000   85.0900   2003-06-20    80    0.000000
1110   20   18   102900   85.1100   2003-06-20    83    0.000118
1111   20   19    69900   85.1300   2003-06-20    75    0.000588
1112   20   20    72300   85.1600   2003-06-20    92    0.000511
1113   20   21    58900   85.1400   2003-06-20    91    0.000117
1114   20   22    49600   85.1300   2003-06-20    68   -0.000235
1115   20   23    53500   85.1000   2003-06-20    75   -0.000235
1116   20   24    45900   85.0900   2003-06-20    64   -0.000320
1117   20   25    42400   85.1300   2003-06-20    56    0.000117
1118   20   26    64700   85.0900   2003-06-20    66   -0.000587
1119   20   27    29000   85.0900   2003-06-20    59    0.000118
1120   20   28    40900   85.0800   2003-06-20    62   -0.000442
1121   20   29    52700   85.0800   2003-06-20    62   -0.000118
1122   20   30    36600   85.0600   2003-06-20    57   -0.000353
1123   20   31    25100   85.0800   2003-06-20    45    0.000118
1124   20   32    66800   85.0700   2003-06-20    58   -0.000118
1125   20   33    23200   85.0800   2003-06-20    44    0.000118
1126   20   34    34300   85.0600   2003-06-20    47   -0.000001
1127   20   35    95900   85.1000   2003-06-20    58    0.000353
1128   20   36    67700   85.1500   2003-06-20    62    0.000705
1129   20   37    34200   85.1300   2003-06-20    53   -0.000117
1130   20   38    76900   85.1800   2003-06-20    44    0.000572
1131   20   39    95500   85.1800   2003-06-20    76   -0.000117
1132   20   40    51300   85.2100   2003-06-20    52    0.000333
1133   20   41    62500   85.1600   2003-06-20    59   -0.000587
1134   20   42    47800   85.1000   2003-06-20    64   -0.001061
1135   20   43    64400   85.0700   2003-06-20    70    0.000000
1136   20   44    75400   85.0400   2003-06-20    96   -0.000470
1137   20   45    43400   85.0400   2003-06-20    62    0.000000
1138   20   46   148600   84.8900   2003-06-20   100   -0.001883
1139   20   47    97000   84.8700   2003-06-20    80   -0.000118
1140   20   48   346200   84.8300   2003-06-20   109   -0.000471
1141   20   49    37400   84.9100   2003-06-20    67    0.000943
1142   20   50    86300   84.8100   2003-06-20    83   -0.001061
1143   20   51    47800   84.8400   2003-06-20    86    0.000472
1144   20   52    51000   84.8700   2003-06-20    58    0.000213
1145   20   53    82200   84.8500   2003-06-20    62   -0.000354
1146   20   54    28900   84.8900   2003-06-20    79    0.000825
1147   20   55    66600   84.9000   2003-06-20    95    0.000000
1148   20   56    40800   84.9400   2003-06-20    59    0.000012
1149   20   57    42600   84.9300   2003-06-20    42   -0.000353
1150   20   58    48300   84.9800   2003-06-20    65    0.001060
1151   20   59    83200   84.9000   2003-06-20    71   -0.000942
1152   20   60    44500   84.9400   2003-06-20    69    0.000353
1153   20   61    75900   84.9500   2003-06-20    77    0.000000
1154   20   62    48300   84.9900   2003-06-20    84    0.000353
1155   20   63   141200   85.0000   2003-06-20    58    0.000235
1156   20   64    92100   84.9500   2003-06-20    60   -0.000588
1157   20   65   104300   85.0000   2003-06-20    72    0.000588
1158   20   66   115800   84.9300   2003-06-20    66   -0.000589
1159   20   67    75700   84.8300   2003-06-20    70   -0.001178
1160   20   68    97100   84.9000   2003-06-20    76    0.000707
1161   20   69   106200   84.9000   2003-06-20    72   -0.000118
1162   20   70   152500   84.9700   2003-06-20    76    0.000824
1163   20   71   130600   84.9100   2003-06-20    95   -0.000589
1164   20   72   184900   84.9200   2003-06-20    82    0.000118
1165   20   73   181000   84.9900   2003-06-20    82    0.000824
1166   20   74    98300   84.9800   2003-06-20    82   -0.000118
1167   20   75   135900   84.9210   2003-06-20    91   -0.000812
1168   20   76   255900   84.9300   2003-06-20    96    0.000000
1169   20   77   437400   84.9200   2003-06-20   107    0.000000
1170   23    0   321600   84.5000   2003-06-23   232   -0.003426
1171   23    1   134100   84.2600   2003-06-23   110   -0.002844
1172   23    2   140100   84.1600   2003-06-23   158   -0.000475
1173   23    3   124800   84.1700   2003-06-23   103   -0.000119
1174   23    4    76000   84.1500   2003-06-23   108   -0.000119
1175   23    5   126000   84.3200   2003-06-23    79    0.001424
1176   23    6   139900   84.1000   2003-06-23   140   -0.002613
1177   23    7    79600   84.1900   2003-06-23    99    0.002021
1178   23    8    84100   84.1400   2003-06-23   138   -0.000356
1179   23    9    65500   84.0500   2003-06-23    98   -0.000714
1180   23   10    73700   84.0800   2003-06-23    79    0.000595
1181   23   11   110100   83.9100   2003-06-23   131   -0.001905
1182   23   12   130200   83.8500   2003-06-23   109   -0.000596
1183   23   13   129500   83.8300   2003-06-23   120   -0.000596
1184   23   14   111700   83.8900   2003-06-23   103    0.000715
1185   23   15    77500   83.8600   2003-06-23    86    0.000000
1186   23   16   182200   83.8500   2003-06-23   132   -0.000119
```

1186	23	16	102200	83.6500	2003-06-23	132	-0.000119
1187	23	17	97100	83.7800	2003-06-23	104	-0.001431
1188	23	18	58700	83.7400	2003-06-23	100	-0.000597
1189	23	19	48400	83.7300	2003-06-23	84	-0.000119
1190	23	20	68600	83.6500	2003-06-23	117	-0.000956
1191	23	21	77400	83.5500	2003-06-23	92	-0.001196
1192	23	22	82300	83.5100	2003-06-23	97	-0.000479
1193	23	23	97700	83.5500	2003-06-23	141	0.000479
1194	23	24	100000	83.6700	2003-06-23	126	0.001435
1195	23	25	53200	83.6800	2003-06-23	84	0.000120
1196	23	26	57900	83.5300	2003-06-23	81	-0.001794
1197	23	27	119600	83.6000	2003-06-23	128	0.000838
1198	23	28	70700	83.4700	2003-06-23	103	-0.001916
1199	23	29	28100	83.4900	2003-06-23	68	0.000599
1200	23	30	33200	83.4200	2003-06-23	79	-0.000959
1201	23	31	43100	83.4100	2003-06-23	81	-0.000240
1202	23	32	64800	83.5120	2003-06-23	106	0.001102
1203	23	33	29200	83.4700	2003-06-23	65	-0.000479
1204	23	34	43900	83.4800	2003-06-23	44	0.000120
1205	23	35	57300	83.5200	2003-06-23	74	0.000599
1206	23	36	31600	83.4100	2003-06-23	72	-0.001198
1207	23	37	123100	83.5000	2003-06-23	66	0.001198
1208	23	38	69000	83.4400	2003-06-23	66	-0.000719
1209	23	39	63000	83.4300	2003-06-23	79	0.000000
1210	23	40	28000	83.4500	2003-06-23	58	-0.000240
1211	23	41	29200	83.4200	2003-06-23	51	-0.000360
1212	23	42	66400	83.4200	2003-06-23	61	0.000000
1213	23	43	17900	83.4400	2003-06-23	45	0.000000
1214	23	44	14600	83.5200	2003-06-23	40	0.000838
1215	23	45	42700	83.5700	2003-06-23	59	0.000598
1216	23	46	27300	83.5900	2003-06-23	51	0.000120
1217	23	47	39200	83.5800	2003-06-23	60	-0.000239
1218	23	48	47100	83.5500	2003-06-23	79	-0.000479
1219	23	49	41100	83.4600	2003-06-23	64	-0.000958
1220	23	50	28600	83.3900	2003-06-23	71	-0.000839
1221	23	51	38400	83.4300	2003-06-23	77	0.000480
1222	23	52	27100	83.5300	2003-06-23	75	0.001078
1223	23	53	10200	83.5200	2003-06-23	33	0.000000
1224	23	54	42300	83.4600	2003-06-23	66	-0.000719
1225	23	55	17600	83.4700	2003-06-23	44	0.000120
1226	23	56	65700	83.4700	2003-06-23	55	-0.000120
1227	23	57	32800	83.3600	2003-06-23	67	-0.001079
1228	23	58	39200	83.3200	2003-06-23	63	-0.000600
1229	23	59	55100	83.3300	2003-06-23	101	0.000120
1230	23	60	51300	83.3000	2003-06-23	104	-0.000360
1231	23	61	45900	83.2400	2003-06-23	68	-0.000829
1232	23	62	113800	83.2100	2003-06-23	88	-0.000481
1233	23	63	70800	83.1900	2003-06-23	84	-0.000240
1234	23	64	74000	83.0800	2003-06-23	89	-0.001564
1235	23	65	50400	83.0700	2003-06-23	74	-0.000120
1236	23	66	73400	83.1700	2003-06-23	103	0.000481
1237	23	67	66100	83.0900	2003-06-23	117	-0.000962
1238	23	68	120200	82.9900	2003-06-23	169	-0.001084
1239	23	69	87300	83.0600	2003-06-23	129	0.000723
1240	23	70	80300	83.0700	2003-06-23	131	0.000000
1241	23	71	121200	83.1100	2003-06-23	98	0.000518
1242	23	72	126100	83.1500	2003-06-23	137	0.000481
1243	23	73	92800	83.2100	2003-06-23	90	0.000721
1244	23	74	199400	83.2800	2003-06-23	130	0.001562
1245	23	75	155200	83.2600	2003-06-23	107	-0.000480
1246	23	76	157900	83.2600	2003-06-23	142	0.000000
1247	23	77	174300	83.2600	2003-06-23	127	-0.000120
1248	24	0	213000	83.0600	2003-06-24	165	0.001325
1249	24	1	85100	83.4500	2003-06-24	100	0.004684
1250	24	2	89900	83.7300	2003-06-24	161	0.008063
1251	24	3	84100	83.6500	2003-06-24	118	-0.000956
1252	24	4	61100	83.7600	2003-06-24	100	0.001434
1253	24	5	70900	83.7800	2003-06-24	112	0.000239
1254	24	6	118900	83.7600	2003-06-24	123	0.000956
1255	24	7	113500	83.5000	2003-06-24	123	-0.002990
1256	24	8	107600	83.2900	2003-06-24	114	-0.001919
1257	24	9	78300	83.1200	2003-06-24	120	-0.001803
1258	24	10	90700	83.0500	2003-06-24	101	-0.000963
1259	24	11	74400	83.2600	2003-06-24	93	0.002525
1260	24	12	124200	83.3400	2003-06-24	87	0.001080
1261	24	13	60200	83.2500	2003-06-24	47	-0.001080
1262	24	14	72400	83.1000	2003-06-24	83	-0.000962
1263	24	15	65800	83.2000	2003-06-24	100	0.001082
1264	24	16	73500	83.2600	2003-06-24	89	0.000721
1265	24	17	43700	83.2700	2003-06-24	69	0.000120
1266	24	18	70400	83.2300	2003-06-24	79	-0.000240
1267	24	19	58800	83.3800	2003-06-24	87	0.002041
1268	24	20	62600	83.3500	2003-06-24	115	-0.000360
1269	24	21	55100	83.6000	2003-06-24	94	0.003115
1270	24	22	67700	83.8600	2003-06-24	135	0.002866
1271	24	23	76800	83.7400	2003-06-24	100	-0.001193
1272	24	24	59300	83.7800	2003-06-24	103	0.000478
1273	24	25	37600	83.6300	2003-06-24	84	-0.001673
1274	24	26	47000	83.5100	2003-06-24	93	-0.001316
1275	24	27	37400	83.5700	2003-06-24	82	0.000718
1276	24	28	35500	83.6300	2003-06-24	81	0.000478
1277	24	29	38000	83.6100	2003-06-24	67	0.000000
1278	24	30	33000	83.5700	2003-06-24	66	-0.000718
1279	24	31	54300	83.5000	2003-06-24	104	-0.001077

