

# Lab 9

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Here we will learn about trees, bagged trees and random forests. You can use the **YARF** package if it works, otherwise, use the **randomForest** package (the standard).

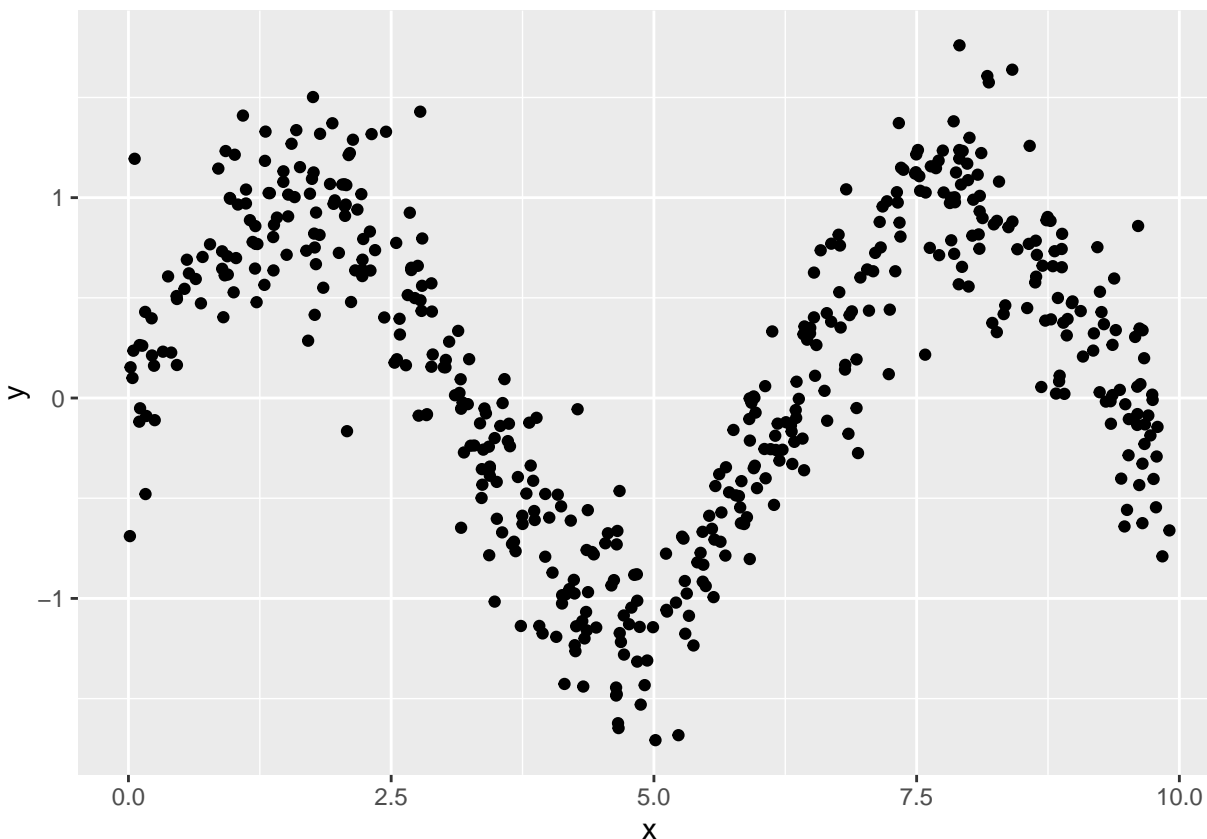
Let's take a look at the simulated sine curve data from practice lecture 12. Below is the code for the data generating process:

```
#Turn off warnings
options(warn = -1)

rm(list = ls())
n = 500
sigma = 0.3
x_min = 0
x_max = 10
f_x = function(x){sin(x)}
y_x = function(x, sigma){f_x(x) + rnorm(n, 0, sigma)}
x_train = runif(n, x_min, x_max)
y_train = y_x(x_train, sigma)
```

Plot an example dataset of size 500:

```
pacman::p_load(ggplot2)
ggplot(data.frame(x=x_train, y=y_train))+
  geom_point(aes(x=x, y=y))
```



Create a test set of size 500 as well

```
x_test = runif(n, x_min, x_max)
y_test = y_x(x_test, sigma)
```

Locate the optimal node size hyperparameter for the regression tree model. I believe you can use `randomForest` here by setting `ntree = 1`, `replace = FALSE`, `sampsiz` = `n` (`mtry` is already set to be 1 because there is only one feature) and then you can set `nodesize`. Plot `nodesize` by `oos_se`.

```
pacman::p_load(randomForest)

nodesize = 1:n

se_by_nodes <- array(NA, length(nodesize))

for(i in 1:length(nodesize)) {

  rf_mod <- randomForest(x = data.frame(x = x_train), y= y_train, ntree = 1, replace = FALSE, sampsize = n)

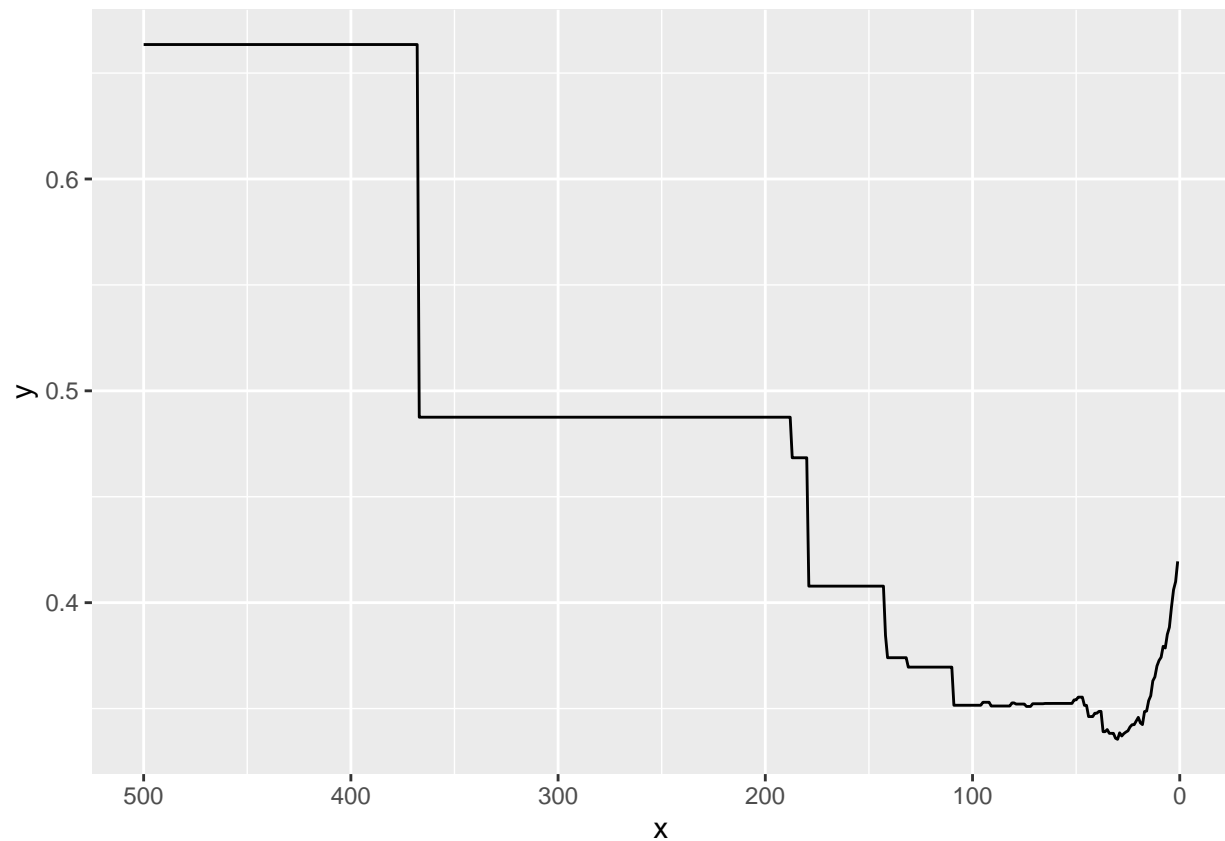
  y_hat_test <- predict(rf_mod, data.frame(x= x_test))

  se_by_nodes[i] <- sd(y_test - y_hat_test)

}

ggplot(data.frame(x=nodesize, y=se_by_nodes)) +
```

```
geom_line(aes(x=x, y=y)) +  
scale_x_reverse()
```

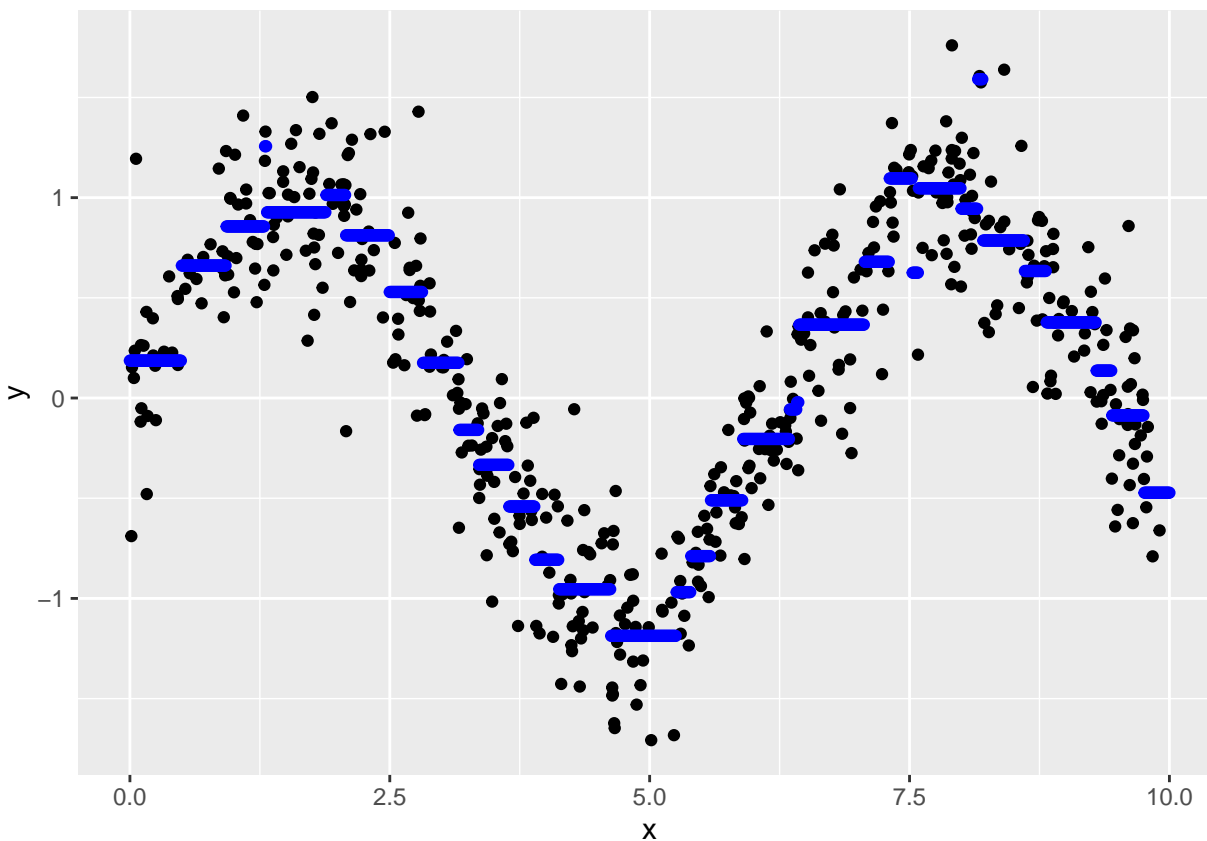


```
which.min(se_by_nodes)
```

```
## [1] 30
```

Plot the regression tree model with the optimal node size.

```
rf_mod <- randomForest(x = data.frame(x = x_train), y=y_train, ntree = 1, replace = FALSE, sampsize = n  
res <- 0.01  
x_grid = seq(from=x_min, to=x_max, by = res)  
g_x <- predict(rf_mod, data.frame(x= x_grid))  
ggplot(data.frame(x=x_grid, y=g_x)) +  
  aes(x=x, y=y) +  
  geom_point(data=data.frame(x=x_train, y=y_train)) +  
  geom_point(aes(x=x, y=y), color="blue")
```



Provide the bias-variance decomposition of this DGP fit with this model. It is a lot of code, but it is in the practice lectures. If your three numbers don't add up within two significant digits, increase your resolution.

```
ntrain <- 25
ntest <- 900
nsim <- 1000

train <- matrix(NA, nsim, 2)
xtrains <- matrix(NA, nsim, ntrain)
ytrains <- matrix(NA, nsim, ntrain)
oos_res <- matrix(NA, nsim, ntest)

for(sim in 1:nsim) {

  xtrain <- runif(ntrain, x_min, x_max)
  deltaTrain <- rnorm(ntrain, 0, sigma)
  ytrain <- f_x(xtrain) + deltaTrain
  xtrains[sim, ] <- xtrain
  ytrains[sim, ] <- ytrain
  mod <- lm(ytrain ~., data.frame(x = xtrain))
  train[sim, ] = coef(mod)
  xtest <- runif(ntest, x_min, x_max)
  deltaTest <- rnorm(ntest, 0, sigma)
  ytest <- f_x(xtest) + deltaTest
  yHatTest <- predict(mod, data.frame(x = xtest))
  oos_res[sim, ] <- ytest - yHatTest
}
```