```
1280   24   32    44800   83.4600  2003-06-24    80  -0.000479
1281   24   33    40400   83.5500  2003-06-24    63   0.000838
1282   24   34    62800   83.6300  2003-06-24    58   0.001817
1283   24   35    36100   83.7000  2003-06-24    64   0.000717
1284   24   36    24800   83.6900  2003-06-24    47   0.001309
1285   24   37    38800   83.7300  2003-06-24    70   0.000597
1286   24   38    13000   83.6600  2003-06-24    33  -0.000717
1287   24   39    20900   83.8200  2003-06-24    56   0.001911
1288   24   40    56600   83.8400  2003-06-24    75  -0.000119
1289   24   41    34200   83.8400  2003-06-24    61   0.000119
1290   24   42    32300   83.8800  2003-06-24    54   0.000716
1291   24   43    26600   83.8600  2003-06-24    66  -0.000238
1292   24   44    36700   83.8400  2003-06-24    59  -0.000239
1293   24   45    20400   83.8000  2003-06-24    55  -0.000477
1294   24   46    29300   83.7800  2003-06-24    64  -0.000239
1295   24   47    45300   83.8600  2003-06-24    64   0.000716
1296   24   48    37300   83.9100  2003-06-24    87   0.000238
1297   24   49    54100   83.9100  2003-06-24    86  -0.000119
1298   24   50    17600   83.9200  2003-06-24    41   0.000238
1299   24   51    27700   83.9100  2003-06-24    79   0.000000
1300   24   52    45200   83.9700  2003-06-24    90   0.000596
1301   24   53    76300   84.0200  2003-06-24   139   0.000953
1302   24   54    70100   84.1600  2003-06-24   124   0.001463
1303   24   55    58500   84.0200  2003-06-24   120  -0.001701
1304   24   56    28800   84.0000  2003-06-24    78  -0.000357
1305   24   57    66800   84.0200  2003-06-24    82   0.000417
1306   24   58    41200   83.9300  2003-06-24   105  -0.001140
1307   24   59    38600   83.8900  2003-06-24    76  -0.000358
1308   24   60    39100   84.0000  2003-06-24    81   0.001191
1309   24   61    55200   83.8400  2003-06-24   100  -0.001907
1310   24   62    68300   83.8000  2003-06-24   131  -0.000358
1311   24   63    57000   83.7100  2003-06-24    91  -0.000836
1312   24   64    80100   83.7900  2003-06-24   109   0.000094
1313   24   65    59000   83.8200  2003-06-24   100   0.000597
1314   24   66    53700   83.8800  2003-06-24   124   0.001448
1315   24   67   125300   83.9200  2003-06-24    89   0.000477
1316   24   68    44200   83.9100  2003-06-24    99   0.000119
1317   24   69    49300   83.9000  2003-06-24    86  -0.000477
1318   24   70    61000   83.9300  2003-06-24    92   0.000477
1319   24   71    54900   83.9900  2003-06-24    66   0.000715
1320   24   72    46600   83.9200  2003-06-24    84  -0.000715
1321   24   73    50800   83.8610  2003-06-24    84  -0.000584
1322   24   74   188700   83.7500  2003-06-24    79  -0.001193
1323   24   75    96100   83.6600  2003-06-24   109  -0.000717
1324   24   76    67300   83.6000  2003-06-24    98  -0.000837
1325   24   77   136300   83.6900  2003-06-24   124   0.000956
1326   25    0   127300   84.1300  2003-06-25   150   0.006918
1327   25    1    54800   83.8000  2003-06-25    63  -0.003574
1328   25    2    59400   83.7500  2003-06-25    88  -0.000597
1329   25    3    79100   83.7700  2003-06-25    85   0.000358
1330   25    4    97200   83.7900  2003-06-25    81   0.000716
1331   25    5    66900   83.7600  2003-06-25    98   0.000060
1332   25    6    66900   83.6890  2003-06-25    80  -0.000848
1333   25    7    72200   83.7800  2003-06-25    95   0.001553
1334   25    8    46400   83.6900  2003-06-25    88  -0.000955
1335   25    9    47100   83.5800  2003-06-25    76  -0.001315
1336   25   10    83700   83.5300  2003-06-25   101  -0.000598
1337   25   11    56000   83.5100  2003-06-25    73   0.000000
1338   25   12    67400   83.7200  2003-06-25    71   0.002631
1339   25   13    59800   83.6200  2003-06-25    72  -0.001195
1340   25   14    43300   83.7500  2003-06-25    79   0.001553
1341   25   15    28700   83.9500  2003-06-25    66   0.002385
1342   25   16    49100   83.9700  2003-06-25    93   0.000238
1343   25   17    71000   83.8000  2003-06-25    78  -0.002265
1344   25   18   105900   83.9900  2003-06-25    98   0.002384
1345   25   19    80700   84.0900  2003-06-25    87   0.000833
1346   25   20    41800   84.1000  2003-06-25    65   0.000714
1347   25   21    41900   84.0100  2003-06-25    77  -0.000952
1348   25   22    56800   83.9450  2003-06-25    55  -0.000774
1349   25   23    44200   83.8100  2003-06-25    86  -0.000716
1350   25   24    28400   83.7900  2003-06-25    62  -0.000239
1351   25   25    21800   83.7900  2003-06-25    62  -0.000239
1352   25   26    45400   83.8100  2003-06-25    60   0.000239
1353   25   27    23300   83.7900  2003-06-25    58  -0.000239
1354   25   28    14700   83.7700  2003-06-25    44   0.000119
1355   25   29    34100   83.7800  2003-06-25    53   0.000000
1356   25   30    37600   83.7900  2003-06-25    57   0.000119
1357   25   31    28900   83.8300  2003-06-25    65   0.000358
1358   25   32    15300   83.7600  2003-06-25    36  -0.000477
1359   25   33    22600   83.8000  2003-06-25    45   0.000477
1360   25   34    15800   83.7500  2003-06-25    37  -0.000477
1361   25   35    18700   83.7400  2003-06-25    46  -0.000119
1362   25   36    19400   83.7400  2003-06-25    52   0.000000
1363   25   37    13900   83.7700  2003-06-25    25   0.000119
1364   25   38    14200   83.7800  2003-06-25    20   0.000119
1365   25   39    26200   83.8600  2003-06-25    51   0.001193
1366   25   40    12600   83.8100  2003-06-25    31  -0.000596
1367   25   41    14900   83.8200  2003-06-25    34   0.000239
1368   25   42    19100   83.8200  2003-06-25    37   0.000239
1369   25   43    19800   83.7800  2003-06-25    43  -0.000358
1370   25   44    19500   83.7500  2003-06-25    33  -0.000358
1371   25   45    19900   83.6800  2003-06-25    52  -0.000836
1372   25   46    18900   83.7600  2003-06-25    56   0.000956
1373   25   47    18500   83.7000  2003-06-25    37  -0.000239
```

1374	25	48	19800	83.6900	2003-06-25	68	0.000119
1375	25	49	21400	83.6700	2003-06-25	44	-0.000358
1376	25	50	34900	83.6900	2003-06-25	68	0.000000
1377	25	51	27900	83.6500	2003-06-25	44	-0.000478
1378	25	52	31200	83.5500	2003-06-25	73	-0.001196
1379	25	53	99100	83.3000	2003-06-25	125	-0.002757
1380	25	54	80100	83.2900	2003-06-25	103	-0.000360
1381	25	55	74500	83.3400	2003-06-25	86	0.000696
1382	25	56	46000	83.4500	2003-06-25	106	0.001559
1383	25	57	128900	83.5600	2003-06-25	130	0.001078
1384	25	58	214400	83.1200	2003-06-25	137	-0.004202
1385	25	59	141700	83.3000	2003-06-25	113	0.002043
1386	25	60	123800	83.1400	2003-06-25	128	-0.001923
1387	25	61	92300	83.1400	2003-06-25	84	-0.000361
1388	25	62	112500	83.2700	2003-06-25	115	0.001562
1389	25	63	55600	83.3300	2003-06-25	119	0.000360
1390	25	64	55800	83.2900	2003-06-25	83	-0.000120
1391	25	65	81100	83.2300	2003-06-25	78	-0.000360
1392	25	66	81900	83.1400	2003-06-25	120	-0.001923
1393	25	67	100800	83.0500	2003-06-25	133	-0.000963
1394	25	68	116800	82.8400	2003-06-25	137	-0.002532
1395	25	69	185100	82.6500	2003-06-25	142	-0.002296
1396	25	70	119400	82.8700	2003-06-25	95	0.003021
1397	25	71	79700	82.7100	2003-06-25	97	-0.001812
1398	25	72	149500	82.3200	2003-06-25	127	-0.004606
1399	25	73	182400	82.3600	2003-06-25	113	0.000364
1400	25	74	168800	82.1700	2003-06-25	126	-0.002431
1401	25	75	193500	82.2400	2003-06-25	144	0.000852
1402	25	76	140700	82.4200	2003-06-25	98	0.002430
1403	25	77	229500	82.4800	2003-06-25	125	0.000485
1404	26	0	494900	83.2900	2003-06-26	181	-0.004910
1405	26	1	271800	83.5200	2003-06-26	111	0.002518
1406	26	2	197400	83.5900	2003-06-26	120	-0.000108
1407	26	3	229800	83.3700	2003-06-26	128	-0.001917
1408	26	4	142500	83.1500	2003-06-26	122	-0.002642
1409	26	5	120300	83.4400	2003-06-26	118	0.003482
1410	26	6	118100	83.4700	2003-06-26	117	0.000719
1411	26	7	86100	83.5800	2003-06-26	107	0.001437
1412	26	8	120800	83.6100	2003-06-26	103	0.000718
1413	26	9	45000	83.4700	2003-06-26	76	-0.001676
1414	26	10	100300	83.2400	2003-06-26	78	-0.002520
1415	26	11	109600	83.2300	2003-06-26	80	-0.000120
1416	26	12	114500	83.1300	2003-06-26	83	-0.001202
1417	26	13	108600	83.1800	2003-06-26	94	0.000962
1418	26	14	60200	83.1780	2003-06-26	64	0.000457
1419	26	15	91200	83.3900	2003-06-26	125	0.002521
1420	26	16	45200	83.3800	2003-06-26	70	0.000360
1421	26	17	47500	83.3000	2003-06-26	62	-0.001200
1422	26	18	48300	83.4700	2003-06-26	82	0.000988
1423	26	19	55000	83.5800	2003-06-26	99	-0.000108
1424	26	20	52900	83.4900	2003-06-26	60	0.000544
1425	26	21	54200	83.4700	2003-06-26	69	-0.000120
1426	26	22	105400	83.5200	2003-06-26	80	0.000225
1427	26	23	31200	83.5000	2003-06-26	60	-0.000239
1428	26	24	57500	83.5800	2003-06-26	84	0.000718
1429	26	25	88300	83.6500	2003-06-26	75	0.000957
1430	26	26	56100	83.6800	2003-06-26	83	0.000120
1431	26	27	50100	83.6400	2003-06-26	64	-0.000478
1432	26	28	86000	83.6800	2003-06-26	93	0.000598
1433	26	29	107600	83.7600	2003-06-26	65	0.000956
1434	26	30	60400	83.8100	2003-06-26	86	0.000358
1435	26	31	150500	83.9100	2003-06-26	68	0.001192
1436	26	32	156000	83.9400	2003-06-26	98	0.000834
1437	26	33	180600	83.8400	2003-06-26	73	-0.000715
1438	26	34	33800	83.8300	2003-06-26	59	0.000000
1439	26	35	32700	83.8700	2003-06-26	39	0.000477
1440	26	36	22100	83.9200	2003-06-26	46	0.000358
1441	26	37	39100	83.7500	2003-06-26	59	-0.001551
1442	26	38	45600	83.8600	2003-06-26	62	0.001074
1443	26	39	50300	83.8600	2003-06-26	55	-0.000238
1444	26	40	38100	83.7800	2003-06-26	66	-0.000597
1445	26	41	25100	83.7600	2003-06-26	41	-0.000358
1446	26	42	22200	83.7100	2003-06-26	43	-0.000597
1447	26	43	24500	83.7300	2003-06-26	41	0.000239
1448	26	44	81100	83.6300	2003-06-26	57	-0.000359
1449	26	45	33900	83.8000	2003-06-26	63	0.001194
1450	26	46	18000	83.8300	2003-06-26	46	0.000358
1451	26	47	20300	83.7500	2003-06-26	39	-0.000835
1452	26	48	13100	83.7700	2003-06-26	41	0.000239
1453	26	49	15800	83.7900	2003-06-26	41	0.000477
1454	26	50	23500	83.7980	2003-06-26	43	-0.000143
1455	26	51	14900	83.8500	2003-06-26	44	0.000000
1456	26	52	9400	83.7700	2003-06-26	37	-0.000955
1457	26	53	25200	83.8100	2003-06-26	56	0.000597
1458	26	54	180800	84.1900	2003-06-26	123	0.004524
1459	26	55	144400	84.2700	2003-06-26	118	0.000831
1460	26	56	45600	84.2500	2003-06-26	56	-0.000237
1461	26	57	33100	84.2000	2003-06-26	70	-0.000712
1462	26	58	24000	84.2100	2003-06-26	62	-0.000475
1463	26	59	40000	84.2600	2003-06-26	96	0.000712
1464	26	60	54600	84.1300	2003-06-26	81	-0.001544
1465	26	61	67800	84.1400	2003-06-26	87	0.000238
1466	26	62	57100	84.2700	2003-06-26	74	0.001425
1467	26	63	42400	84.2300	2003-06-26	70	-0.000712

```
1467   26   63    42400   84.2500  2003-06-26    70  -0.000712
1468   26   64    77500   84.2400  2003-06-26    87   0.000237
1469   26   65   205400   84.2800  2003-06-26    72   0.000356
1470   26   66   103000   84.2600  2003-06-26    93  -0.000119
1471   26   67    40800   84.2300  2003-06-26    57  -0.000356
1472   26   68    60400   84.1690  2003-06-26    65  -0.000606
1473   26   69    40400   84.1500  2003-06-26    77  -0.000238
1474   26   70   118500   84.2900  2003-06-26    82   0.002851
1475   26   71    69400   84.2700  2003-06-26   106  -0.000712
1476   26   72    78600   84.0000  2003-06-26   116  -0.003090
1477   26   73    79600   83.9700  2003-06-26   102  -0.000595
1478   26   74   109400   84.2100  2003-06-26   108   0.002854
1479   26   75    81900   84.3000  2003-06-26   109   0.000831
1480   26   76    91400   84.1100  2003-06-26   105  -0.002256
1481   26   77   235800   84.3000  2003-06-26   106   0.002138
1482   27    0   245200   84.1000  2003-06-27   189  -0.000594
1483   27    1    55900   84.1000  2003-06-27    93  -0.000119
1484   27    2   101200   84.0400  2003-06-27   120  -0.001070
1485   27    3   102300   84.1100  2003-06-27   115   0.000357
1486   27    4   156900   83.9700  2003-06-27   134  -0.001875
1487   27    5    43100   84.1200  2003-06-27    72   0.000832
1488   27    6    61100   83.9300  2003-06-27   105  -0.000381
1489   27    7    53800   83.9100  2003-06-27    88  -0.000238
1490   27    8    56300   84.1000  2003-06-27    79   0.001260
1491   27    9    75500   83.9300  2003-06-27    86  -0.002142
1492   27   10    52300   84.1400  2003-06-27    91   0.003095
1493   27   11    48100   84.2660  2003-06-27   102   0.001259
1494   27   12    87000   84.4600  2003-06-27   114   0.003922
1495   27   13    71800   84.3800  2003-06-27    68  -0.000948
1496   27   14    38600   84.2900  2003-06-27   109  -0.001205
1497   27   15    45400   84.3900  2003-06-27    87   0.001423
1498   27   16    26400   84.3800  2003-06-27    53  -0.000119
1499   27   17    64100   84.4100  2003-06-27    92   0.000118
1500   27   18    73500   84.5100  2003-06-27    97   0.001302
1501   27   19    41700   84.4500  2003-06-27    78  -0.001538
1502   27   20    54500   84.4100  2003-06-27    47  -0.000474
1503   27   21    23900   84.4600  2003-06-27    64   0.000474
1504   27   22    42300   84.6200  2003-06-27    56   0.001774
1505   27   23    67800   84.4200  2003-06-27    89  -0.002484
1506   27   24    41800   84.5000  2003-06-27    72   0.001421
1507   27   25    28700   84.4200  2003-06-27    38  -0.000947
1508   27   26    35000   84.4500  2003-06-27    74   0.000355
1509   27   27    39900   84.2200  2003-06-27    83  -0.003082
1510   27   28    17900   84.3000  2003-06-27    40   0.001169
1511   27   29    41000   84.2400  2003-06-27    67  -0.000593
1512   27   30    29700   84.2500  2003-06-27    50   0.000237
1513   27   31    27500   84.2400  2003-06-27    53   0.000000
1514   27   32    45700   84.1400  2003-06-27    49  -0.001069
1515   27   33    34900   84.2300  2003-06-27    80   0.001188
1516   27   34    33500   84.0900  2003-06-27    43  -0.001663
1517   27   35    32600   84.1300  2003-06-27    46   0.000476
1518   27   36    44400   84.2500  2003-06-27    62   0.001188
1519   27   37    56400   84.2300  2003-06-27    82  -0.000237
1520   27   38    48200   84.2400  2003-06-27    81   0.000237
1521   27   39    42700   84.1600  2003-06-27    69  -0.000950
1522   27   40    36900   84.1400  2003-06-27    81   0.000238
1523   27   41    32700   84.2000  2003-06-27    64   0.000594
1524   27   42    36600   84.1700  2003-06-27    64  -0.000356
1525   27   43    95200   84.2200  2003-06-27    65   0.001069
1526   27   44    58100   84.1500  2003-06-27    74  -0.000713
1527   27   45    14200   84.1800  2003-06-27    35   0.000356
1528   27   46    21100   84.2200  2003-06-27    51   0.000832
1529   27   47    16900   84.0700  2003-06-27    45  -0.001901
1530   27   48    90400   83.9300  2003-06-27   105  -0.001191
1531   27   49    62500   83.9600  2003-06-27    77   0.000477
1532   27   50   108900   83.9000  2003-06-27   111  -0.000888
1533   27   51    96500   83.6500  2003-06-27    80  -0.004175
1534   27   52   103900   83.6100  2003-06-27    79   0.000120
1535   27   53    86400   83.6300  2003-06-27   101   0.000239
1536   27   54    49100   83.7000  2003-06-27    59   0.000478
1537   27   55    62100   83.6000  2003-06-27    64  -0.001195
1538   27   56    24900   83.5900  2003-06-27    68  -0.000120
1539   27   57    22400   83.5600  2003-06-27    40  -0.000359
1540   27   58    22400   83.6010  2003-06-27    62   0.000251
1541   27   59    35900   83.6030  2003-06-27    75  -0.000084
1542   27   60    37000   83.6000  2003-06-27    77  -0.000120
1543   27   61    33100   83.5200  2003-06-27    58  -0.000838
1544   27   62    19900   83.5800  2003-06-27    44   0.000718
1545   27   63    45800   83.5600  2003-06-27    65  -0.000120
1546   27   64    14500   83.5700  2003-06-27    39   0.000120
1547   27   65    18600   83.5900  2003-06-27    39   0.000598
1548   27   66    34200   83.6200  2003-06-27    57   0.000598
1549   27   67   113300   83.3000  2003-06-27    91  -0.003834
1550   27   68    65800   83.4600  2003-06-27    96   0.001919
1551   27   69    53700   83.3000  2003-06-27    71  -0.001200
1552   27   70    70600   83.3200  2003-06-27    92  -0.000120
1553   27   71    42700   83.4200  2003-06-27    78   0.001440
1554   27   72    50700   83.4600  2003-06-27    82   0.000503
1555   27   73    56900   83.4400  2003-06-27    78  -0.000240
1556   27   74    62400   83.3500  2003-06-27    86  -0.000979
1557   27   75    94000   83.4100  2003-06-27   107   0.001380
1558   27   76    92500   83.5900  2003-06-27    93   0.003062
1559   27   77   155600   83.4200  2003-06-27   126  -0.002155
1560   30    0   211100   84.0800  2003-06-30   142   0.002143
```