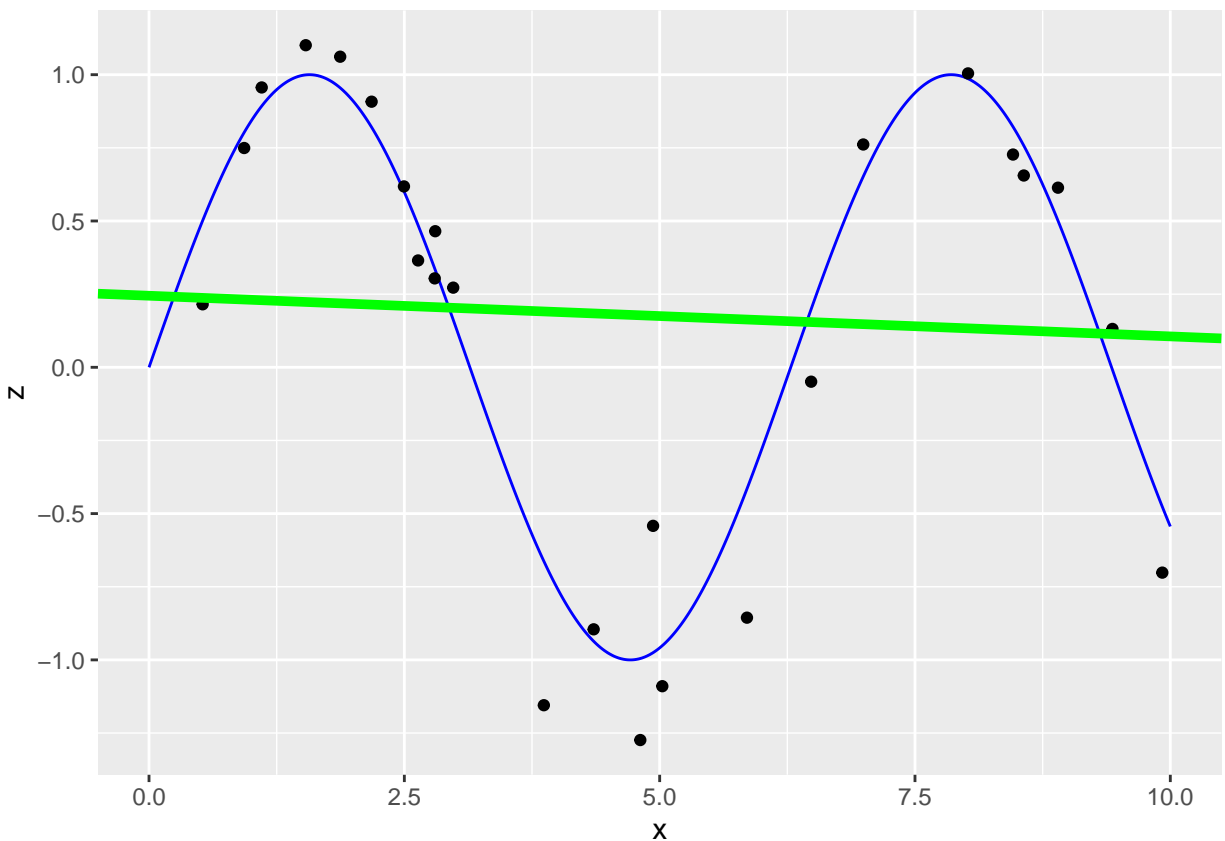
```

}

#Plotting
pacman::p_load(ggplot2)
res <- 15675
x <- seq(x_min, x_max, length.out = res)
lavg <- colMeans(train)
f_x_df <- data.frame(x = x, z = f_x(x))

ggplot(f_x_df, aes(x, z, p)) +
  geom_line(col = "blue") +
  geom_point(aes(x, y), data=data.frame(x = xtrains[1,], y = ytrains[1,])) +
  geom_abline(intercept = lavg[1], slope = lavg[2], col = "green", lwd = 1.7)

```



```

#Concat all lines
plots <- ggplot() +
  xlim(x_min, x_max) +
  ylim(x_min ^ 2, x_max ^ 2)

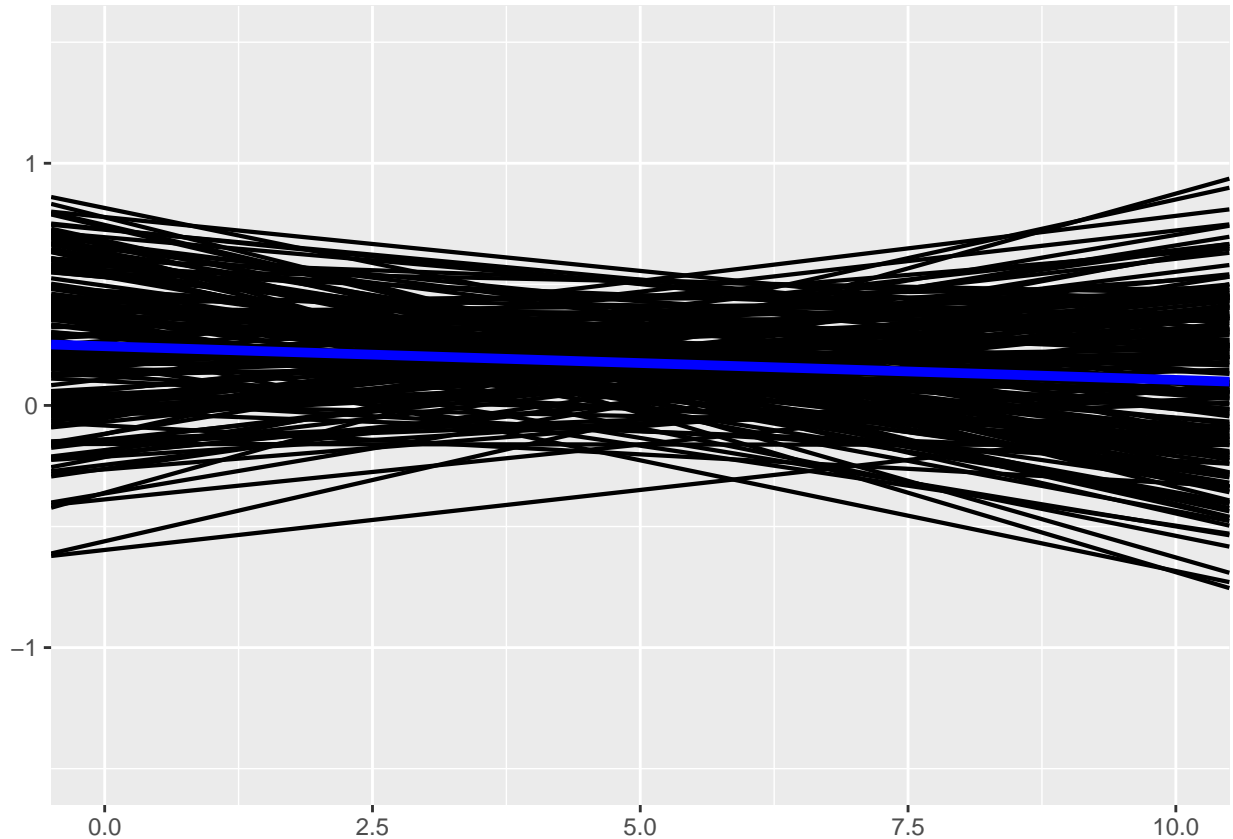
for (sim in 1:min(nsim, 175)) {

  plots <- plots + geom_abline(slope = train[sim, 2], intercept = train[sim, 1], col = "black", lwd =
}

```

```
plots +
  geom_abline(slope = lavg[2], intercept = lavg[1], col = "blue", lwd = 1.7) +
  ylim(-1.5, 1.5)
```

```
## Scale for 'y' is already present. Adding another scale for 'y', which will
## replace the existing scale.
```



```
#Mse
mse <- mean(c(oos_res) ^ 2)
mse
```

```
## [1] 0.5739145
```

```
#Sigma squared
sigma ^ 2
```

```
## [1] 0.09
```

```
#Average variance
varArray <- array(NA, nsim)
for(sim in 1:nsim) {

  varArray[sim] <- mean(( train[sim, 1] + train[sim, 2] * seq(x_min, x_max, length.out = res)
```

```

      - lavg[1] - lavg[2] * seq(x_min, x_max, length.out = res)
    ) ^ 2)
}
mean(varArray)

```

```
## [1] 0.04257274
```

```

#Bias
funcT <- sin(x)
bias <- funcT - lavg[1] - lavg[2] * seq(x_min, x_max, length.out = res)
mean(bias ^ 2)

```

```
## [1] 0.4412809
```

```

#Sums
sigma ^ 2 + mean(varArray) + mean(bias ^ 2)

```

```
## [1] 0.5738536
```

```
rm(list = ls())
```

Take a sample of  $n = 2000$  observations from the diamonds data.

```

pacman::p_load(dplyr)
diamonds_samp <- diamonds %>%
  sample_n(2000)

```

find the bootstrap  $s_e$  for a RF model using 1, 2, 5, 10, 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000 trees. If you are using the `randomForest` package, you can calculate oob residuals via  $e_{oob} = y_{train} - rf\_mod\$predicted$ .

```

num_trees = c(1, 2, 5, 10, 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000)
oob_se_num_trees <- array(NA, length(num_trees))

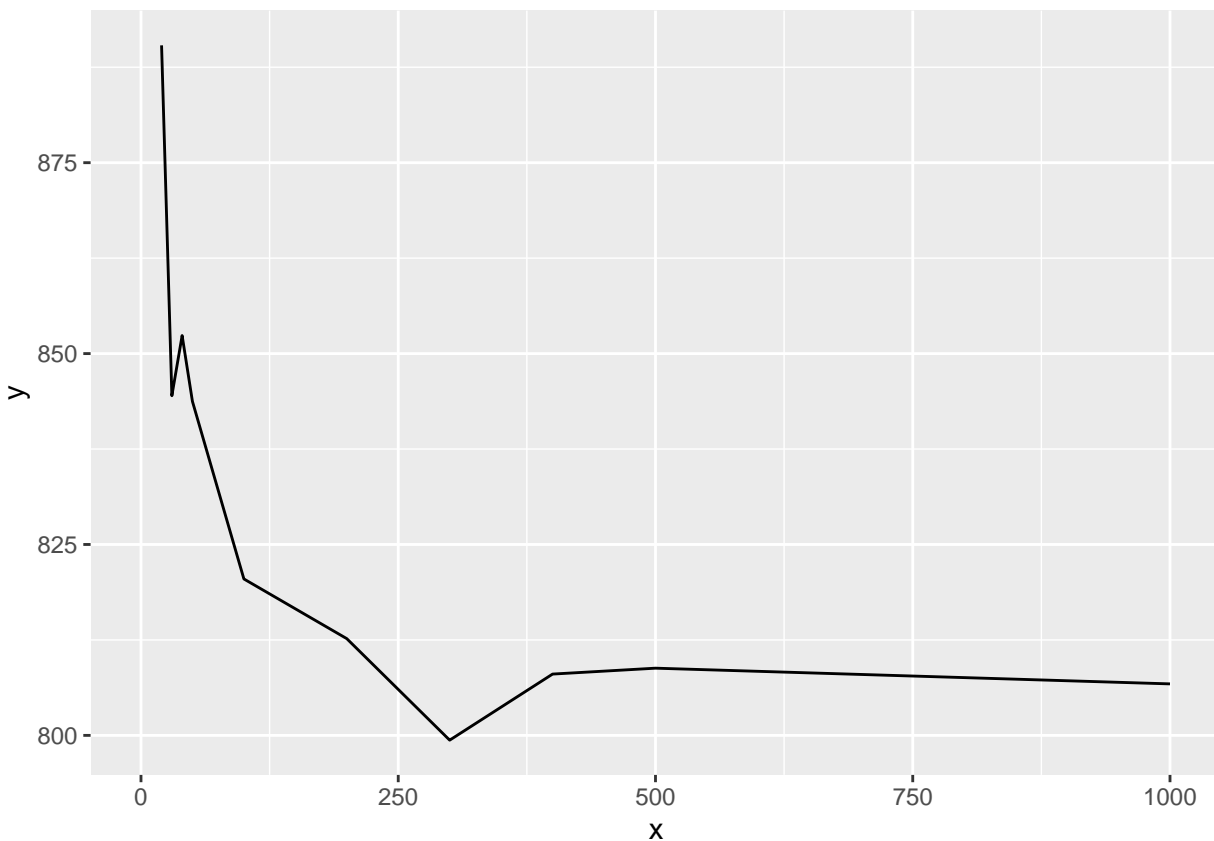
for(i in 1:length(num_trees)) {

  rf_mod <- randomForest(price~., data=diamonds_samp, ntree=num_trees[i])

  oob_se_num_trees[i] <- sd(diamonds_samp$price - rf_mod$predicted)
}

ggplot(data.frame(x=num_trees, y=oob_se_num_trees)) +
  geom_line(aes(x=x,y=y))