```
1561    30     1     88000  83.7700  2003-06-30    79  -0.001908
1562    30     2     64200  83.7200  2003-06-30    90  -0.000597
1563    30     3     53200  83.9500  2003-06-30   101   0.002743
1564    30     4     71400  83.7500  2003-06-30    80  -0.002862
1565    30     5     73300  83.7520  2003-06-30    81  -0.000692
1566    30     6    109200  83.6700  2003-06-30   118  -0.000597
1567    30     7     67000  83.5200  2003-06-30   114  -0.001711
1568    30     8     45800  83.7300  2003-06-30    60   0.002631
1569    30     9     48800  83.7400  2003-06-30   111   0.000119
1570    30    10     38400  83.6700  2003-06-30    73  -0.000836
1571    30    11     57800  83.4000  2003-06-30    83  -0.002993
1572    30    12     63500  83.3700  2003-06-30    87  -0.000480
1573    30    13     54300  83.3000  2003-06-30    74  -0.000960
1574    30    14     62400  83.2100  2003-06-30    75  -0.001081
1575    30    15     73700  83.3500  2003-06-30    90   0.001681
1576    30    16     50000  83.3700  2003-06-30    85   0.000120
1577    30    17     42400  83.3600  2003-06-30    82   0.000480
1578    30    18     41200  83.1700  2003-06-30    75  -0.002042
1579    30    19     36700  83.2900  2003-06-30    78   0.001442
1580    30    20     35300  83.2500  2003-06-30    54  -0.000600
1581    30    21     44400  83.3100  2003-06-30    89   0.000600
1582    30    22     34400  83.1300  2003-06-30    57  -0.002283
1583    30    23     43300  83.1500  2003-06-30    77   0.000241
1584    30    24     67600  83.0700  2003-06-30    92  -0.002405
1585    30    25     45700  83.0800  2003-06-30    78  -0.000120
1586    30    26     37800  83.0500  2003-06-30    54  -0.000241
1587    30    27     38100  83.2000  2003-06-30    45   0.001684
1588    30    28     34900  83.2000  2003-06-30    47   0.000000
1589    30    29     51100  83.2000  2003-06-30    64   0.000000
1590    30    30    110500  83.0300  2003-06-30    60  -0.001757
1591    30    31     45600  83.0400  2003-06-30    70   0.000120
1592    30    32     64100  83.0950  2003-06-30    49   0.000662
1593    30    33     38400  83.0700  2003-06-30    62  -0.000361
1594    30    34     30000  83.1400  2003-06-30    39   0.000241
1595    30    35     21400  83.0900  2003-06-30    54  -0.000481
1596    30    36     32300  83.1400  2003-06-30    52   0.000481
1597    30    37     58200  83.1600  2003-06-30    68   0.000120
1598    30    38     30700  83.1500  2003-06-30    38  -0.000120
1599    30    39     39600  83.2900  2003-06-30    41   0.001562
1600    30    40     40500  83.3500  2003-06-30    32   0.001629
1601    30    41     14000  83.3300  2003-06-30    34  -0.000120
1602    30    42     34900  83.3700  2003-06-30    40   0.000840
1603    30    43     66300  83.3900  2003-06-30    62   0.000240
1604    30    44     35300  83.5100  2003-06-30    80   0.001558
1605    30    45     26300  83.4700  2003-06-30    53  -0.000479
1606    30    46     53200  83.5700  2003-06-30    49   0.001197
1607    30    47     25000  83.5800  2003-06-30    23  -0.000239
1608    30    48     38800  83.6600  2003-06-30    51   0.000957
1609    30    49     68700  83.6900  2003-06-30    75   0.000119
1610    30    50     28400  83.6200  2003-06-30    44  -0.000837
1611    30    51     19900  83.6300  2003-06-30    31   0.000120
1612    30    52     35400  83.6700  2003-06-30    17   0.000359
1613    30    53     75000  83.7200  2003-06-30    44   0.000597
1614    30    54     20100  83.8200  2003-06-30    38   0.000716
1615    30    55     40600  83.8000  2003-06-30    37  -0.000358
1616    30    56     45200  83.6300  2003-06-30    58  -0.001553
1617    30    57     21200  83.6000  2003-06-30    53  -0.000359
1618    30    58     35500  83.4800  2003-06-30    74  -0.001078
1619    30    59     26200  83.5400  2003-06-30    58   0.000599
1620    30    60     32000  83.5600  2003-06-30    71   0.000120
1621    30    61    102700  83.1500  2003-06-30   111  -0.004440
1622    30    62     60300  83.2500  2003-06-30    95   0.001442
1623    30    63     42300  83.2500  2003-06-30    90  -0.000120
1624    30    64     38600  83.2100  2003-06-30    76  -0.000360
1625    30    65     50900  83.2000  2003-06-30    91   0.000000
1626    30    66     52800  83.3000  2003-06-30    52   0.001201
1627    30    67     37800  83.2000  2003-06-30    59  -0.001081
1628    30    68    286400  83.0600  2003-06-30    73  -0.001924
1629    30    69     72800  83.0800  2003-06-30   105  -0.000120
1630    30    70    124300  83.0000  2003-06-30   118  -0.001084
1631    30    71    110300  82.9500  2003-06-30   133  -0.000723
1632    30    72     79100  83.0200  2003-06-30    86   0.001085
1633    30    73     78100  83.3400  2003-06-30    96   0.003847
1634    30    74    205900  82.9700  2003-06-30   132  -0.004330
1635    30    75    104900  82.8800  2003-06-30   137  -0.001085
1636    30    76    305500  82.7500  2003-06-30   130  -0.001449
1637    30    77    607200  82.6000  2003-06-30   134  -0.001814

        PRICE_CHANGE
0          -0.1700
1          -0.2800
2          -0.1400
3          -0.0100
4           0.1300
5           0.1500
6          -0.1800
7           0.1200
8           0.1400
9          -0.1630
10         -0.2000
11          0.2400
12         -0.1100
13          0.1100
14         -0.0200
```

15	0.1100
16	−0.0400
17	−0.0200
18	−0.0918
19	0.0200
20	0.0200
21	0.0500
22	−0.0400
23	0.0600
24	0.1700
25	−0.0600
26	0.0100
27	0.0600
28	0.0600
29	0.0400
30	0.0700
31	−0.0100
32	−0.1700
33	0.0700
34	−0.0500
35	−0.0200
36	0.0600
37	0.0200
38	−0.1700
39	0.1400
40	−0.0400
41	−0.0600
42	0.1500
43	0.0700
44	0.0400
45	0.0400
46	−0.0400
47	0.0000
48	0.1300
49	0.0000
50	−0.1200
51	0.0400
52	0.0600
53	−0.1400
54	0.0400
55	−0.2400
56	−0.0500
57	−0.0300
58	0.0300
59	0.0300
60	−0.0320
61	0.0900
62	−0.2900
63	−0.1400
64	0.0300
65	−0.3500
66	0.1400
67	−0.0300
68	−0.1300
69	−0.3400
70	−0.2300
71	−0.0300
72	0.1000
73	−0.3050
74	0.0100
75	0.0300
76	−0.0900
77	−0.0400
78	0.0300
79	−0.3600
80	−0.4060
81	0.2500
82	0.0000
83	0.2600
84	−0.0300
85	0.2200
86	−0.0900
87	−0.3400
88	−0.1800
89	−0.1700
90	−0.0800
91	−0.1500
92	0.3190
93	0.1400
94	−0.0700
95	0.0600
96	0.0600
97	−0.0600
98	−0.0300
99	0.0000
100	0.1500
101	0.0700
102	−0.0400
103	−0.0200
104	−0.0400
105	0.0600
106	0.1000
107	0.0000
108	0.0400

108	0.0400
109	−0.0300
110	−0.0400
111	−0.1900
112	0.1000
113	−0.1200
114	−0.0400
115	0.0000
116	0.0100
117	−0.1800
118	−0.1500
119	0.0800
120	0.0410
121	−0.0610
122	−0.0600
123	−0.0370
124	−0.1300
125	0.0000
126	0.0200
127	−0.0200
128	−0.1000
129	0.1500
130	0.0500
131	−0.2200
132	0.0100
133	0.0300
134	0.0000
135	0.1100
136	−0.0500
137	0.0400
138	0.0100
139	0.0600
140	0.0500
141	−0.0500
142	0.0300
143	−0.0100
144	0.0213
145	−0.0200
146	0.0400
147	0.0010
148	0.0300
149	−0.0300
150	0.1200
151	0.0600
152	0.0800
153	0.0600
154	0.1900
155	−0.0300
156	0.1500
157	−0.0400
158	0.1470
159	0.2400
160	0.2300
161	0.0700
162	0.0300
163	0.0300
164	−0.1700
165	0.0900
166	0.1000
167	0.0000
168	−0.0763
169	−0.2100
170	0.0400
171	0.1600
172	−0.0100
173	0.0700
174	−0.0100
175	−0.1700
176	−0.0900
177	0.0200
178	0.0012
179	0.0100
180	0.0842
181	−0.0410
182	0.0600
183	0.0300
184	0.0500
185	−0.0200
186	0.0100
187	−0.0400
188	0.0900
189	0.0100
190	−0.0400
191	−0.0500
192	−0.0400
193	0.0000
194	−0.0600
195	0.0100
196	−0.0100
197	−0.1410
198	0.0100
199	−0.0100
200	0.0900
201	0.0700

202	0.0100
203	-0.0800
204	0.0000
205	0.0600
206	-0.0100
207	0.0000
208	-0.0500
209	0.0400
210	0.0800
211	-0.1000
212	0.0100
213	0.0200
214	-0.0200
215	-0.1300
216	0.1090
217	0.0500
218	-0.0700
219	0.0000
220	0.0100
221	-0.0200
222	-0.0100
223	-0.0500
224	0.0690
225	0.0800
226	-0.0150
227	0.0500
228	0.0100
229	-0.0600
230	-0.0400
231	-0.0900
232	-0.0600
233	-0.1400
234	-0.0900
235	-0.2200
236	0.0400
237	-0.1040
238	-0.2700
239	0.0000
240	-0.0200
241	-0.0200
242	0.0000
243	-0.0600
244	-0.1409
245	0.0400
246	0.2588
247	-0.0900
248	0.0385
249	0.1600
250	-0.3100
251	-0.1800
252	-0.1159
253	-0.0600
254	-0.0400
255	0.0300
256	0.1499
257	-0.0200
258	-0.0800
259	-0.1000
260	-0.0700
261	0.0500
262	0.0500
263	-0.0220
264	-0.0274
265	0.0800
266	0.0300
267	0.0200
268	-0.0044
269	0.0200
270	-0.0100
271	0.0500
272	0.0165
273	0.0800
274	0.1000
275	-0.1100
276	-0.1818
277	-0.0500
278	-0.1015
279	0.1000
280	0.0162
281	0.0000
282	0.0200
283	0.0300
284	0.0372
285	-0.0900
286	-0.1206
287	-0.1710
288	-0.1800
289	0.0400
290	-0.0700
291	-0.0400
292	0.0448
293	-0.0500
294	-0.1051
295	-0.0400

296	-0.0300
297	-0.0400
298	0.0200
299	0.0700
300	-0.0700
301	-0.2000
302	-0.0100
303	-0.1400
304	0.1800
305	-0.0180
306	-0.1023
307	-0.1200
308	-0.0400
309	-0.0500
310	-0.0900
311	-0.1500
312	0.5100
313	-0.0300
314	-0.2200
315	-0.0500
316	-0.1300
317	0.0100
318	0.2318
319	0.1930
320	0.2000
321	-0.0100
322	-0.1100
323	-0.0300
324	-0.1000
325	-0.1900
326	-0.0600
327	-0.0700
328	0.0500
329	0.0300
330	-0.2500
331	-0.0600
332	0.0900
333	-0.2000
334	-0.0500
335	-0.0400
336	0.0800
337	-0.1500
338	0.0200
339	0.0500
340	0.0100
341	0.1000
342	-0.1250
343	0.0200
344	-0.1300
345	-0.0700
346	0.0600
347	-0.0700
348	-0.4274
349	-0.1300
350	0.0900
351	-0.0400
352	-0.0200
353	-0.2400
354	0.0800
355	0.0200
356	0.0000
357	0.1200
358	0.0600
359	-0.1100
360	-0.0900
361	-0.1000
362	0.0400
363	0.0800
364	-0.1000
365	0.0600
366	0.0000
367	0.0000
368	0.1200
369	-0.0200
370	-0.0500
371	0.0000
372	-0.1500
373	-0.0500
374	-0.1400
375	-0.0400
376	-0.0900
377	-0.1300
378	-0.0946
379	-0.1700
380	0.0000
381	0.0400
382	-0.0300
383	-0.1600
384	-0.1300
385	-0.1300
386	-0.1700
387	-0.1200
388	0.0600

389	−0.0400
390	0.3500
391	0.1100
392	−0.0200
393	0.1000
394	0.2800
395	0.1300
396	−0.2400
397	0.0400
398	0.0400
399	−0.3170
400	−0.0200
401	−0.3300
402	0.0600
403	0.1400
404	0.0100
405	0.1300
406	0.3838
407	0.1500
408	−0.0100
409	0.0700
410	0.0522
411	−0.1800
412	0.0400
413	−0.1200
414	0.1088
415	−0.0100
416	−0.1320
417	0.0100
418	0.0200
419	−0.0500
420	0.1800
421	0.0250
422	0.0600
423	−0.0500
424	0.0300
425	−0.0700
426	−0.1686
427	−0.0800
428	0.0300
429	0.0000
430	−0.0117
431	0.0400
432	−0.0400
433	0.0700
434	−0.0600
435	0.1000
436	0.0922
437	0.0800
438	0.1110
439	−0.0500
440	0.0500
441	−0.0690
442	0.1100
443	0.1600
444	−0.0810
445	0.0300
446	−0.0600
447	−0.2500
448	0.0520
449	0.0200
450	−0.0600
451	0.0500
452	−0.0200
453	0.1600
454	−0.1600
455	−0.0200
456	0.1000
457	−0.1200
458	0.0900
459	0.0100
460	−0.0900
461	0.0200
462	0.0100
463	0.0200
464	0.0300
465	0.0400
466	0.1000
467	0.0200
468	0.2900
469	0.1500
470	−0.1700
471	−0.1100
472	−0.3300
473	0.2500
474	0.2700
475	−0.0210
476	−0.2100
477	−0.2700
478	0.1100
479	0.0480
480	−0.0300
481	−0.0100
482	0.0100

483	−0.0900
484	−0.0600
485	0.1100
486	0.0900
487	−0.0500
488	0.0280
489	0.0900
490	0.0490
491	−0.0900
492	0.0000
493	0.1000
494	−0.1000
495	0.0100
496	−0.0500
497	0.0280
498	0.1100
499	0.0000
500	0.0700
501	−0.0300
502	0.0500
503	−0.0500
504	−0.0500
505	0.0000
506	−0.0400
507	0.0500
508	−0.1100
509	0.0800
510	0.0600
511	0.0100
512	0.0300
513	−0.0100
514	0.0000
515	0.0200
516	−0.0200
517	0.0100
518	0.0400
519	0.0400
520	−0.0200
521	−0.0300
522	−0.0100
523	0.0100
524	−0.0181
525	−0.0300
526	−0.0200
527	−0.0700
528	−0.2200
529	0.1100
530	−0.0300
531	−0.2000
532	0.0600
533	−0.1200
534	−0.0600
535	−0.2100
536	−0.0100
537	0.1300
538	0.0000
539	0.0700
540	0.1000
541	0.0100
542	0.0572
543	0.0500
544	0.1300
545	−0.1200
546	0.0500
547	−0.2200
548	−0.4402
549	0.2550
550	0.0300
551	0.2300
552	0.0000
553	0.1400
554	−0.0100
555	0.1900
556	0.0300
557	0.0300
558	0.0500
559	−0.0110
560	0.0000
561	−0.0200
562	0.0500
563	0.0800
564	0.1943
565	−0.0500
566	−0.0155
567	−0.0800
568	−0.0378
569	0.0200
570	−0.1699
571	0.0410
572	−0.0138
573	−0.1400
574	−0.0067
575	0.1950
576	0.0876

577	0.0800
578	0.0849
579	0.0200
580	0.0895
581	0.0100
582	0.0100
583	0.0500
584	−0.0200
585	0.0000
586	0.0500
587	−0.0600
588	0.5238
589	0.0500
590	0.0600
591	0.0400
592	−0.0300
593	0.0200
594	0.0900
595	−0.0480
596	0.0000
597	−0.1900
598	−0.0500
599	0.1400
600	0.0500
601	0.0600
602	0.1000
603	−0.0100
604	−0.0700
605	0.0400
606	−0.0310
607	−0.0100
608	−0.0100
609	0.1250
610	0.2000
611	−0.0800
612	0.0300
613	0.0100
614	−0.1100
615	0.1600
616	−0.1400
617	0.1300
618	−0.0200
619	−0.0800
620	−0.0065
621	0.1400
622	0.0390
623	−0.1400
624	0.1200
625	−0.2400
626	−0.0700
627	0.0300
628	−0.1100
629	−0.1700
630	−0.2500
631	0.1600
632	−0.0702
633	−0.1500
634	0.1600
635	−0.0010
636	0.2422
637	0.9700
638	0.0905
639	0.0600
640	0.1200
641	−0.0700
642	−0.2300
643	−0.0800
644	0.0100
645	0.0000
646	−0.7190
647	0.1300
648	0.0246
649	−0.0400
650	−0.0400
651	−0.0452
652	0.0090
653	−0.1700
654	−0.0200
655	0.0000
656	−0.0400
657	−0.1200
658	−0.0408
659	−0.0100
660	0.0500
661	0.1470
662	0.0047
663	0.0400
664	−0.0500
665	0.0800
666	−0.1200
667	0.0200
668	−0.0075
669	0.0000

670	0.1200
671	0.0200
672	−0.0272
673	−0.0600
674	0.0100
675	−0.1500
676	−0.1800
677	−0.0400
678	−0.2110
679	0.0600
680	0.0400
681	0.1500
682	0.0115
683	−0.1500
684	0.0500
685	−0.0800
686	0.1100
687	0.0400
688	−0.0800
689	−0.0100
690	0.1374
691	−0.2300
692	−0.1200
693	0.2000
694	0.1500
695	−0.0100
696	0.0172
697	−0.0400
698	−0.0200
699	0.0980
700	0.0400
701	−0.0600
702	−0.0500
703	−0.1900
704	−0.0310
705	−0.3000
706	0.1700
707	−0.0150
708	−0.3500
709	−0.2500
710	−0.1200
711	0.2000
712	0.0800
713	−0.0200
714	−0.0400
715	0.1000
716	−0.1900
717	0.0500
718	0.0510
719	−0.1100
720	0.0000
721	−0.0900
722	0.0600
723	−0.0500
724	−0.0037
725	0.0900
726	0.0900
727	0.0600
728	−0.0200
729	−0.0600
730	0.0600
731	−0.0900
732	−0.1906
733	−0.0400
734	0.0091
735	0.0200
736	0.1621
737	0.0800
738	0.0396
739	0.0000
740	0.0400
741	0.0100
742	−0.0300
743	−0.0200
744	0.0500
745	0.0400
746	−0.1000
747	−0.0700
748	−0.0500
749	0.0600
750	0.0200
751	−0.0800
752	0.0500
753	0.1000
754	−0.0300
755	−0.0300
756	−0.0600
757	0.1600
758	0.0800
759	−0.0600
760	−0.0500
761	0.1000
762	0.0100
763	−0.0800

764	−0.1000
765	−0.1000
766	0.0100
767	0.0400
768	−0.0400
769	−0.0800
770	0.0500
771	0.1400
772	−0.0500
773	0.1700
774	0.0400
775	0.0100
776	−0.0900
777	−0.0200
778	−0.0700
779	0.0500
780	0.0900
781	−0.1960
782	−0.1000
783	0.0100
784	−0.2400
785	0.0500
786	0.1300
787	−0.0800
788	0.0300
789	0.0200
790	−0.0100
791	0.0800
792	0.0620
793	0.0800
794	0.4500
795	0.1400
796	0.0100
797	−0.1000
798	0.1500
799	−0.0600
800	0.0800
801	−0.0200
802	0.0700
803	−0.1500
804	0.0800
805	0.1300
806	−0.1800
807	0.0000
808	0.0000
809	0.1400
810	0.0510
811	−0.0600
812	−0.0690
813	0.0200
814	0.1200
815	−0.0500
816	0.0400
817	0.0700
818	−0.1010
819	0.0400
820	−0.0750
821	0.0100
822	0.0300
823	−0.1300
824	0.0200
825	0.0500
826	0.0300
827	−0.0400
828	−0.0100