```



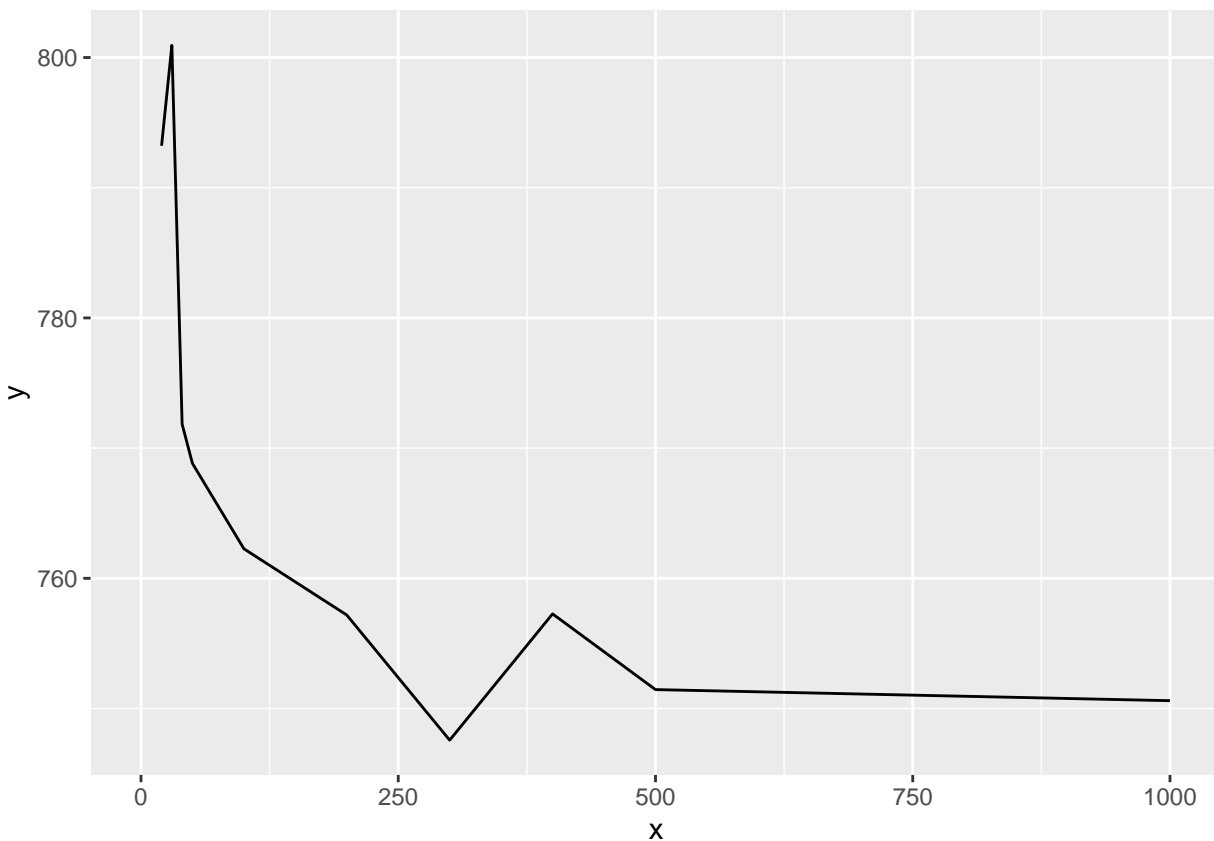
Using the diamonds data, find the bootstrap  $s_e$  for a bagged-tree model using 1, 2, 5, 10, 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000 trees. If you are using the `randomForest` package, you can create the bagged tree model via setting an argument within the RF constructor function.

```
num_trees = c(1, 2, 5, 10, 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000)
oob_se_num_trees_bag <- array(NA, length(num_trees))

for(i in 1:length(num_trees)) {
  rf_mod <- randomForest(price~., data=diamonds_samp, ntree=num_trees[i], mtry = ncol(diamonds_samp))
  oob_se_num_trees_bag[i] <- sd(diamonds_samp$price - rf_mod$predicted)
}

ggplot(data.frame(x=num_trees, y=oob_se_num_trees_bag)) +
  geom_line(aes(x=x,y=y))
```





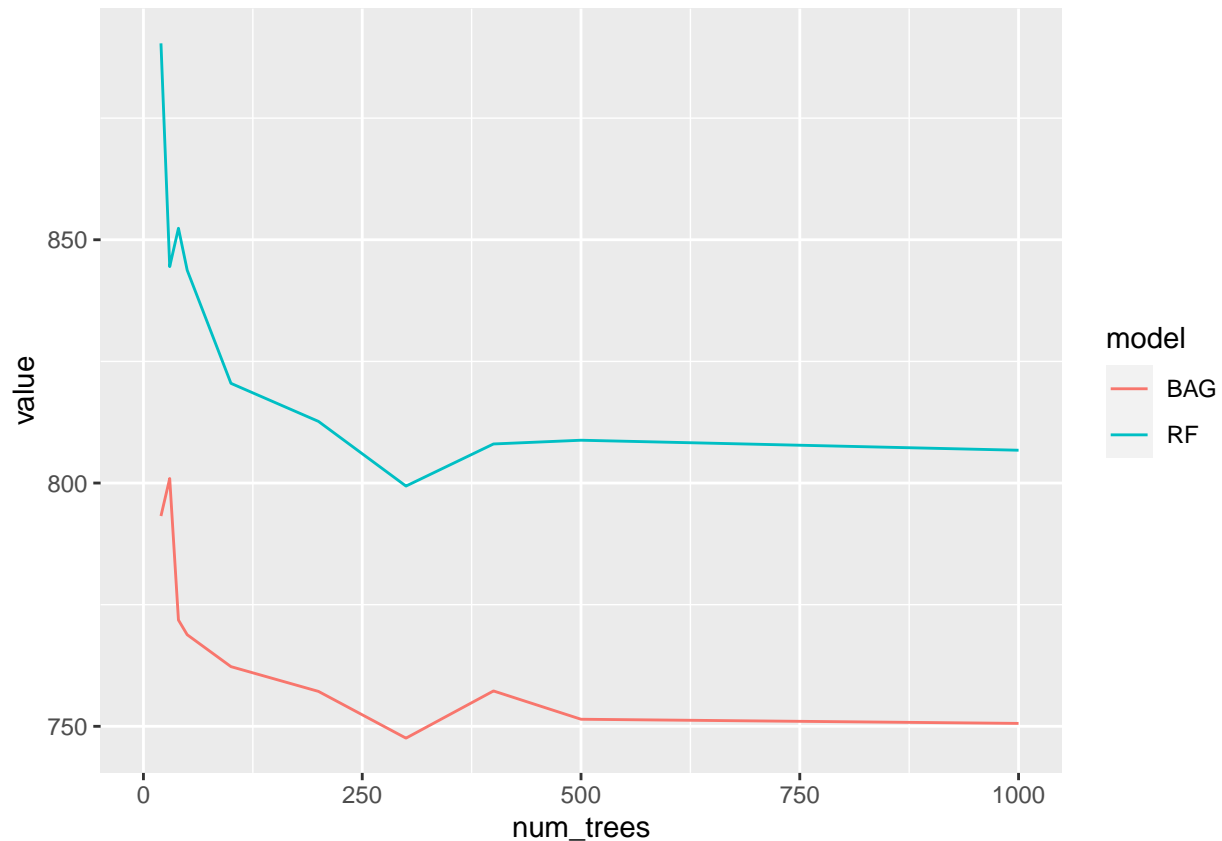
What is the percentage gain / loss in performance of the RF model vs bagged trees model?

```
(oob_se_num_trees - oob_se_num_trees_bag) / oob_se_num_trees_bag * 100
```

```
## [1]      NA      NA      NA      NA 12.246667  5.437023 10.432375
## [8]  9.744496  7.637470  7.328647  6.929941  6.703123  7.631467  7.479932
```

Plot bootstrap s\_e by number of trees for both RF and bagged trees.

```
ggplot(
  rbind(
    data.frame(num_trees=num_trees, value=oob_se_num_trees, model="RF"),
    data.frame(num_trees=num_trees, value=oob_se_num_trees_bag, model="BAG")
  )
) + geom_line(aes(x=num_trees, y=value, color = model))
```



Build RF models for 500 trees using different `mtry` values: 1, 2, ... the maximum. That maximum will be the number of features assuming that we do not binarize categorical features if you are using `randomForest` or the number of features assuming binarization of the categorical features if you are using `YARF`. Calculate bootstrap `s_e` for all `mtry` values.

```
mtrys = 1:(ncol(diamonds_samp) - 1)
oob_se_num_mtry <- array(NA, length(mtrys))

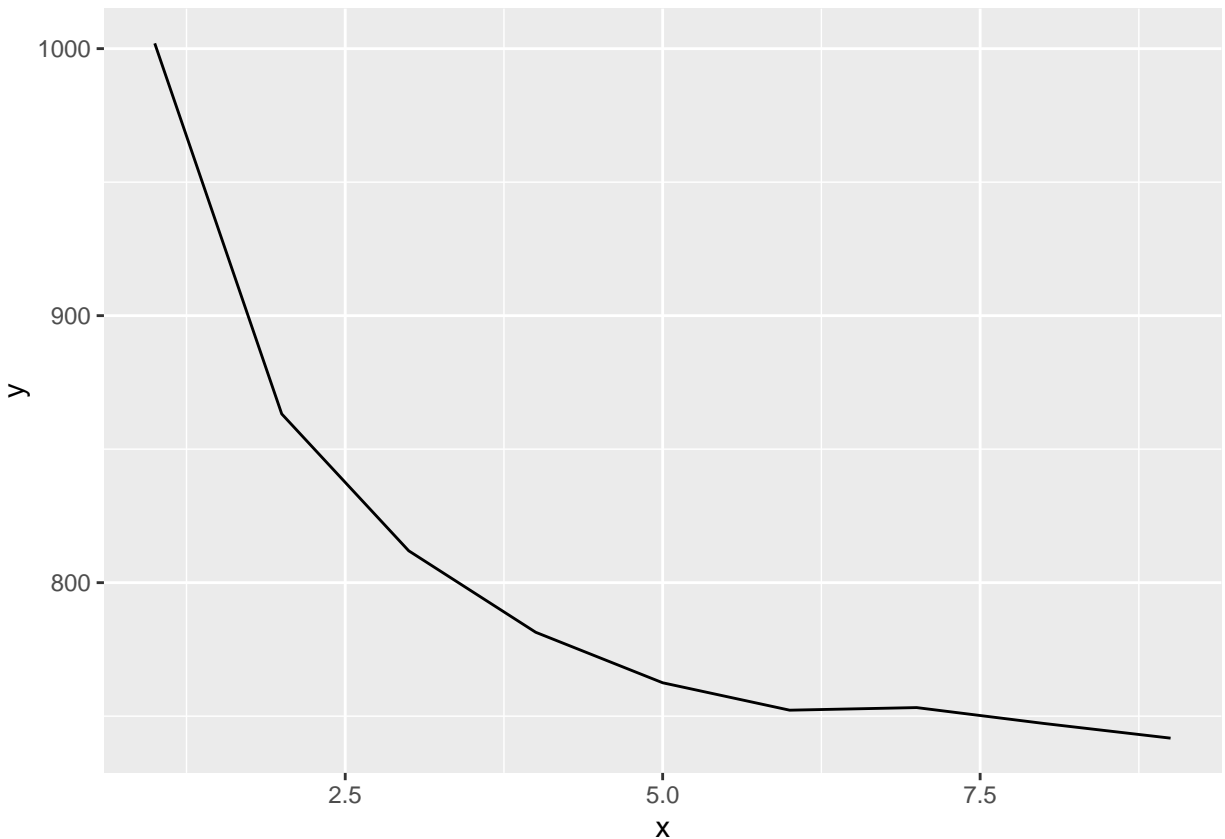
for(i in 1:length(mtrys)) {

  rf_mod <- randomForest(price~., data=diamonds_samp, mtry = mtrys[i])

  oob_se_num_mtry[i] <- sd(diamonds_samp$price - rf_mod$predicted)

}

ggplot(data.frame(x=mtrys, y=oob_se_num_mtry)) +
  geom_line(aes(x=x,y=y))
```



```
rm(list = ls())
```

Take a sample of  $n = 2000$  observations from the adult data.

```
pacman::p_load_gh("coatless/ucidata")
data(adult)
adult = na.omit(adult)

adult_samp = adult %>%
  sample_n(2000)
```

Using the adult data, find the bootstrap misclassification error for an RF model using 1, 2, 5, 10, 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000 trees. Plot it aswel.

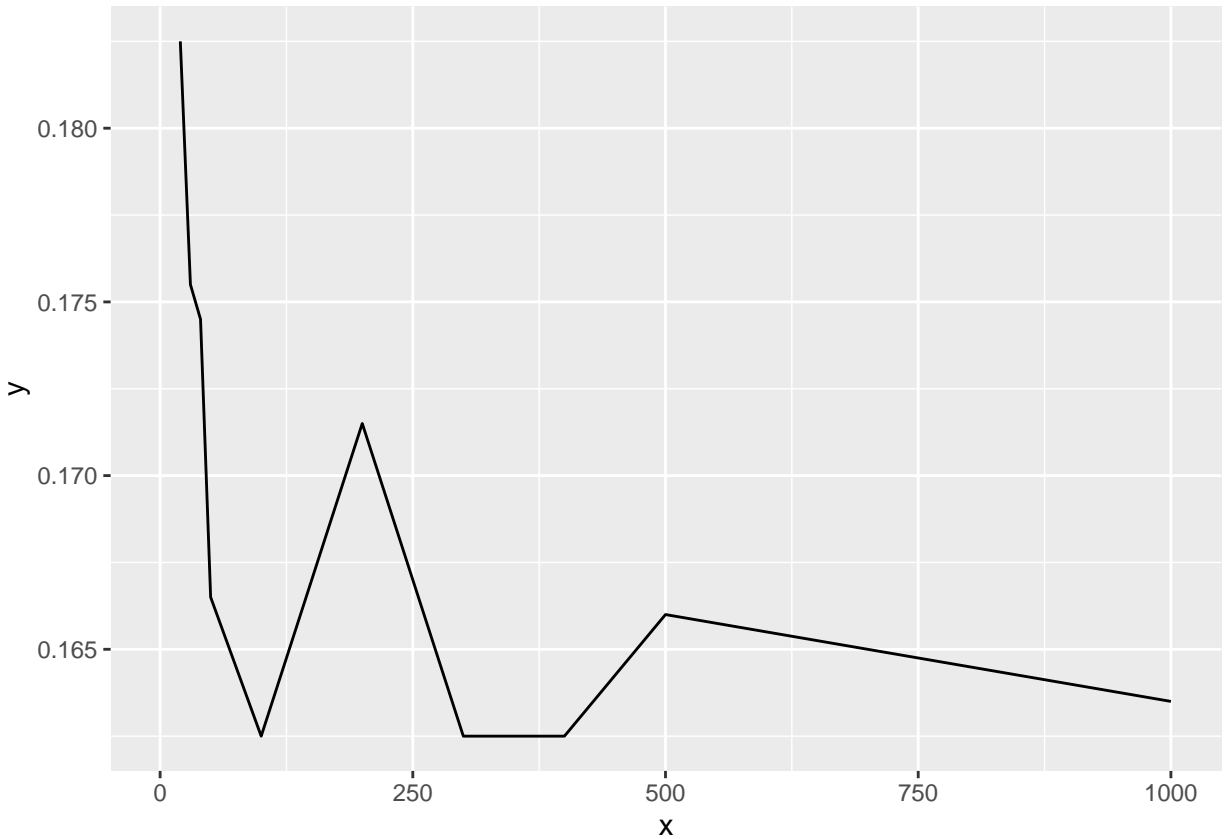
```
num_trees = c(1, 2, 5, 10, 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000)
oob_se_num_trees <- array(NA, length(num_trees))

for(i in 1:length(num_trees)) {

  rf_mod <- randomForest(income~., data=adult_samp, ntree=num_trees[i])

  oob_se_num_trees[i] <- mean(adult_samp$income != rf_mod$predicted) #sd(adult$income - rf_mod$predi
}

ggplot(data.frame(x=num_trees, y=oob_se_num_trees)) +
  geom_line(aes(x=x,y=y))
```



Using the adult data, find the bootstrap misclassification error for a bagged-tree model using 1, 2, 5, 10, 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000 trees.

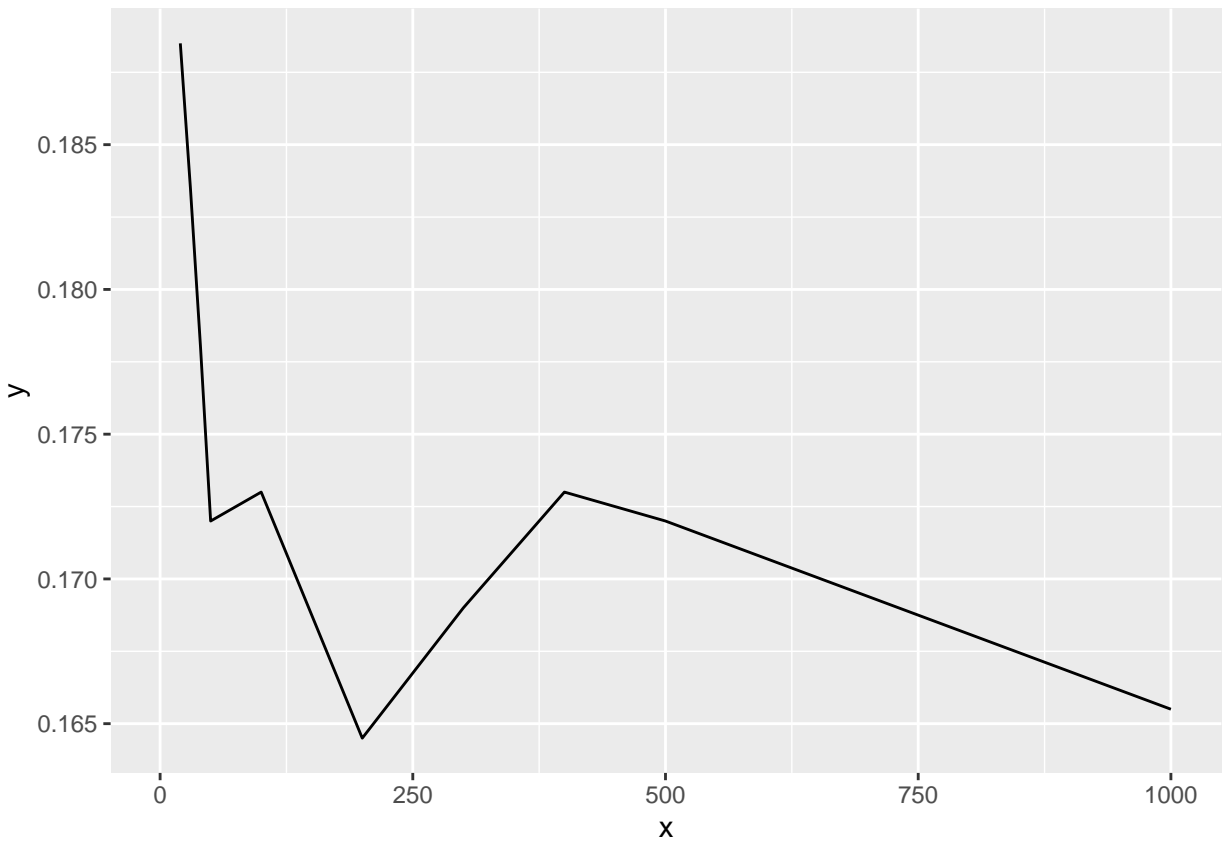
```
oob_se_num_trees_bag <- array(NA, length(num_trees))

for(i in 1:length(num_trees)) {

  rf_mod <- randomForest(income~., data=adult_samp, ntree=num_trees[i], mtry = ncol(adult) - 1)

  oob_se_num_trees_bag[i] <- mean(adult_samp$income != rf_mod$predicted) #sd(adult$income - rf_mod$pr
}

ggplot(data.frame(x=num_trees, y=oob_se_num_trees_bag)) +
  geom_line(aes(x=x,y=y))
```



What is the percentage gain / loss in performance of the RF model vs bagged trees model?

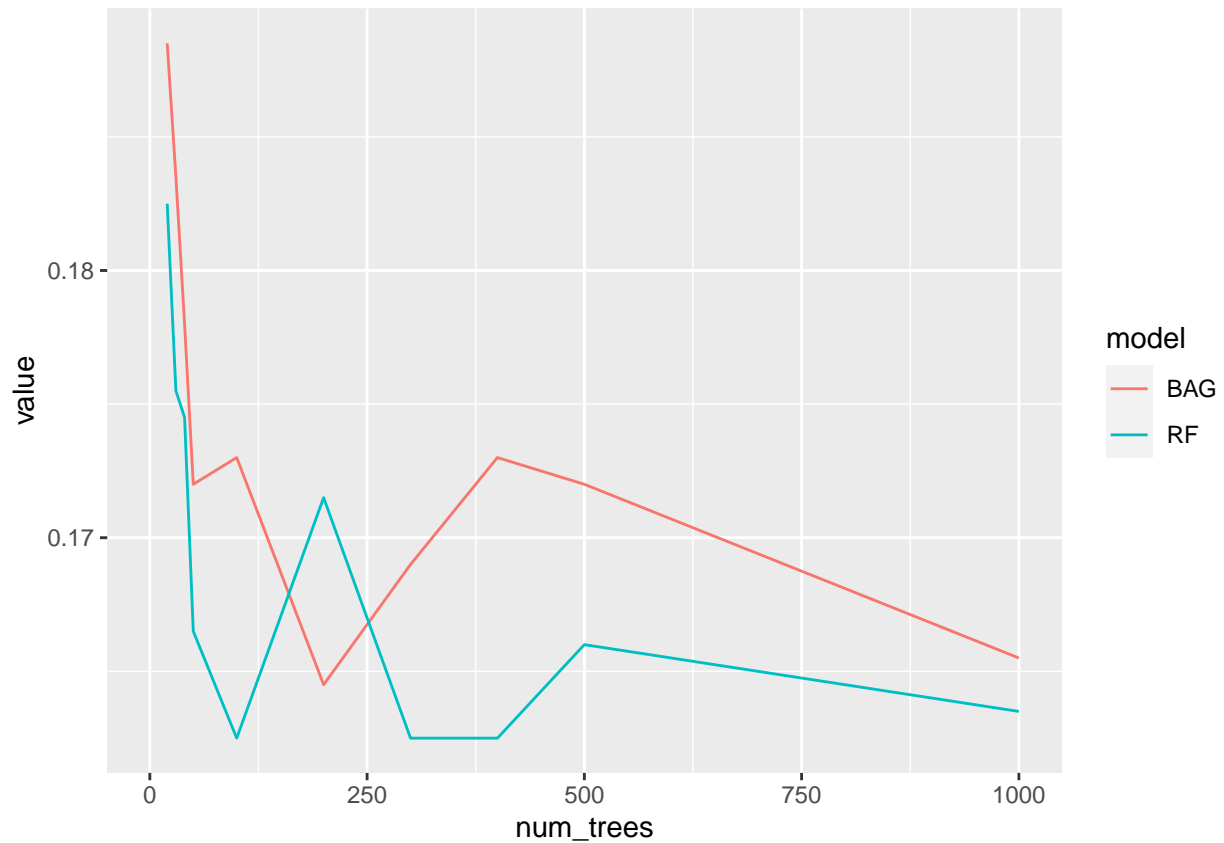
```
tmp <- oob_se_num_trees - oob_se_num_trees_bag
tmp <- tmp / oob_se_num_trees_bag * 100
```

```
tmp
```

```
## [1]      NA      NA      NA      NA -3.183024 -4.359673 -1.966292
## [8] -3.197674 -6.069364  4.255319 -3.846154 -6.069364 -3.488372 -1.208459
```

Plot bootstrap misclassification error by number of trees for both RF and bagged trees.

```
ggplot(
  rbind(
    data.frame(num_trees=num_trees, value=oob_se_num_trees, model="RF"),
    data.frame(num_trees=num_trees, value=oob_se_num_trees_bag, model="BAG")
  )
) + geom_line(aes(x=num_trees, y=value, color = model))
```



Build RF models for 500 trees using different `mtry` values: 1, 2, ... the maximum (see above as maximum is defined by the specific RF algorithm implementation).