829	−0.0200
830	0.0500
831	−0.0600
832	0.0100
833	−0.0200
834	0.0600
835	−0.0200
836	0.0300
837	−0.0100
838	0.0100
839	0.0450
840	0.0500
841	−0.0800
842	0.0100
843	−0.0180
844	0.0000
845	0.0000
846	−0.0500
847	−0.0500
848	0.2100
849	−0.1900
850	0.0300
851	−0.0420
852	0.2300
853	0.1200
854	0.0500
855	0.1000
856	0.0000
857	0.3500

857	0.3500
858	−0.5300
859	0.1200
860	−0.3900
861	−0.2600
862	0.1100
863	0.0500
864	0.3700
865	−0.0900
866	0.0200
867	−0.1800
868	−0.1200
869	0.0100
870	0.1000
871	−0.1500
872	−0.0700
873	0.0190
874	0.0900
875	0.0800
876	−0.0100
877	0.1100
878	−0.0300
879	0.0600
880	0.0500
881	0.0800
882	0.0066
883	0.0900
884	0.0500
885	−0.0500
886	0.0700
887	0.1400
888	−0.0300
889	0.0700
890	−0.0600
891	−0.1300
892	0.0200
893	0.1300
894	−0.0400
895	0.1100
896	0.0400
897	−0.0600
898	−0.0900
899	0.0700
900	−0.0491
901	−0.0100
902	0.1000
903	0.0500
904	0.1177
905	0.0500
906	−0.1433
907	0.0200
908	0.0179
909	−0.0500
910	−0.0500
911	−0.1190
912	0.0200
913	0.0100
914	0.1382
915	−0.0600
916	0.0100
917	−0.1300
918	0.0900
919	−0.1100
920	0.0281
921	0.0600
922	0.2389
923	−0.0600
924	0.0500
925	−0.1900
926	−0.0028
927	−0.1400
928	0.2500
929	−0.1310
930	0.0862
931	−0.1800
932	−0.1117
933	−0.0100
934	−0.0700
935	0.0500
936	−0.1100
937	−0.1900
938	−0.0100
939	0.1000
940	0.0072
941	0.1900
942	−0.0200
943	−0.0700
944	−0.0921
945	0.0700
946	0.0200
947	−0.2900
948	0.1690
949	0.1000
950	−0.0800

951	0.1000
952	0.1000
953	0.1200
954	0.1200
955	0.2000
956	−0.1200
957	0.1100
958	0.1816
959	0.1800
960	0.0100
961	0.2000
962	0.0703
963	−0.0400
964	−0.1056
965	0.0000
966	−0.0900
967	−0.0200
968	0.0007
969	0.1000
970	−0.0700
971	−0.2300
972	−0.0100
973	0.0000
974	0.0400
975	0.0300
976	0.0932
977	0.1900
978	−0.0500
979	0.0000
980	−0.0399
981	0.0200
982	−0.1700
983	0.0300
984	0.0990
985	−0.0600
986	−0.2110
987	0.1700
988	−0.0600
989	0.0600
990	−0.0150
991	−0.0500
992	−0.0700
993	0.0300
994	−0.0800
995	0.0200
996	−0.0906
997	0.0100
998	−0.1300
999	−0.0100
1000	0.0700
1001	−0.0100
1002	−0.0100
1003	0.0900
1004	−0.1500
1005	0.0000
1006	0.0600
1007	−0.0700
1008	−0.0749
1009	0.1200
1010	−0.1600
1011	0.0200
1012	0.1600
1013	0.1000
1014	−0.0400
1015	0.0700
1016	−0.0400
1017	−0.0400
1018	0.0000
1019	−0.0320
1020	0.0100
1021	0.3400
1022	−0.0900
1023	−0.0600
1024	−0.1300
1025	−0.0700
1026	0.0800
1027	−0.1500
1028	0.0000
1029	0.0800
1030	−0.0200
1031	0.1400
1032	−0.1700
1033	0.0100
1034	−0.0700
1035	0.0500
1036	0.0100
1037	−0.0500
1038	−0.1500
1039	0.0000
1040	0.0500
1041	0.0100
1042	0.0200
1043	0.0800
1044	−0.0800

1045	-0.0400
1046	-0.0100
1047	-0.0500
1048	0.0900
1049	0.0100
1050	0.0600
1051	0.0200
1052	-0.0400
1053	0.0300
1054	0.0800
1055	0.0800
1056	-0.0200
1057	-0.1000
1058	0.1000
1059	0.0400
1060	-0.0600
1061	0.0700
1062	0.0400
1063	0.0000
1064	-0.0600
1065	0.1200
1066	-0.0010
1067	0.0600
1068	-0.0800
1069	-0.0400
1070	-0.0900
1071	0.0600
1072	0.1900
1073	0.0200
1074	-0.0500
1075	-0.0500
1076	0.0200
1077	-0.0900
1078	-0.0200
1079	-0.0800
1080	0.0300
1081	0.0100
1082	-0.0200
1083	-0.2300
1084	0.0000
1085	-0.0300
1086	-0.1500
1087	0.0100
1088	0.1200
1089	-0.0100
1090	-0.0400
1091	0.1100
1092	0.0600
1093	-0.1500
1094	0.0000
1095	0.1000
1096	-0.2500
1097	0.2200
1098	0.0200
1099	-0.0200
1100	0.0200
1101	-0.2100
1102	0.0400
1103	0.0400
1104	0.0930
1105	-0.0300
1106	0.1491
1107	0.0600
1108	-0.0900
1109	0.0000
1110	0.0100
1111	0.0500
1112	0.0435
1113	0.0100
1114	-0.0200
1115	-0.0200
1116	-0.0272
1117	0.0100
1118	-0.0500
1119	0.0100
1120	-0.0376
1121	-0.0100
1122	-0.0300
1123	0.0100
1124	-0.0100
1125	0.0100
1126	-0.0001
1127	0.0300
1128	0.0600
1129	-0.0100
1130	0.0487
1131	-0.0100
1132	0.0284
1133	-0.0500
1134	-0.0903
1135	0.0000
1136	-0.0400
1137	0.0000
1138	-0.1600

1138	-0.1600
1139	-0.0100
1140	-0.0400
1141	0.0800
1142	-0.0900
1143	0.0400
1144	0.0181
1145	-0.0300
1146	0.0700
1147	0.0000
1148	0.0010
1149	-0.0300
1150	0.0900
1151	-0.0800
1152	0.0300
1153	0.0000
1154	0.0300
1155	0.0200
1156	-0.0500
1157	0.0500
1158	-0.0500
1159	-0.1000
1160	0.0600
1161	-0.0100
1162	0.0700
1163	-0.0500
1164	0.0100
1165	0.0700
1166	-0.0100
1167	-0.0690
1168	0.0000
1169	0.0000
1170	-0.2900
1171	-0.2400
1172	-0.0400
1173	-0.0100
1174	-0.0100
1175	0.1200
1176	-0.2200
1177	0.1700
1178	-0.0300
1179	-0.0600
1180	0.0500
1181	-0.1600
1182	-0.0500
1183	-0.0500
1184	0.0600
1185	0.0000
1186	-0.0100
1187	-0.1200
1188	-0.0500
1189	-0.0100
1190	-0.0800
1191	-0.1000
1192	-0.0400
1193	0.0400
1194	0.1200
1195	0.0100
1196	-0.1500
1197	0.0700
1198	-0.1600
1199	0.0500
1200	-0.0800
1201	-0.0200
1202	0.0920
1203	-0.0400
1204	0.0100
1205	0.0500
1206	-0.1000
1207	0.1000
1208	-0.0600
1209	0.0000
1210	-0.0200
1211	-0.0300
1212	0.0000
1213	0.0000
1214	0.0700
1215	0.0500
1216	0.0100
1217	-0.0200
1218	-0.0400
1219	-0.0800
1220	-0.0700
1221	0.0400
1222	0.0900
1223	0.0000
1224	-0.0600
1225	0.0100
1226	-0.0100
1227	-0.0900
1228	-0.0500
1229	0.0100
1230	-0.0300
1231	-0.0690

1232	−0.0400
1233	−0.0200
1234	−0.1300
1235	−0.0100
1236	0.0400
1237	−0.0800
1238	−0.0900
1239	0.0600
1240	0.0000
1241	0.0430
1242	0.0400
1243	0.0600
1244	0.1300
1245	−0.0400
1246	0.0000
1247	−0.0100
1248	0.1100
1249	0.3900
1250	0.6724
1251	−0.0800
1252	0.1200
1253	0.0200
1254	0.0800
1255	−0.2500
1256	−0.1600
1257	−0.1500
1258	−0.0800
1259	0.2100
1260	0.0900
1261	−0.0900
1262	−0.0800
1263	0.0900
1264	0.0600
1265	0.0100
1266	−0.0200
1267	0.1700
1268	−0.0300
1269	0.2600
1270	0.2400
1271	−0.1000
1272	0.0400
1273	−0.1400
1274	−0.1100
1275	0.0600
1276	0.0400
1277	0.0000
1278	−0.0600
1279	−0.0900
1280	−0.0400
1281	0.0700
1282	0.1518
1283	0.0600
1284	0.1095
1285	0.0500
1286	−0.0600
1287	0.1600
1288	−0.0100
1289	0.0100
1290	0.0600
1291	−0.0200
1292	−0.0200
1293	−0.0400
1294	−0.0200
1295	0.0600
1296	0.0200
1297	−0.0100
1298	0.0200
1299	0.0000
1300	0.0500
1301	0.0800
1302	0.1230
1303	−0.1430
1304	−0.0300
1305	0.0350
1306	−0.0957
1307	−0.0300
1308	0.1000
1309	−0.1600
1310	−0.0300
1311	−0.0700
1312	0.0079
1313	0.0500
1314	0.1214
1315	0.0400
1316	0.0100
1317	−0.0400
1318	0.0400
1319	0.0600
1320	−0.0600
1321	−0.0490
1322	−0.1000
1323	−0.0600
1324	−0.0700
1325	0.0800

1326	0.5800
1327	−0.3000
1328	−0.0500
1329	0.0300
1330	0.0600
1331	0.0050
1332	−0.0710
1333	0.1300
1334	−0.0800
1335	−0.1100
1336	−0.0500
1337	0.0000
1338	0.2200
1339	−0.1000
1340	0.1300
1341	0.2000
1342	0.0200
1343	−0.1900
1344	0.2000
1345	0.0700
1346	0.0600
1347	−0.0800
1348	−0.0650
1349	−0.0600
1350	−0.0200
1351	−0.0200
1352	0.0200
1353	−0.0200
1354	0.0100
1355	0.0000
1356	0.0100
1357	0.0300
1358	−0.0400
1359	0.0400
1360	−0.0400
1361	−0.0100
1362	0.0000
1363	0.0100
1364	0.0100
1365	0.1000
1366	−0.0500
1367	0.0200
1368	0.0200
1369	−0.0300
1370	−0.0300
1371	−0.0700
1372	0.0800
1373	−0.0200
1374	0.0100
1375	−0.0300
1376	0.0000
1377	−0.0400
1378	−0.1000
1379	−0.2300
1380	0.0300
1381	0.0580
1382	0.1300
1383	0.0900
1384	−0.3500
1385	0.1700
1386	−0.1600
1387	−0.0300
1388	0.1300
1389	0.0300
1390	−0.0100
1391	−0.0300
1392	−0.1600
1393	−0.0800
1394	−0.2100
1395	−0.1900
1396	0.2500
1397	−0.1500
1398	−0.3800
1399	0.0300
1400	−0.2000
1401	0.0700
1402	0.2000
1403	0.0400
1404	−0.4100
1405	0.2100
1406	−0.0090
1407	−0.1600
1408	−0.2200
1409	0.2900
1410	0.0600
1411	0.1200
1412	0.0600
1413	−0.1400
1414	−0.2100
1415	−0.0100
1416	−0.1000
1417	0.0800
1418	0.0380
1419	0.2100

1419	0.2100
1420	0.0300
1421	-0.1000
1422	0.0824
1423	-0.0090
1424	0.0454
1425	-0.0100
1426	0.0188
1427	-0.0200
1428	0.0600
1429	0.0800
1430	0.0100
1431	-0.0400
1432	0.0500
1433	0.0800
1434	0.0300
1435	0.1000
1436	0.0700
1437	-0.0600
1438	0.0000
1439	0.0400
1440	0.0300
1441	-0.1300
1442	0.0900
1443	-0.0200
1444	-0.0500
1445	-0.0300
1446	-0.0500
1447	0.0200
1448	-0.0300
1449	0.1000
1450	0.0300
1451	-0.0700
1452	0.0200
1453	0.0400
1454	-0.0120
1455	0.0000
1456	-0.0800
1457	0.0500
1458	0.3800
1459	0.0700
1460	-0.0200
1461	-0.0600
1462	-0.0400
1463	0.0600
1464	-0.1300
1465	0.0200
1466	0.1200
1467	-0.0600
1468	0.0200
1469	0.0300
1470	-0.0100
1471	-0.0300
1472	-0.0510
1473	-0.0200
1474	0.2400
1475	-0.0600
1476	-0.2600
1477	-0.0500
1478	0.2400
1479	0.0700
1480	-0.1900
1481	0.1800
1482	-0.0500
1483	-0.0100
1484	-0.0900
1485	0.0300
1486	-0.1576
1487	0.0700
1488	-0.0320
1489	-0.0200
1490	0.1059
1491	-0.1800
1492	0.2600
1493	0.1060
1494	0.3306
1495	-0.0800
1496	-0.1016
1497	0.1200
1498	-0.0100
1499	0.0100
1500	0.1100
1501	-0.1300
1502	-0.0400
1503	0.0400
1504	0.1500
1505	-0.2100
1506	0.1200
1507	-0.0800
1508	0.0300
1509	-0.2600
1510	0.0985
1511	-0.0500
1512	0.0200

1513	0.0000
1514	−0.0900
1515	0.1000
1516	−0.1400
1517	0.0400
1518	0.1000
1519	−0.0200
1520	0.0200
1521	−0.0800
1522	0.0200
1523	0.0500
1524	−0.0300
1525	0.0900
1526	−0.0600
1527	0.0300
1528	0.0700
1529	−0.1600
1530	−0.1000
1531	0.0400
1532	−0.0745
1533	−0.3500
1534	0.0100
1535	0.0200
1536	0.0400
1537	−0.1000
1538	−0.0100
1539	−0.0300
1540	0.0210
1541	−0.0070
1542	−0.0100
1543	−0.0700
1544	0.0600
1545	−0.0100
1546	0.0100
1547	0.0500
1548	0.0500
1549	−0.3200
1550	0.1600
1551	−0.1000
1552	−0.0100
1553	0.1200
1554	0.0420
1555	−0.0200
1556	−0.0816
1557	0.1150
1558	0.2556
1559	−0.1800
1560	0.1800
1561	−0.1600
1562	−0.0500
1563	0.2300
1564	−0.2400
1565	−0.0580
1566	−0.0500
1567	−0.1430
1568	0.2200
1569	0.0100
1570	−0.0700
1571	−0.2500
1572	−0.0400
1573	−0.0800
1574	−0.0900
1575	0.1400
1576	0.0100
1577	0.0400
1578	−0.1700
1579	0.1200
1580	−0.0500
1581	0.0500
1582	−0.1900
1583	0.0200
1584	−0.2000
1585	−0.0100
1586	−0.0200
1587	0.1400
1588	0.0000
1589	0.0000
1590	−0.1460
1591	0.0100
1592	0.0550
1593	−0.0300
1594	0.0200
1595	−0.0400
1596	0.0400
1597	0.0100
1598	−0.0100
1599	0.1300
1600	0.1357
1601	−0.0100
1602	0.0700
1603	0.0200
1604	0.1300
1605	−0.0400
1606	0.1000