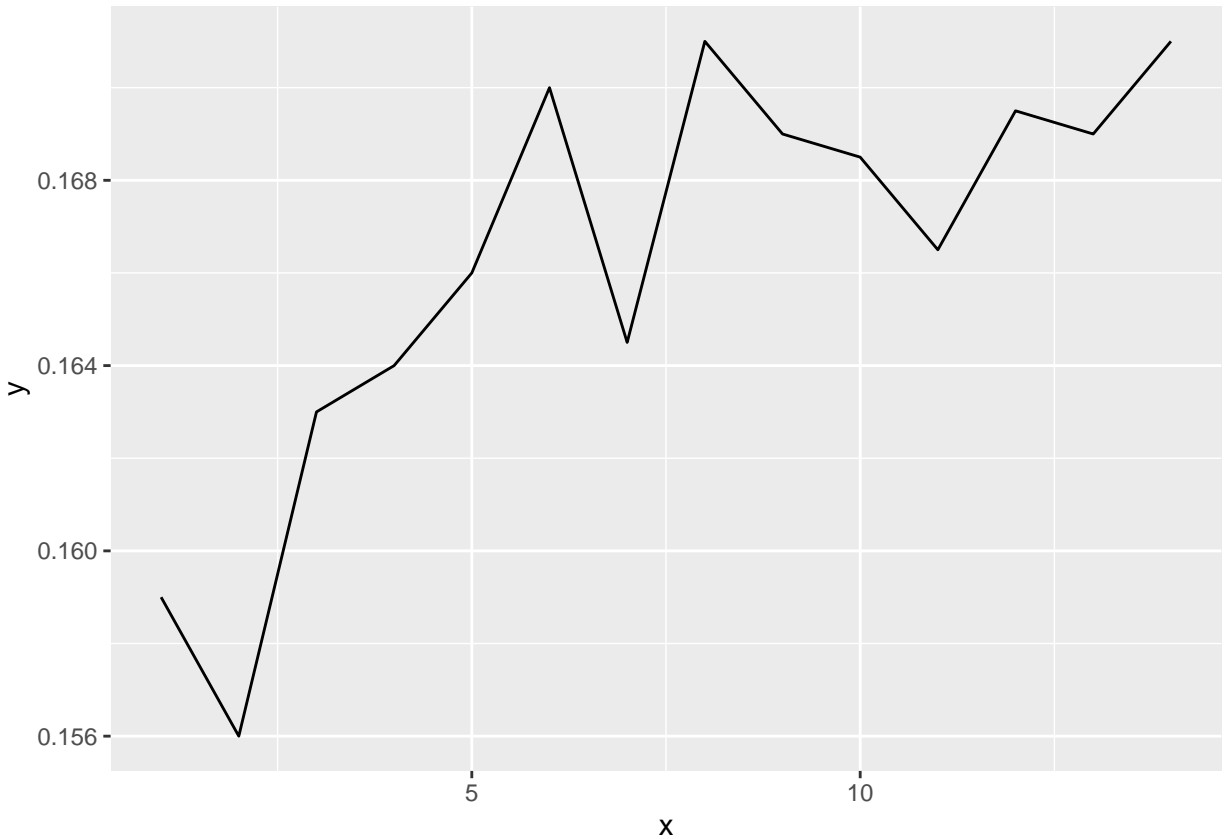
```
mtry <- 1:(ncol(adult_samp) - 1)

oob <- array(NA, length(mtry))

for(i in 1:length(mtry)) {
  mod <- randomForest(income ~., data = adult_samp, mtry = mtry[i])
  oob[i] <- mean(adult_samp$income != mod$predicted)
}
```

Plot bootstrap misclassification error by `mtry`.

```
ggplot(data.frame(x=mtry, y=oob)) +
  geom_line(aes(x=x, y=y))
```



```
rm(list = ls())
```

Write a function `random_bagged_ols` which takes as its arguments `X` and `y` with further arguments `num_ols_models` defaulted to 100 and `mtry` defaulted to `NULL` which then gets set within the function to be 50% of available features. This argument builds an OLS on a bootstrap sample of the data and uses only `mtry < p` of the available features. The function then returns all the `lm` models as a list with size `num_ols_models`.

```
random_bagged_ols <- function(x, y, num_ols_models = 100, mtry = NULL) {

  #Default values
  if (is.null(mtry) | mtry >= ncol(X))
    mtry <- .5 * ncol(X)

  #Models
  lm_mod <- array(NA, num_ols_models)

  nTrain = .1 * nrow(X)

  #Execute
  for(i in 1:num_ols_models) {

    bootstrapI <- sample(1:nTrain, replace = TRUE)
    select <- sample(1:mtr, replace = TRUE)
```

```

    lm_mod[i] <- lm(y[bootstrapI] ~ x[, select], x[bootstrapI])
  }

  return(lm_mod)
}

```

Load up the Boston Housing Data and separate into  $X$  and  $y$ .

```

pacman::p_load(MASS)

data(Boston)

y <- Boston$medv
x <- Boston - y

x$mdev <- NULL;

```

Similar to lab 1, write a function that takes a matrix and punches holes (i.e. sets entries equal to NA) randomly with an argument `prob_missing`.

```

punch <- function(x, prob_missing) {

  nr <- nrow(x)
  nc <- ncol(x)

  m <- matrix(rbinom(nr * nc, 1, prob_missing), nrow = nr, ncol = nc)

  x[m == 1] = NA

  return(x)
}

```

Create a matrix `Xmiss` which is `X` but has missingness with probability of 10%.

```

xmiss <- punch(x, .1)

```

Use a random forest modeling procedure to iteratively fill in the NA's by predicting each feature of `X` using every other feature of `X`. You need to start by filling in the holes to use RF. So fill them in with the average of the feature.

```

pacman::p_load(randomForest, tidyr)

#Turn off warnings
options(warn = -1)

x <- data.frame(xmiss)
nr <- nrow(x)
nc <- ncol(x)
P <- data.frame(matrix(NA, nr, nc))

```



```

for(i in 1:nr) {

  for(j in 1:nc) {

    if(is.na(x[i, j])) {

      naive <- x %>%
        replace_na(
          as.list(
            colMeans(x, na.rm = TRUE)
          )
        )

      mod <- randomForest(naive[ , j] ~ .,
                          data = naive, ntree = 100)

      #Store prediction
      P[i,j] <- predict(mod, naive[i, ])
      x[i,j] <- predict(mod, naive[i, ])

    }

  }

}

#Averaged predictions
x

```

##		crim	zn	indus	chas	nox	rm	age
## 1		-23.99368	-6.000000	-21.690000	-22.46749	-23.46200	-17.42500	41.20000
## 2		-21.57269	-21.600000	-14.530000	-21.60000	-21.72759	-15.17900	57.30000
## 3		-34.67271	-34.700000	-27.630000	-34.70000	-34.23100	-27.51500	26.40000
## 4		-21.64546	-10.451293	-31.220000	-33.40000	-32.94200	-26.40200	12.40000
## 5		-36.13095	-36.200000	-34.020000	-36.20000	-35.74200	-29.05300	18.00000
## 6		-28.67015	-28.700000	-26.520000	-28.70000	-22.50504	-22.27000	30.00000
## 7		-22.81171	-10.400000	-15.030000	-22.90000	-22.37600	-16.88800	43.70000
## 8		-26.95545	-14.600000	-19.230000	-22.45538	-26.57600	-20.92800	69.00000
## 9		-16.28876	-11.215520	-8.630000	-16.50000	-15.97600	-15.97007	83.50000
## 10		-18.72996	-6.400000	-11.030000	-18.90000	-18.37600	-12.89600	67.00000
## 11		-14.77511	-2.500000	-7.130000	-15.00000	-14.47600	-8.62300	79.30000
## 12		-18.78253	-6.400000	-11.030000	-18.90000	-18.37600	-12.89100	64.00000
## 13		-21.60622	-9.200000	-13.830000	-21.70000	-21.17600	-15.81100	17.30000
## 14		-19.77024	-20.400000	-12.260000	-20.40000	-19.86200	-14.45100	41.40000
## 15		-17.56204	-18.200000	-10.060000	-18.20000	-17.66200	-12.10400	66.30000
## 16		-19.27261	-19.900000	-11.760000	-19.90000	-19.36200	-14.06600	36.60000
## 17		-19.33719	-23.100000	-14.960000	-23.10000	-22.56200	-17.16500	6.20000
## 18		-16.71580	-17.500000	-9.360000	-21.50211	-16.96200	-16.00866	64.20000
## 19		-19.39729	-20.200000	-12.060000	-20.20000	-19.66200	-14.74400	16.40000
## 20		-18.95635	-18.200000	-11.099760	-18.20000	-17.66200	-12.47300	51.30000
## 21		-12.34821	-13.600000	-5.460000	-21.66420	-13.06200	-8.03000	84.50000
## 22		-18.74796	-19.600000	-11.460000	-19.60000	-19.06200	-13.63500	69.60000
## 23		-13.96753	-11.418210	-7.060000	-15.20000	-14.66200	-9.05800	76.50000

## 24	-13.51157	-14.500000	-6.360000	-14.50000	-13.96200	-8.68700	85.50000
## 25	-14.84974	-11.331662	-7.460000	-15.60000	-15.06200	-9.67600	78.50000
## 26	-13.05946	-13.900000	-5.760000	-13.90000	-13.36200	-8.30100	71.80000
## 27	-15.92809	-16.600000	-8.460000	-16.60000	-21.24808	-10.78700	50.27564
## 28	-13.84423	-14.800000	-6.660000	-14.80000	-14.26200	-8.75300	74.00000
## 29	-17.62701	-18.400000	-10.260000	-18.40000	-17.86200	-11.90500	76.00000
## 30	-19.99755	-21.000000	-12.860000	-21.00000	-21.51066	-14.32600	66.30000
## 31	-11.56919	-12.700000	-4.560000	-12.70000	-12.16200	-6.98700	81.40000
## 32	-13.14528	-14.500000	-6.360000	-14.50000	-13.96200	-8.42800	85.50000
## 33	-11.81201	-13.200000	-5.060000	-13.20000	-12.66200	-7.25000	68.80000
## 34	-17.60738	-13.100000	-4.960000	-13.10000	-12.56200	-7.39900	81.90000
## 35	-11.88718	-13.500000	-5.360000	-13.50000	-12.96200	-7.40400	83.40000
## 36	-18.83583	-18.900000	-12.940000	-18.90000	-18.40100	-12.96700	49.30000
## 37	-19.90256	-20.000000	-14.040000	-20.00000	-19.50100	-14.15900	45.47845
## 38	-20.91986	-21.000000	-15.040000	-21.00000	-21.64820	-15.15000	20.50000
## 39	-24.52495	-24.700000	-18.740000	-22.48290	-24.20100	-18.73400	5.50000
## 40	-30.77237	44.200000	-27.850000	-30.80000	-30.37200	-24.20500	-9.00000
## 41	-34.86641	40.100000	-13.453476	-34.90000	-34.47200	-27.87600	-19.10000
## 42	-26.47256	-26.600000	-19.690000	-22.93492	-26.15200	-19.83000	-23.70000
## 43	-25.15850	-25.300000	-18.390000	-25.30000	-24.85200	-19.13100	-18.70000
## 44	-24.54064	-24.700000	-17.790000	-24.70000	-24.25200	-18.48900	-18.20000
## 45	-21.07731	-21.200000	-14.290000	-21.20000	-20.75200	-15.13100	18.80000
## 46	-19.12858	-19.300000	-12.390000	-19.30000	-18.85200	-13.61800	14.50000
## 47	-19.81164	-20.000000	-13.090000	-20.00000	-19.55200	-14.21400	13.30000
## 48	-16.37073	-11.066874	-10.467651	-16.60000	-16.15200	-10.57000	68.90000
## 49	-14.14613	-14.400000	-7.490000	-14.40000	-13.95200	-9.00100	48.81459
## 50	-19.18023	-9.605944	-12.490000	-19.40000	-18.95200	-13.79800	42.60000
## 51	-19.61127	-10.049115	-11.398342	-19.70000	-19.26100	-16.18421	26.00000
## 52	-19.38568	0.500000	-14.860000	-20.50000	-20.06100	-14.38500	42.50000
## 53	-24.94640	-4.000000	-19.360000	-25.00000	-24.56100	-18.48900	45.51347
## 54	-23.35019	-2.400000	-17.760000	-23.40000	-22.96100	-17.40200	-2.00000
## 55	-18.88640	56.100000	-14.900000	-18.90000	-18.49000	-13.01200	28.70000
## 56	-35.38689	54.600000	-34.180000	-35.40000	-34.99700	-18.41325	43.88231
## 57	-19.60383	60.300000	-23.960000	-24.70000	-24.29000	-18.31700	11.00000
## 58	-31.58568	-11.079984	-30.280000	-31.60000	-31.18900	-24.78400	8.90000
## 59	-23.14555	1.700000	-18.170000	-23.30000	-22.84700	-17.15500	5.90000
## 60	-19.49672	5.400000	-14.470000	-19.60000	-19.14700	-13.67300	27.60000
## 61	-18.55068	6.300000	-13.570000	-18.70000	-18.24700	-12.95900	47.50000
## 62	-18.87577	9.000000	-10.870000	-16.00000	-15.54700	-15.93040	77.40000
## 63	-22.08973	2.800000	-17.070000	-22.20000	-21.74027	-15.74400	45.60000
## 64	-24.87350	0.000000	-19.870000	-25.00000	-24.54700	-18.23800	43.88305
## 65	-32.98049	-15.500000	-31.620000	-33.00000	-23.02155	-17.59793	26.50000
## 66	-19.53563	56.500000	-20.130000	-23.50000	-23.10200	-17.21000	-5.70000
## 67	-19.35621	60.600000	-11.727837	-19.40000	-19.00200	-13.61300	11.70000
## 68	-21.94211	-9.500000	-11.709456	-22.00000	-21.59100	-16.12200	-0.60000
## 69	-17.26446	-4.900000	-11.330000	-17.40000	-16.99100	-11.80600	19.40000
## 70	-20.77184	-8.400000	-14.830000	-20.90000	-20.49100	-15.01500	12.10000
## 71	-24.11174	-24.200000	-13.390000	-24.20000	-22.13440	-17.78300	-17.60000
## 72	-21.54124	-21.700000	-10.890000	-21.70000	-21.28700	-15.73900	-4.20000
## 73	-22.70836	-22.800000	-11.990000	-22.80000	-22.38700	-16.73500	-15.00000
## 74	-23.20461	-23.400000	-12.590000	-23.40000	-22.98700	-16.61257	-17.20000
## 75	-24.02104	-24.100000	-11.733879	-24.10000	-23.66300	-17.82700	-18.10000
## 76	-21.30488	-21.400000	-8.570000	-21.40000	-20.96300	-15.11400	23.60000
## 77	-19.89847	-20.000000	-11.135168	-20.00000	-19.56300	-13.72100	54.50000

## 78	-20.71293	-20.800000	-7.970000	-20.80000	-20.36300	-14.66000	25.00000
## 79	-21.14354	-21.200000	-8.370000	-21.20000	-20.76300	-14.96800	32.50000
## 80	-20.21613	-20.300000	-7.470000	-20.30000	-19.86300	-14.42600	16.30000
## 81	-27.95887	-3.000000	-23.140000	-28.00000	-27.57400	-21.27300	45.02386
## 82	-23.85538	1.100000	-19.040000	-23.90000	-23.47400	-17.28100	46.50000
## 83	-24.76341	0.200000	-19.940000	-24.80000	-24.37400	-18.49800	7.40000
## 84	-22.86449	2.100000	-18.040000	-22.90000	-22.47400	-16.73300	23.80000
## 85	-23.84941	-23.900000	-19.410000	-22.45259	-23.45100	-17.51100	24.10000
## 86	-26.54265	-26.600000	-22.110000	-26.60000	-26.15100	-19.97000	29.50000
## 87	-19.41299	-22.500000	-18.010000	-22.50000	-22.05100	-16.47672	22.60000
## 88	-22.12849	-9.963387	-17.710000	-22.20000	-21.75100	-16.07900	45.44562
## 89	-23.54340	-23.600000	-20.190000	-23.60000	-23.11100	-16.59300	62.70000
## 90	-28.64698	-28.700000	-25.290000	-28.70000	-28.21100	-21.62100	34.40000
## 91	-22.55316	-22.600000	-19.190000	-22.60000	-22.11100	-16.18300	43.50000
## 92	-21.96068	-22.000000	-11.043229	-22.00000	-21.51100	-15.59500	51.90000
## 93	-22.85797	5.100000	-7.860000	-22.90000	-22.43600	-16.45800	30.70000
## 94	-24.97125	3.000000	-9.960000	-25.00000	-24.53600	-18.78900	3.90000
## 95	-20.55706	7.400000	-5.560000	-21.94735	-20.13600	-14.35100	56.70000
## 96	-28.27796	-28.400000	-25.510000	-22.79988	-27.95500	-21.77500	45.18533
## 97	-21.28496	-21.400000	-18.510000	-21.40000	-20.95500	-15.23700	48.20000
## 98	-38.57917	-38.700000	-35.810000	-38.70000	-38.25500	-30.63100	37.30000
## 99	-43.71813	-43.800000	-40.910000	-43.80000	-43.35500	-20.23013	-6.90000
## 100	-33.13140	-33.200000	-30.310000	-33.20000	-32.75500	-25.78400	29.30000
## 101	-27.35134	-27.500000	-11.765331	-27.50000	-26.98000	-20.77300	52.40000
## 102	-26.38568	-26.500000	-17.940000	-26.50000	-25.98000	-19.71900	44.80000
## 103	-18.37124	-18.600000	-10.040000	-18.60000	-18.08000	-16.18720	66.80000
## 104	-19.08839	-19.300000	-10.740000	-19.30000	-21.56463	-13.16300	68.10000
## 105	-19.96040	-20.100000	-11.540000	-20.10000	-19.58000	-13.93300	69.90000
## 106	-19.36738	-19.500000	-10.763933	-19.50000	-18.98000	-13.64900	77.20000
## 107	-19.13191	-19.500000	-10.940000	-19.50000	-18.98000	-13.66400	72.40000
## 108	-19.20752	-10.918657	-11.840000	-21.72817	-19.88000	-14.27300	64.80000
## 109	-19.67198	-19.800000	-11.240000	-19.80000	-19.28000	-13.32600	77.30000
## 110	-19.13637	-19.400000	-10.840000	-19.40000	-18.88000	-13.17100	49.08514
## 111	-21.59207	-21.700000	-13.140000	-21.70000	-21.71189	-15.50500	32.70000
## 112	-22.69916	-11.024016	-11.286339	-22.80000	-22.25300	-16.08500	58.80000
## 113	-18.67671	-18.800000	-8.790000	-18.80000	-18.25300	-12.88700	74.10000
## 114	-18.47788	-18.700000	-8.690000	-21.61603	-18.15300	-12.60800	76.70000
## 115	-18.90218	-18.500000	-8.490000	-18.50000	-17.95300	-12.24600	47.17060
## 116	-18.12866	-18.300000	-8.290000	-18.30000	-17.75300	-12.37200	69.90000
## 117	-21.06842	-21.200000	-11.190000	-21.20000	-20.65300	-15.02400	51.30000
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## 121	-21.93101	-22.000000	3.650000	-22.00000	-21.41900	-16.13000	47.70000
## 122	-20.22835	-20.300000	5.350000	-20.30000	-19.71900	-14.29600	63.80000
## 123	-20.40701	-20.500000	5.150000	-20.50000	-19.91900	-14.53900	72.40000
## 124	-17.14962	-17.300000	-10.104780	-17.30000	-16.71900	-15.73325	79.70000
## 125	-18.70151	-18.800000	6.850000	-18.80000	-18.21900	-12.92100	77.00000
## 126	-21.23098	-21.400000	4.250000	-21.40000	-20.81900	-15.41400	67.00000
## 127	-15.31265	-15.700000	9.950000	-15.70000	-15.11900	-10.08700	79.90000
## 128	-15.94085	-16.200000	5.690000	-16.20000	-15.57600	-10.50700	79.80000
## 129	-17.67457	-18.000000	-10.356190	-18.00000	-21.44925	-11.56900	80.80000
## 130	-13.41875	-14.300000	7.590000	-14.30000	-20.95925	-8.66300	80.40000
## 131	-18.85994	-19.200000	-10.325605	-19.20000	-18.57600	-12.74200	79.70000

##	132	-18.40706	-19.600000	2.290000	-19.60000	-18.97600	-13.27400	78.10000
##	133	-22.40995	-23.000000	-11.118058	-23.00000	-22.37600	-16.62800	74.90000
##	134	-18.07018	-18.400000	-11.058937	-18.40000	-17.77600	-12.57800	77.00000
##	135	-14.62383	-15.600000	6.290000	-15.60000	-14.97600	-9.84300	82.80000
##	136	-17.54222	-18.100000	3.790000	-18.10000	-17.47600	-11.76500	80.10000
##	137	-17.07736	-17.400000	4.490000	-17.40000	-16.77600	-11.45800	76.10000
##	138	-16.74767	-17.100000	4.790000	-17.10000	-16.47600	-10.64600	81.30000
##	139	-13.05020	-13.300000	8.590000	-13.30000	-12.67600	-7.44300	49.93174
##	140	-17.25548	-17.800000	4.090000	-21.38788	-17.17600	-11.64900	48.62213
##	141	-13.70910	-14.000000	7.890000	-14.00000	-13.37600	-7.82600	79.60000
##	142	-12.77136	-14.400000	-9.450236	-14.40000	-20.79348	-9.38100	85.60000
##	143	-10.07895	-13.400000	6.180000	-12.40000	-12.52900	-7.99700	86.60000
##	144	-11.50260	-15.600000	3.980000	-15.60000	-14.72900	-10.13200	84.40000
##	145	-9.02026	-11.800000	7.780000	-11.80000	-10.92900	-6.89700	86.00000
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##	147	-13.44495	-15.600000	3.980000	-15.60000	-21.03038	-9.97200	84.40000
##	148	-12.23138	-14.600000	4.980000	-14.60000	-21.21155	-9.67400	81.10000
##	149	-15.46901	-17.800000	1.780000	-17.80000	-16.92900	-12.61400	76.00000
##	150	-12.66603	-15.400000	4.180000	-15.40000	-14.52900	-9.80300	79.50000
##	151	-19.84340	-21.500000	-1.920000	-21.50000	-20.62900	-15.37800	75.80000
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##	153	-14.17342	-15.300000	4.280000	-14.30000	-14.42900	-10.28800	72.70000
##	154	-17.25082	-19.400000	0.180000	-19.40000	-18.52900	-13.69100	79.10000
##	155	-15.58615	-17.000000	2.580000	-16.00000	-16.12900	-10.87100	79.00000
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##	157	-10.65332	-13.100000	6.480000	-13.10000	-12.22900	-7.82800	80.90000
##	158	-40.07642	-41.300000	-21.720000	-24.10794	-40.69500	-34.35700	56.10000
##	159	-22.95716	-24.300000	-4.720000	-24.30000	-23.69500	-18.23400	75.70000
##	160	-19.26964	-11.690548	-3.720000	-22.35222	-22.42900	-16.79000	76.70000
##	161	-25.72654	-27.000000	-7.420000	-26.00000	-26.39500	-20.75000	65.60000
##	162	-48.53664	-50.000000	-30.420000	-50.00000	-49.39500	-42.51100	40.80000
##	163	-48.16623	-50.000000	-14.745864	-49.00000	-49.39500	-42.19800	48.20000
##	164	-48.48098	-50.000000	-15.937419	-49.00000	-49.39500	-41.62500	43.90000
##	165	-20.45764	-22.700000	-3.120000	-22.70000	-22.09500	-16.84600	69.10000
##	166	-19.41913	-25.000000	-5.420000	-25.00000	-24.39500	-18.89900	68.00000
##	167	-22.31916	-50.000000	-30.420000	-50.00000	-49.39500	-42.07100	46.20000
##	168	-21.99972	-23.800000	-4.220000	-23.80000	-23.19500	-17.92300	55.40000
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##	176	-29.33336	-29.400000	-25.350000	-29.40000	-28.89000	-17.57323	3.70000
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## 190 -34.81630 10.100000 -31.460000 -23.14234 -34.46300 -27.71500 46.11799
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## 193 -36.31336 8.600000 -32.960000 -36.40000 -35.96300 -29.22200 43.67286
## 194 -31.07813 -12.193658 -28.170000 -31.10000 -30.69900 -24.30000 45.64605
## 195 -29.08561 -8.274364 -26.170000 -29.10000 -28.69900 -22.49600 -10.30000
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## 202 -24.06555 58.400000 -22.070000 -24.10000 -23.68500 -17.93800 14.30000
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## 216 -24.80198 -25.000000 -11.495875 -25.00000 -24.51100 -16.92125 17.40000
## 217 -23.25440 -23.300000 -9.410000 -22.30000 -22.75000 -16.60764 32.70000
## 218 -20.45757 -28.700000 -14.810000 -28.70000 -28.15000 -22.05800 56.40000
## 219 -21.38931 -21.500000 -7.610000 -21.99490 -20.95000 -15.54900 46.15696
## 220 -22.88575 -23.000000 -9.110000 -22.00000 -22.45000 -16.62700 69.40000
## 221 -26.34191 -26.700000 -20.500000 -25.70000 -22.64208 -19.74900 61.80000
## 222 -21.29229 -21.700000 -15.500000 -20.70000 -21.19300 -15.53600 69.60000
## 223 -26.87644 -27.500000 -21.300000 -23.10204 -26.99300 -20.62100 50.20000
## 224 -29.48530 -30.100000 -23.900000 -30.10000 -29.59300 -23.48200 50.70000
## 225 -44.48467 -44.800000 -38.600000 -44.80000 -44.29600 -36.53400 33.50000
## 226 -49.47307 -50.000000 -14.619437 -50.00000 -49.49600 -41.27500 33.00000
## 227 -37.21786 -37.600000 -31.400000 -24.35465 -37.09600 -19.38218 48.90000
## 228 -31.18762 -31.600000 -25.400000 -23.22558 -31.09600 -17.75642 48.30000
## 229 -46.40181 -46.700000 -40.500000 -46.70000 -46.19600 -39.01400 -29.70000
## 230 -31.05822 -31.500000 -25.300000 -31.50000 -30.99600 -24.94800 -10.10000
## 231 -23.76300 -24.300000 -18.100000 -24.30000 -23.79600 -18.31900 43.80000
## 232 -31.23704 -31.700000 -25.500000 -31.70000 -23.68498 -24.28800 45.20000
## 233 -41.12471 -41.700000 -35.500000 -41.70000 -41.19300 -33.36300 31.60000
## 234 -47.96853 -9.970714 -15.692254 -24.60565 -47.79300 -40.05300 45.08021
## 235 -28.55209 -29.000000 -22.800000 -28.00000 -28.49300 -22.27400 37.50000
## 236 -23.66955 -24.000000 -11.422800 -24.00000 -22.14824 -17.91400 37.50000
## 237 -24.57942 -25.100000 -18.900000 -24.10000 -24.59300 -18.46900 51.40000
## 238 -30.98817 -31.500000 -25.300000 -31.50000 -30.99300 -24.14200 40.10000
## 239 -19.67481 6.300000 -18.770000 -22.41801 -23.27200 -17.21900 -5.20000