```
1607        -0.0200
1608         0.0800
1609         0.0100
1610        -0.0700
1611         0.0100
1612         0.0300
1613         0.0500
1614         0.0600
1615        -0.0300
1616        -0.1300
1617        -0.0300
1618        -0.0900
1619         0.0500
1620         0.0100
1621        -0.3700
1622         0.1200
1623        -0.0100
1624        -0.0300
1625         0.0000
1626         0.1000
1627        -0.0900
1628        -0.1600
1629        -0.0100
1630        -0.0900
1631        -0.0600
1632         0.0900
1633         0.3200
1634        -0.3600
1635        -0.0900
1636        -0.1200
1637        -0.1500
```

In [16]:

```python
print(len(reset_df))
print(len(reset_df.dropna()))
```

```
1638
1638
```

In [83]:

```python
#Lets plot the time series and its ACF plot for the Volume of transactions in the 5 minute Intervals
plotting_df = reset_df.set_index(reset_df["DAY"])
rangeVal = len(plotting_df["SIZE"])
x = np.arange(rangeVal)

TIME_INTS_PER_DAY = 78
DAYS = len(reset_df) / TIME_INTS_PER_DAY
LAST_INDEX = len(reset_df)-1

fig, axes = plt.subplots(1, 1, figsize=(16, 9), dpi=100)


plt.xticks(np.arange(0, TIME_INTS_PER_DAY*DAYS, TIME_INTS_PER_DAY))
plt.grid()


labels = reset_df["DAY"].loc[0: TIME_INTS_PER_DAY*DAYS + TIME_INTS_PER_DAY: TIME_INTS_PER_DAY]

axes.plot(x, plotting_df["TRADES"])
axes.set_xticklabels(labels)
plt.ylabel("Number of Trades in 5-min Int")
plt.xlabel("Day")
plt.title("Intra-day trading volume (5 Min Int)")



fig.autofmt_xdate()
plt.show()
```

Intra-day trading volume (5 Min Int)
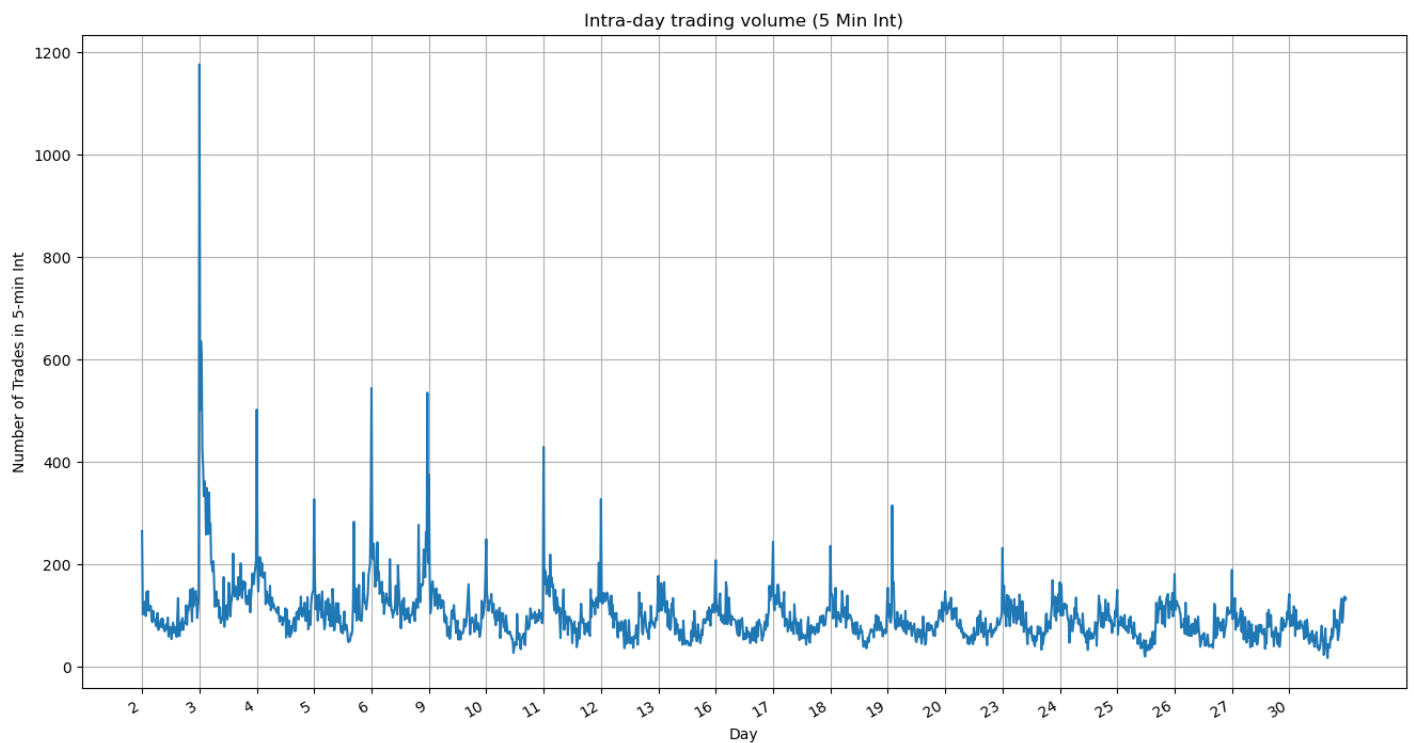
There's very clearly volatility clustering of the 5 minute volume time series chart. Also illustrates the U-shaped behaviour of trading, i.e. the most transactions seem to take place at the beginning and end of trading hours, whereas during the middle of the day, trading seems to be less frequent.

In [84]:

```
sm.graphics.tsa.plot_acf(reset_df["TRADES"], lags=200)
```

Out[84]:
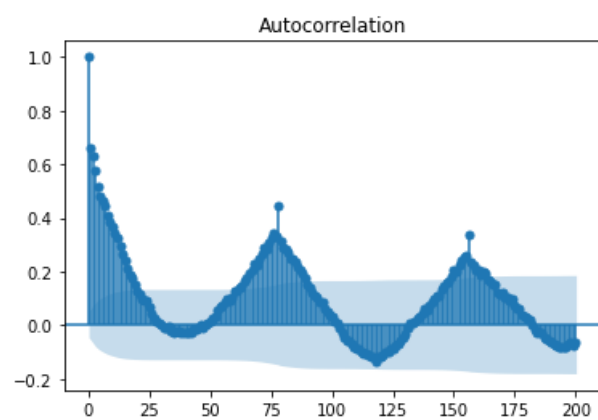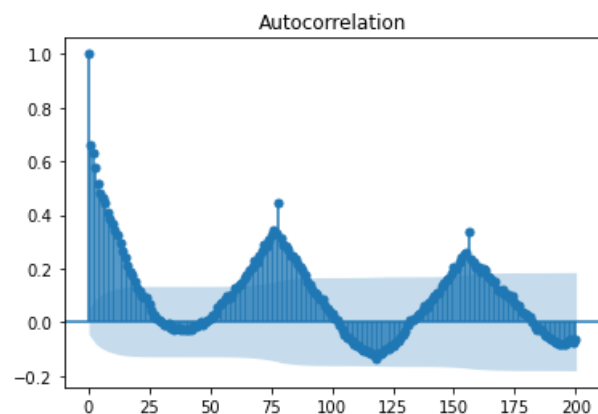
We expect this kind of behaviour in the ACF that there should be significant autocorrelation at lags of around multiples of 78 since we expect this U-shaped behaviour in the trading volume at the beginning and end of the day.

In [86]:

```
fig2, axes2 = plt.subplots(1, 1, figsize=(16, 9), dpi=100)
```

```
axes2.plot(reset_df["PRICE"])
```

```
plt.xticks(np.arange(0, TIME_INTS_PER_DAY*DAYS, TIME_INTS_PER_DAY))
plt.grid()
axes2.set_xticklabels(labels)
```

```
[Text(0.0, 0, '2'),
 Text(78.0, 0, '3'),
 Text(156.0, 0, '4'),
 Text(234.0, 0, '5'),
 Text(312.0, 0, '6'),
 Text(390.0, 0, '9'),
 Text(468.0, 0, '10'),
 Text(546.0, 0, '11'),
 Text(624.0, 0, '12'),
 Text(702.0, 0, '13'),
 Text(780.0, 0, '16'),
 Text(858.0, 0, '17'),
 Text(936.0, 0, '18'),
 Text(1014.0, 0, '19'),
 Text(1092.0, 0, '20'),
 Text(1170.0, 0, '23'),
 Text(1248.0, 0, '24'),
 Text(1326.0, 0, '25'),
 Text(1404.0, 0, '26'),
 Text(1482.0, 0, '27'),
 Text(1560.0, 0, '30')]
```

```
#but in order to get returns, we need to difference the data
fig3, axes3 = plt.subplots(1, 1, figsize=(16, 9), dpi=100)


plt.xticks(np.arange(0, TIME_INTS_PER_DAY*DAYS, TIME_INTS_PER_DAY))
plt.grid()
axes3.set_xticklabels(labels)

returns = reset_df["RET"]
axes3.plot(returns)
```

```
[<matplotlib.lines.Line2D at 0x7ff62b8f2f40>]
```
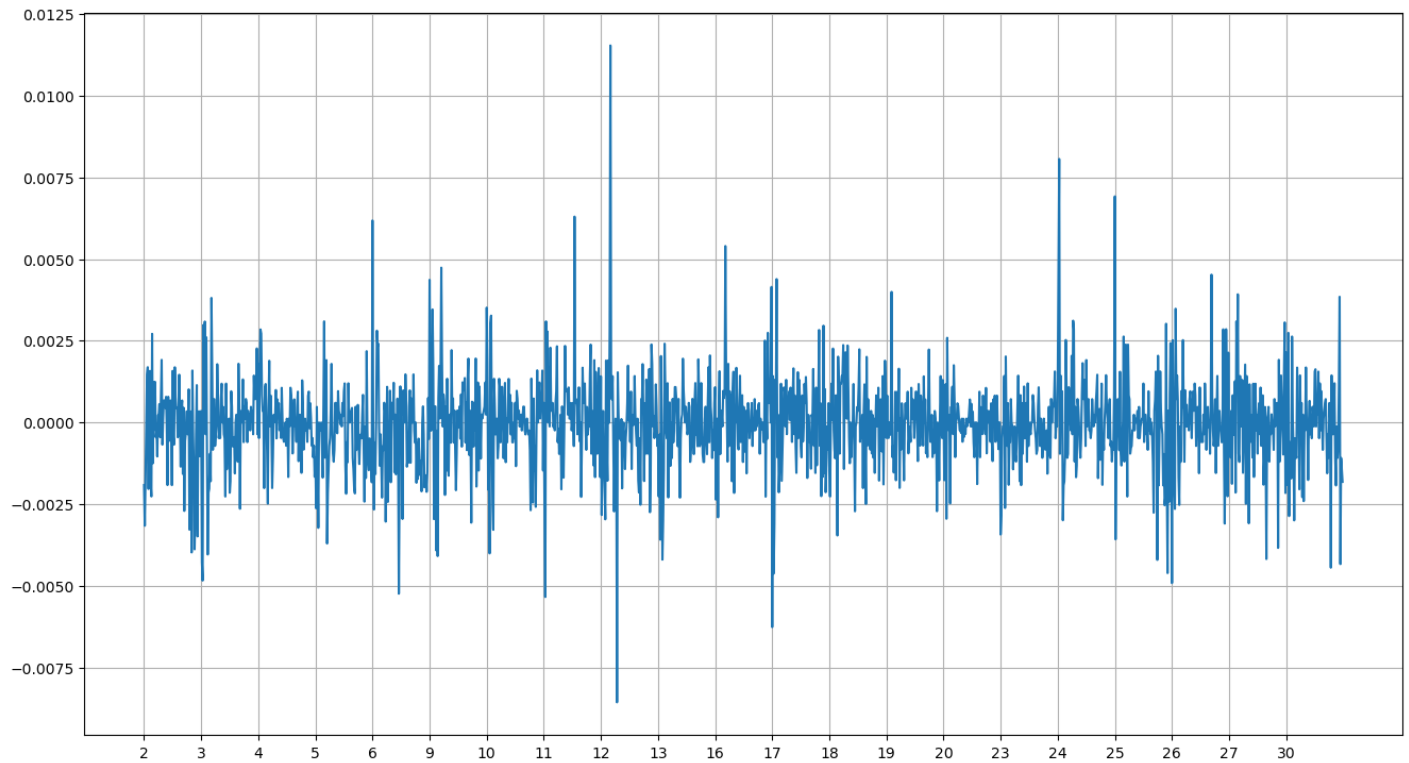
```
sm.graphics.tsa.plot_acf(returns.dropna(), lags=20)
```
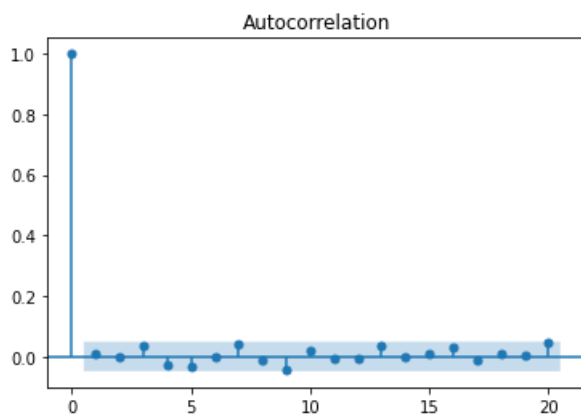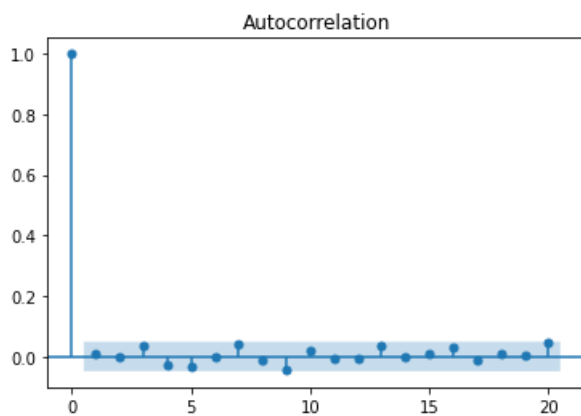
No significant auto-correlations present for the return series.