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##	240	-23.20748	6.700000	-18.370000	-23.30000	-22.87200	-16.69400	44.35602
##	241	-21.88671	8.000000	-17.070000	-22.00000	-21.57200	-15.10300	32.30000
##	242	-19.99388	9.900000	-15.170000	-20.10000	-19.67200	-14.00500	45.00000
##	243	-22.09710	7.800000	-17.270000	-22.20000	-21.77200	-16.33371	30.70000
##	244	-23.57243	-4.876044	-18.770000	-23.70000	-23.27200	-17.30700	-15.90000
##	245	-17.39392	4.400000	-11.740000	-17.60000	-17.16900	-12.00700	58.90000
##	246	-18.30867	3.500000	-12.640000	-18.50000	-21.29483	-16.21263	47.43970
##	247	-23.96017	-2.300000	-18.440000	-24.30000	-23.86900	-18.19200	10.60000
##	248	-20.30343	1.500000	-14.640000	-20.50000	-20.06900	-14.27400	58.70000
##	249	-24.33561	-2.500000	-18.640000	-24.50000	-22.15757	-18.06700	24.60000
##	250	-19.40590	-4.200000	-20.340000	-22.72285	-25.76900	-19.48200	-8.70000
##	251	-24.25970	-2.400000	-18.540000	-24.40000	-23.96900	-17.91300	-11.40000
##	252	-24.58591	-2.800000	-18.940000	-24.80000	-24.36900	-18.36200	-15.90000
##	253	-29.51779	-7.600000	-23.740000	-29.60000	-29.16900	-18.01403	-22.80000
##	254	-20.58914	-20.800000	-36.940000	-42.80000	-23.32597	-19.25525	-34.40000
##	255	-21.85181	58.100000	-18.260000	-21.90000	-21.50800	-15.79200	10.10000
##	256	-20.86452	59.100000	-17.260000	-20.90000	-21.66223	-16.27714	43.67737
##	257	-43.98462	46.000000	-15.258787	-44.00000	-24.84833	-36.54600	-9.80000
##	258	-26.46041	-30.000000	-46.030000	-50.00000	-49.35300	-41.29600	36.90000
##	259	-35.33649	-16.000000	-32.030000	-36.00000	-35.35300	-28.66700	64.00000
##	260	-29.44335	-10.100000	-26.130000	-30.10000	-29.45300	-23.25800	45.05826
##	261	-33.25989	-13.800000	-29.830000	-33.80000	-33.15300	-26.59700	48.00000
##	262	-42.56588	-23.100000	-39.130000	-25.66842	-42.45300	-35.58000	46.30000
##	263	-48.27986	-28.800000	-44.830000	-48.80000	-48.15300	-40.40200	42.70000
##	264	-30.17474	-11.000000	-27.030000	-23.71405	-30.35300	-23.67300	46.26633
##	265	-35.94993	-12.653838	-32.530000	-36.50000	-35.85300	-29.29400	55.10000
##	266	-22.03838	-2.800000	-18.830000	-22.80000	-22.15300	-17.24000	40.00000
##	267	-29.91430	-10.700000	-26.730000	-30.70000	-30.05300	-23.68600	53.90000
##	268	-49.42166	-30.000000	-46.030000	-50.00000	-49.42500	-41.70300	17.00000
##	269	-42.95950	-23.500000	-39.530000	-43.50000	-24.02823	-36.03000	9.10000
##	270	-20.60935	-0.700000	-13.740000	-19.70000	-20.23600	-14.78000	40.80000
##	271	-20.80084	-1.100000	-14.140000	-21.10000	-20.63600	-15.24400	21.00000
##	272	-25.03789	-5.200000	-18.240000	-25.20000	-24.73600	-18.96000	-8.90000
##	273	-24.28540	-10.483112	-17.440000	-24.40000	-23.93600	-17.86200	34.30000
##	274	-34.97812	-9.214508	-28.240000	-23.64460	-34.73600	-27.50900	16.60000
##	275	-32.34356	7.600000	-25.990000	-31.40000	-31.95300	-25.64200	0.50000
##	276	-22.63368	8.000000	-25.590000	-32.00000	-31.55300	-25.14600	10.80000
##	277	-33.09531	6.800000	-26.790000	-32.20000	-32.75300	-25.93300	15.80000
##	278	-33.03873	6.900000	-26.690000	-32.10000	-24.34627	-26.27400	-5.50000
##	279	-29.02022	10.900000	-22.690000	-29.10000	-28.65300	-22.61800	3.00000
##	280	-34.88962	-15.100000	-31.770000	-35.10000	-34.65710	-28.28800	-2.90000
##	281	-45.36422	-25.400000	-42.070000	-45.40000	-44.95710	-37.58000	19.10000
##	282	-35.36295	-15.400000	-32.070000	-35.40000	-34.95710	-28.43200	1.80000
##	283	-45.93871	-10.431317	-42.670000	-24.61046	-26.17567	-38.35500	3.70000
##	284	-49.98499	40.000000	-48.790000	-25.29134	-49.59900	-42.07700	-25.20000
##	285	-32.19094	57.800000	-29.230000	-23.23684	-31.80000	-25.11200	-11.40000
##	286	-21.98904	33.000000	-19.750000	-22.00000	-21.61100	-15.54700	9.90000
##	287	-19.29026	59.900000	-18.340000	-20.10000	-19.71500	-13.87000	11.40000
##	288	-23.16129	29.300000	-17.880000	-22.48124	-22.79500	-16.99100	8.10000
##	289	-22.25410	30.200000	-16.980000	-22.30000	-21.89500	-15.98500	23.30000
##	290	-19.72080	27.700000	-19.480000	-24.80000	-22.27300	-18.23500	-1.90000
##	291	-28.46498	51.500000	-23.550000	-28.50000	-22.95713	-21.63900	-0.60000
##	292	-37.22114	42.700000	-32.350000	-37.30000	-36.88900	-30.15200	42.53393
##	293	-20.64797	52.100000	-22.950000	-27.90000	-27.48900	-21.27000	-4.50000

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## 294 -23.81735 -23.900000 -9.980000 -23.90000 -23.46300 -17.77300 -5.50000
## 295 -21.61801 -21.700000 -7.780000 -21.70000 -21.26300 -15.69100 20.60000
## 296 -28.47068 -28.600000 -14.680000 -28.60000 -28.16300 -21.92200 2.50000
## 297 -27.04628 -27.100000 -13.180000 -27.10000 -26.66300 -20.55100 23.90000
## 298 -20.15897 -20.300000 -6.380000 -20.30000 -19.86300 -14.51000 37.70000
## 299 -22.43534 47.500000 -20.260000 -22.43055 -22.10000 -16.15500 -2.40000
## 300 -28.94439 41.000000 -26.760000 -29.00000 -23.15495 -21.95900 43.49029
## 301 -24.75583 45.200000 -22.560000 -24.80000 -24.40000 -17.92900 22.60000
## 302 -21.96463 12.000000 -15.910000 -22.00000 -21.56700 -15.41000 18.40000
## 303 -20.01916 7.600000 -20.310000 -26.40000 -25.96700 -19.90500 -8.00000
## 304 -33.00000 0.900000 -27.010000 -33.10000 -32.66700 -26.11800 -15.40000
## 305 -36.04485 -11.667288 -33.920000 -36.10000 -35.62800 -28.86400 5.00000
## 306 -28.34521 4.600000 -26.220000 -28.40000 -27.92800 -21.78400 29.70000
## 307 -33.32497 -0.400000 -31.220000 -33.40000 -23.90800 -25.98000 38.50000
## 308 -28.15068 4.800000 -12.506589 -28.20000 -27.72800 -21.35100 43.66246
## 309 -19.67856 -22.800000 -12.900000 -22.80000 -22.25600 -16.16500 59.70000
## 310 -19.95060 -20.300000 -10.400000 -20.30000 -19.75600 -14.32800 56.40000
## 311 -18.83704 -10.445610 -6.200000 -16.10000 -15.55600 -16.01565 21.70000
## 312 -21.30959 -22.100000 -12.200000 -22.10000 -21.55600 -15.97800 30.70000
## 313 -19.19651 -19.400000 -11.214026 -19.40000 -18.85600 -13.37700 71.00000
## 314 -21.33062 -21.600000 -11.700000 -21.60000 -21.05600 -15.33400 61.20000
## 315 -23.43080 -23.800000 -11.753717 -23.80000 -23.25600 -17.23300 63.50000
## 316 -15.94644 -16.200000 -6.300000 -16.20000 -15.65600 -10.49500 61.50000
## 317 -17.48173 -17.800000 -7.900000 -17.80000 -17.25600 -11.88600 65.40000
## 318 -19.55478 -19.800000 -9.900000 -19.80000 -21.60683 -14.01800 51.90000
## 319 -22.69798 -10.742496 -13.200000 -23.10000 -22.55600 -16.71800 44.10000
## 320 -20.52453 -21.000000 -11.100000 -21.00000 -20.45600 -14.88700 37.80000
## 321 -23.63240 -23.800000 -16.420000 -23.80000 -23.30700 -17.37400 28.50000
## 322 -22.91841 -23.100000 -15.720000 -23.10000 -22.60700 -16.72400 31.20000
## 323 -20.04886 -20.400000 -13.020000 -20.40000 -19.90700 -14.35900 29.50000
## 324 -18.21608 -18.500000 -11.120000 -18.50000 -18.00700 -12.79200 55.80000
## 325 -24.65891 -25.000000 -11.552972 -25.00000 -24.50700 -18.58500 15.10000
## 326 -24.40814 -24.600000 -17.220000 -24.60000 -24.10700 -18.16900 -9.90000
## 327 -22.69653 -23.000000 -15.620000 -23.00000 -22.50700 -16.68800 5.90000
## 328 -19.66462 -22.200000 -14.820000 -22.20000 -21.70700 -16.11700 21.50000
## 329 -19.23429 -19.300000 -16.060000 -19.30000 -18.84000 -13.43200 6.50000
## 330 -22.53276 -22.600000 -19.360000 -22.60000 -22.14000 -16.54026 -5.40000
## 331 -19.75456 -19.800000 -16.560000 -19.80000 -19.34000 -13.65600 12.40000
## 332 -17.04977 17.900000 -11.040000 -17.10000 -16.66210 -11.39400 11.30000
## 333 -19.36534 15.600000 -13.340000 -19.40000 -18.96210 -13.36900 44.55919
## 334 -22.14917 -9.513004 -17.010000 -22.20000 -21.68500 -15.88400 15.90000
## 335 -20.66262 -20.700000 -15.510000 -20.70000 -20.18500 -14.39000 17.80000
## 336 -21.06039 -9.123575 -15.910000 -21.10000 -20.58500 -15.06300 13.40000
## 337 -19.46573 -19.500000 -14.310000 -19.50000 -18.98500 -16.06397 26.80000
## 338 -18.46959 -18.500000 -13.310000 -18.50000 -17.98500 -16.21207 41.10000
## 339 -20.56694 -20.600000 -15.410000 -20.60000 -20.08500 -14.54100 16.70000
## 340 -18.94503 -19.000000 -13.810000 -19.00000 -18.48500 -13.01500 26.40000
## 341 -18.63849 -18.700000 -13.510000 -18.70000 -18.18500 -12.73200 39.80000
## 342 -32.68699 2.300000 -31.180000 -23.84057 -32.25800 -25.45900 16.60000
## 343 -16.47502 -16.500000 -14.610000 -16.50000 -15.98200 -9.96000 43.20000
## 344 -23.87457 31.100000 -20.120000 -23.90000 -22.23540 -17.20400 32.50000
## 345 -31.16951 23.800000 -27.420000 -31.20000 -30.71600 -24.32600 -3.10000
## 346 -17.46887 -17.500000 -13.110000 -17.50000 -17.05800 -11.48600 31.00000
## 347 -17.13838 -10.927318 -12.810000 -17.20000 -16.75800 -11.30200 45.82767