```
#Now lets plot the series (volume, returns)
fig4, axes4 = plt.subplots(1, 1, figsize=(16, 9), dpi=100)

axes4_right = axes4.twinx()

axes4.plot(reset_df["TRADES"], alpha = 0.75)
```

```
axes4_right.plot(returns, alpha = 0.75, color = "red")

plt.xticks(np.arange(0, TIME_INTS_PER_DAY*DAYS, TIME_INTS_PER_DAY))
plt.grid()
axes4.set_xticklabels(labels)


print(reset_df["TRADES"].corr(returns))
```

-0.013460930504661728
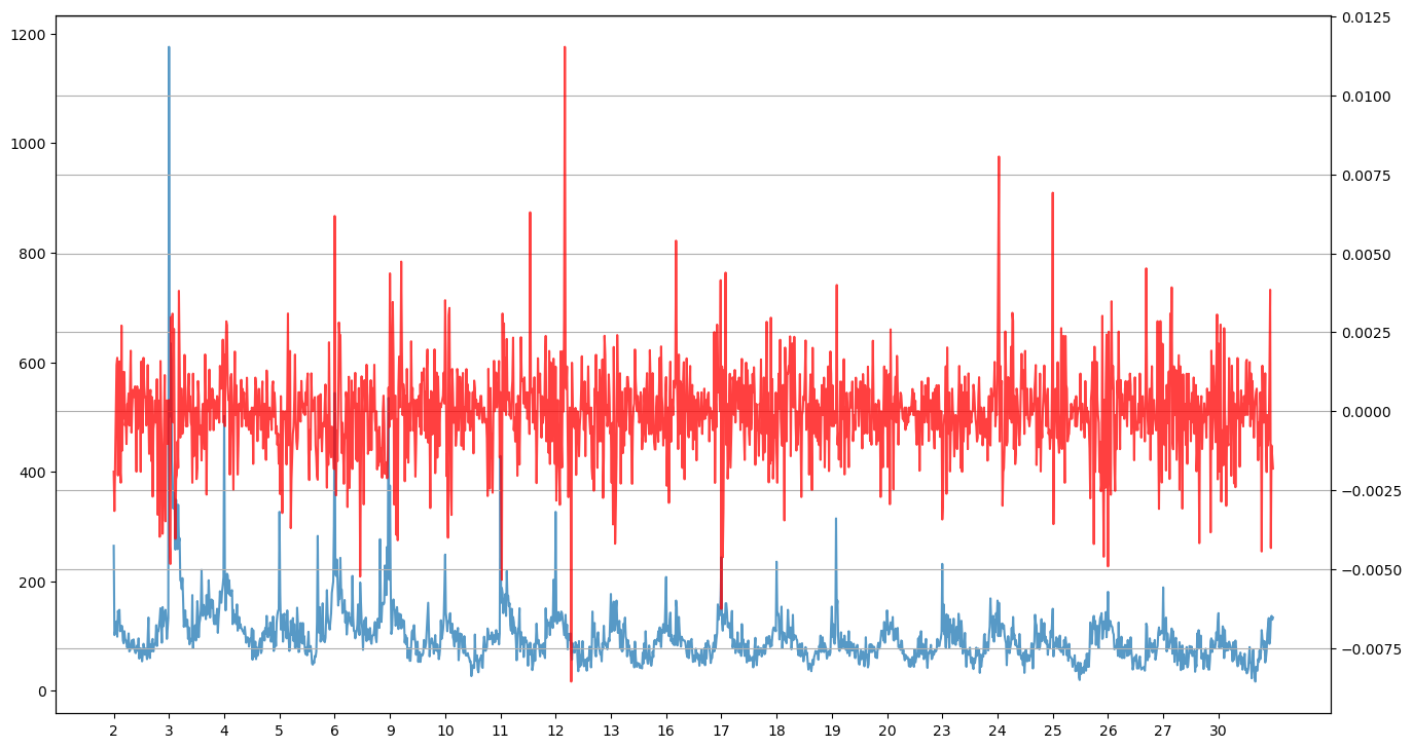
```
# Now, lets try to find a transformation g(y) s.t. we get some significant correlation between xt and yt.
returns_sq = returns**(2)


fig5, axes5 = plt.subplots(1, 1, figsize=(16, 9), dpi=100)

axes5_right = axes5.twinx()

axes5.plot(reset_df["TRADES"], alpha = 0.75)
axes5_right.plot(returns_sq, alpha = 0.75, color = "red")


plt.xticks(np.arange(0, TIME_INTS_PER_DAY*DAYS, TIME_INTS_PER_DAY))
plt.grid()
axes5.set_xticklabels(labels)

print(reset_df["TRADES"].corr(returns_sq))
```

0.21272639072996638
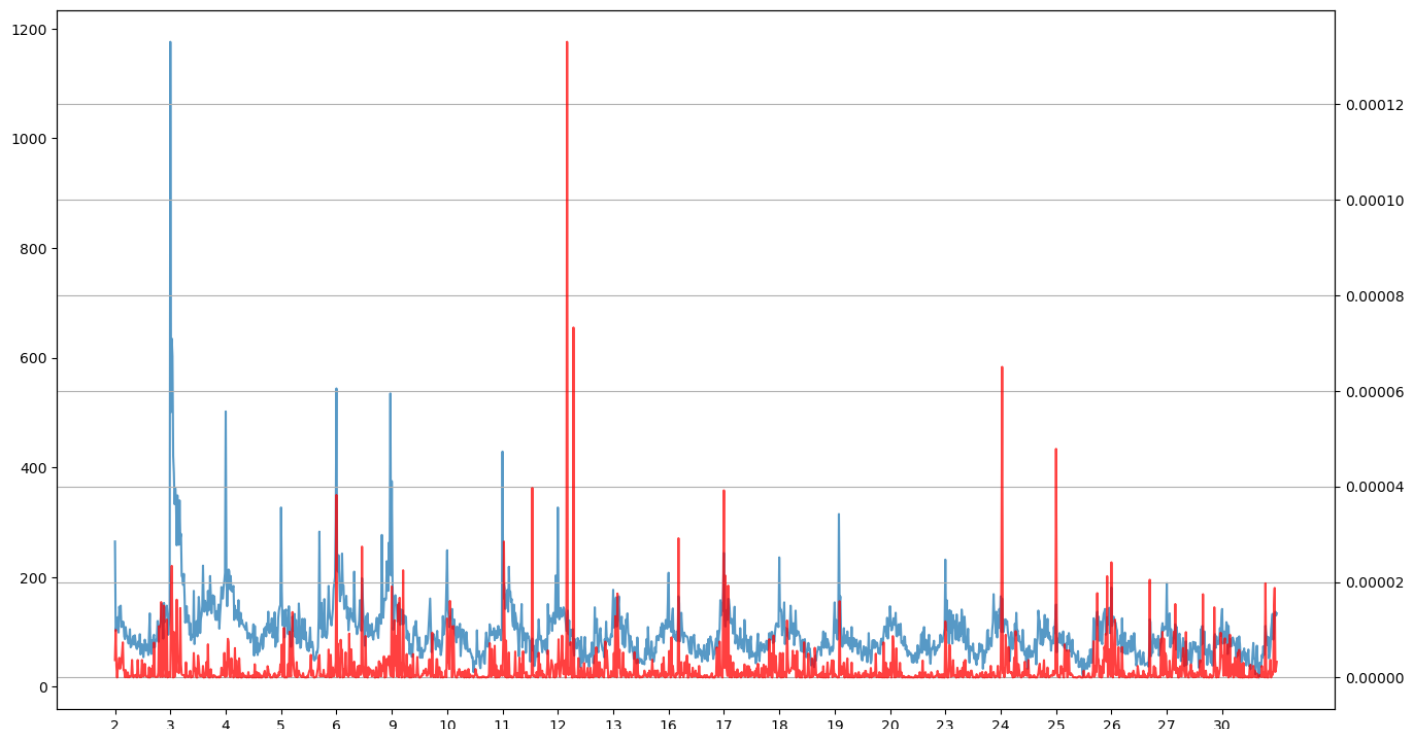
We expect there to be some correlation between the squared magnitude of the returns for an interval and the trading volume associated with that interval, since larger moves are likely to coincide with more trading behaviour. As we can see, when $g(y) = y^{2}$, $\rho^{2} = 0.2127$

In [36]:

```
#Now lets tabulate the relative frequencies of price changes in multiples of tick size $0.0625
#We'll proceed by using the returns datframe, and changing it into a categorical variable.
TICKSIZE = 0.0625
priceChange = reset_df["PRICE_CHANGE"]
tabMin = int( abs( min(priceChange) / TICKSIZE) ) + 1
tabMax = int( abs( max(priceChange) / TICKSIZE) ) + 1
tabRange = np.arange(-1*tabMin*TICKSIZE, tabMax*TICKSIZE + TICKSIZE, TICKSIZE)
tabulate = pd.cut(priceChange, tabRange, include_lowest=False)


relFreq = tabulate.groupby(tabulate).count()
relFreq = np.divide(relFreq, relFreq.sum())
print(relFreq)
```

```
12
16
PRICE_CHANGE
(-0.75, -0.688]      0.000611
(-0.688, -0.625]     0.000000
(-0.625, -0.562]     0.000000
(-0.562, -0.5]       0.000611
(-0.5, -0.438]       0.000611
(-0.438, -0.375]     0.003053
(-0.375, -0.312]     0.007937
(-0.312, -0.25]      0.012210
(-0.25, -0.188]      0.029915
(-0.188, -0.125]     0.064713
(-0.125, -0.0625]    0.113553
(-0.0625, 0.0]       0.292430
(0.0, 0.0625]        0.261294
(0.0625, 0.125]      0.124542
(0.125, 0.188]       0.047619
(0.188, 0.25]        0.025031
(0.25, 0.312]        0.006105
(0.312, 0.375]       0.004274
(0.375, 0.438]       0.001832
(0.438, 0.5]         0.000611
(0.5, 0.562]         0.001221
(0.562, 0.625]       0.000611
(0.625, 0.688]       0.000611
(0.688, 0.75]        0.000000
(0.75, 0.812]        0.000000
(0.812, 0.875]       0.000000
(0.875, 0.938]       0.000000
(0.938, 1.0]         0.000611
Name: PRICE_CHANGE, dtype: float64
```

As we can see, the majority (about half) of the 5-min interval price changes occur in the band (-0.0625, 0.0625) as we would expect. Only a small portion of these intervals contain large price changes.