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## 348	-19.50371	61.900000	-18.950000	-23.10000	-22.67100	-16.58400	4.60000
## 349	-24.48499	55.500000	-22.490000	-24.50000	-24.06500	-17.86500	5.20000
## 350	-26.57101	-9.688991	-25.350000	-26.60000	-26.17100	-19.66100	7.90000
## 351	-22.83789	17.100000	-21.650000	-22.90000	-22.47100	-16.41000	21.50000
## 352	-24.02050	35.900000	-22.410000	-22.57779	-23.68900	-16.77395	11.80000
## 353	-18.52756	-6.759584	-11.935271	-18.60000	-18.18900	-12.71600	-0.10000
## 354	-30.08291	59.900000	-14.004456	-23.92936	-29.69000	-23.37200	6.00000
## 355	-18.15699	61.800000	-16.290000	-18.20000	-17.78700	-16.01027	3.70000
## 356	-19.32824	59.400000	-18.690000	-20.60000	-20.18700	-14.66400	-1.10000
## 357	-8.81704	-11.351147	0.300000	-16.80000	-17.03000	-11.58800	79.60000
## 358	-17.85030	-21.700000	-3.600000	-20.70000	-20.93000	-16.37895	69.30000
## 359	-17.49823	-22.700000	-4.600000	-22.34228	-21.93000	-16.57300	60.70000
## 360	-19.11293	-11.095608	-4.500000	-22.60000	-21.83000	-16.48800	58.70000
## 361	-20.45808	-25.000000	-6.900000	-25.00000	-24.23000	-18.60200	63.00000
## 362	-18.31862	-19.900000	-10.824842	-19.90000	-19.13000	-16.10210	71.20000
## 363	-17.12178	-20.800000	-2.700000	-20.80000	-20.03000	-15.43800	75.40000
## 364	-12.57761	-16.800000	1.300000	-15.80000	-16.03000	-10.99700	72.20000
## 365	-18.42572	-21.900000	-3.800000	-20.90000	-21.18200	-16.37040	48.11001
## 366	-22.94413	-11.146903	-9.400000	-23.15349	-26.78200	-23.93900	60.40000
## 367	-18.20305	-21.900000	-3.800000	-21.90000	-21.18200	-16.93700	69.50000
## 368	-9.57780	-23.100000	-5.000000	-23.10000	-22.46900	-19.23700	76.90000
## 369	-45.10178	-50.000000	-31.900000	-50.00000	-26.35122	-45.03000	50.00000
## 370	-44.33002	-50.000000	-31.900000	-49.00000	-49.36900	-43.31700	46.80000
## 371	-43.46124	-50.000000	-31.900000	-49.00000	-49.36900	-42.98400	47.50000
## 372	-40.76770	-50.000000	-31.900000	-50.00000	-49.36900	-43.78400	50.00000
## 373	-41.73275	-50.000000	-14.244548	-49.00000	-49.33200	-44.12500	39.60000
## 374	-2.69190	-13.800000	4.300000	-13.80000	-13.13200	-8.89400	86.20000
## 375	4.69820	-11.231732	-10.267957	-13.80000	-13.13200	-15.52070	86.20000
## 376	4.60910	-15.000000	3.100000	-15.00000	-14.32900	-7.68700	82.90000
## 377	1.38800	-13.900000	4.200000	-13.90000	-13.22900	-15.54974	79.40000
## 378	-3.47651	-11.135456	-9.708650	-21.38854	-12.62900	-6.50600	85.50000
## 379	10.54820	-13.100000	5.000000	-13.10000	-12.42900	-6.72000	49.84364
## 380	7.66670	-10.200000	7.900000	-21.06347	-9.52900	-3.97700	89.80000
## 381	78.57620	-10.400000	7.700000	-10.40000	-9.72900	-15.82153	81.50000
## 382	4.97440	-10.900000	7.200000	-10.90000	-10.22900	-15.16713	88.20000
## 383	-2.11298	-11.300000	-10.147306	-11.30000	-10.60000	-5.76400	88.70000
## 384	-4.30752	-12.300000	5.800000	-12.30000	-11.60000	-6.78000	87.70000
## 385	-14.09188	-10.743931	9.300000	-8.80000	-8.10000	-15.70985	82.40000
## 386	9.61180	-7.200000	10.900000	-7.20000	-6.50000	-1.92300	90.90000
## 387	13.89380	-11.098868	7.600000	-10.50000	-9.80000	-5.84800	89.50000
## 388	15.19710	-7.400000	10.700000	-7.40000	-6.70000	-2.40000	82.10000
## 389	4.13370	-10.200000	7.900000	-10.20000	-9.50000	-5.32000	89.80000
## 390	-15.61413	-11.500000	6.600000	-11.50000	-10.80000	-6.11000	87.40000
## 391	-8.13785	-15.100000	3.000000	-15.10000	-14.40000	-9.38700	81.90000
## 392	-17.90695	-23.200000	-5.100000	-23.20000	-22.50000	-17.14900	59.30000
## 393	1.87790	-9.700000	-9.243793	-9.70000	-9.00000	-4.66400	87.30000
## 394	-5.15524	-13.800000	4.300000	-13.80000	-13.10700	-15.60980	78.80000
## 395	0.65980	-12.700000	5.400000	-12.70000	-12.00700	-6.81300	82.00000
## 396	-4.38325	-13.100000	5.000000	-13.10000	-12.40700	-6.62900	85.70000
## 397	-6.62795	-12.500000	5.600000	-12.50000	-19.95854	-6.09500	83.50000
## 398	-15.35325	-8.500000	9.600000	-8.50000	-7.80700	-2.75300	90.40000
## 399	33.35180	-5.000000	13.100000	-5.00000	-4.30700	0.45300	95.00000
## 400	3.61655	-6.300000	11.800000	-19.53827	-5.60700	-0.44800	71.50000
## 401	19.44610	-5.600000	12.500000	-19.77429	-4.90700	0.38700	94.40000



## 402	7.03620	-7.200000	10.900000	-7.20000	-6.50700	-0.85700	92.80000
## 403	-2.50429	-12.100000	6.000000	-12.10000	-11.40700	-5.69600	87.90000
## 404	-15.50622	-8.300000	9.800000	-8.30000	-19.61440	-2.95100	87.70000
## 405	33.02920	-8.500000	9.600000	-8.50000	-7.80700	-14.30903	76.90000
## 406	62.92080	-5.000000	13.100000	-5.00000	-4.30700	0.68300	95.00000
## 407	8.81620	-11.900000	-9.367374	-11.90000	-11.24100	-7.76200	88.10000
## 408	-15.94890	-11.417371	-9.800000	-23.16616	-27.24100	-22.29200	72.10000
## 409	-17.52974	-11.367532	0.900000	-17.20000	-16.60300	-11.58300	80.70000
## 410	-13.06170	-27.500000	-9.400000	-27.50000	-26.90300	-20.64800	72.50000
## 411	36.13580	-15.000000	3.100000	-15.00000	-14.40300	-9.24300	85.00000
## 412	-3.14930	-17.200000	0.900000	-17.20000	-16.60300	-10.54300	82.80000
## 413	0.91100	-17.900000	0.200000	-17.90000	-17.30300	-13.27200	82.10000
## 414	-17.72938	-16.300000	1.800000	-16.30000	-15.70300	-11.14500	83.70000
## 415	38.74610	-7.000000	11.100000	-7.00000	-6.30700	-2.48100	93.00000
## 416	-15.11103	-7.200000	10.900000	-20.83811	-6.52100	-0.76600	92.80000
## 417	3.33420	-7.500000	10.600000	-7.50000	-6.82100	-0.71800	83.30000
## 418	15.54060	-10.400000	7.700000	-10.40000	-9.72100	-5.09600	78.70000
## 419	-11.57539	-10.477521	9.300000	-20.89502	-8.12100	-14.68887	91.20000
## 420	3.41230	-8.400000	9.700000	-8.40000	-7.68200	-1.57600	68.10000
## 421	-5.61260	-16.700000	1.400000	-21.12532	-15.98200	-10.28900	83.30000
## 422	-7.17741	-14.200000	3.900000	-20.87778	-13.48200	-8.19400	81.10000
## 423	-8.75180	-20.800000	-2.700000	-20.80000	-20.18600	-15.15200	66.80000
## 424	-6.34958	-10.967543	4.700000	-13.40000	-12.78600	-7.29700	71.70000
## 425	-2.90788	-11.700000	6.400000	-11.70000	-20.78760	-15.05104	58.90000
## 426	7.56030	-8.300000	9.800000	-20.02912	-7.62100	-2.40400	87.10000
## 427	2.04720	-10.200000	7.900000	-10.20000	-9.61600	-4.36300	49.50000
## 428	26.76190	-10.900000	7.200000	-10.90000	-10.22100	-4.69800	67.80000
## 429	-3.63289	-11.000000	7.100000	-11.00000	-10.32100	-4.80700	67.10000
## 430	-0.16111	-9.500000	8.600000	-9.50000	-8.82100	-3.12000	86.10000
## 431	-6.00787	-14.500000	3.600000	-14.50000	-13.91600	-8.15200	71.60000
## 432	-4.03770	-14.100000	4.000000	-14.10000	-13.51600	-7.26700	80.20000
## 433	-9.65595	-16.100000	2.000000	-16.10000	-15.51600	-9.67500	58.70000
## 434	-8.71893	-14.300000	3.800000	-14.30000	-13.58700	-7.86400	73.60000
## 435	2.21340	-11.700000	6.400000	-20.53579	-10.98700	-5.49200	83.30000
## 436	-2.23960	-11.291435	4.700000	-13.40000	-12.66000	-6.77100	81.20000
## 437	-16.51737	-9.600000	8.500000	-9.60000	-19.86124	-3.13900	83.70000
## 438	6.47720	-8.700000	9.400000	-8.70000	-7.96000	-2.54800	53.42563
## 439	5.27810	-8.400000	9.700000	-8.40000	-7.66000	-2.46500	79.50000
## 440	-3.40937	-11.242138	5.300000	-12.80000	-12.06000	-15.68459	81.10000
## 441	11.55110	-10.500000	7.600000	-10.50000	-9.76000	-4.68200	49.27208
## 442	-7.37582	-11.347974	1.000000	-17.10000	-16.36000	-10.69400	49.02719
## 443	-12.73363	-18.400000	-0.300000	-18.40000	-17.66000	-12.18100	81.60000
## 444	-5.43346	-15.400000	2.700000	-15.40000	-21.03528	-8.91500	84.60000
## 445	2.00230	-10.800000	7.300000	-10.80000	-10.06000	-4.94600	50.77691
## 446	-1.12820	-11.800000	6.300000	-11.80000	-11.06000	-5.34100	83.00000
## 447	-8.61193	-14.900000	3.200000	-14.90000	-14.16000	-15.40778	47.53404
## 448	-2.67515	-12.600000	5.500000	-20.62448	-11.86000	-6.34900	84.00000
## 449	-4.77091	-14.100000	4.000000	-14.10000	-13.38700	-15.67493	49.75142
## 450	-15.43401	-13.000000	5.100000	-13.00000	-12.28700	-6.58300	85.30000
## 451	-6.68228	-13.400000	4.700000	-13.40000	-12.68700	-6.65100	79.20000
## 452	-9.75886	-15.200000	2.900000	-15.20000	-14.48700	-8.54500	83.00000
## 453	-11.00983	-16.100000	2.000000	-16.10000	-15.38700	-9.80300	75.70000
## 454	-9.55191	-17.800000	0.300000	-17.80000	-17.08700	-10.40700	47.93286
## 455	-5.38637	-14.900000	3.200000	-14.90000	-14.18700	-8.17200	79.20000

##	456	-9.34763	-14.100000	4.000000	-14.10000	-13.38700	-7.57500	72.40000
##	457	-8.03117	-12.700000	5.400000	-12.70000	-11.98700	-6.72400	75.20000
##	458	-5.29942	-13.500000	4.600000	-13.50000	-12.78700	-7.56400	66.80000
##	459	-7.14777	-10.669581	3.200000	-14.90000	-14.18700	-8.59900	68.80000
##	460	-13.19883	-11.276475	-10.437344	-20.00000	-19.28700	-13.91900	64.40000
##	461	-11.58787	-16.400000	1.700000	-16.40000	-15.68700	-9.69900	73.60000
##	462	-14.00689	-17.700000	0.400000	-17.70000	-16.98700	-11.32400	70.70000
##	463	-12.84508	-19.500000	-1.400000	-19.50000	-18.78700	-13.18300	63.50000
##	464	-14.37885	-20.200000	-2.100000	-20.20000	-19.48700	-13.68700	69.70000
##	465	-13.56068	-21.400000	-3.300000	-21.40000	-20.74500	-15.19100	44.00000
##	466	-16.73640	-19.900000	-1.800000	-19.90000	-21.46387	-14.14100	47.69601
##	467	-15.22502	-11.436592	-0.900000	-19.00000	-18.34500	-13.04800	65.70000
##	468	-14.67772	-19.100000	-1.000000	-19.10000	-18.51600	-13.09700	75.40000
##	469	-3.52430	-19.100000	-1.000000	-19.10000	-18.52000	-13.17400	51.90000
##	470	-7.02490	-20.100000	-2.000000	-20.10000	-19.52000	-14.38700	36.60000
##	471	-15.55121	-19.900000	-1.800000	-19.90000	-19.32000	-13.73300	64.10000
##	472	-15.56159	-19.600000	-1.500000	-19.60000	-19.06800	-13.37100	46.08342
##	473	-18.84724	-23.200000	-10.570844	-23.20000	-22.62000	-16.76300	51.80000
##	474	-25.15311	-10.327456	-11.700000	-29.80000	-29.18600	-22.82000	37.80000
##	475	-5.74421	-13.800000	-10.008432	-13.80000	-13.21600	-8.37300	81.60000
##	476	-6.90688	-13.300000	4.800000	-13.30000	-20.43301	-7.13800	50.09968
##	477	-11.82859	-16.700000	1.400000	-16.70000	-21.07517	-15.47584	76.90000
##	478	3.02340	-12.000000	6.100000	-12.00000	-11.38600	-6.69600	85.30000
##	479	-4.36700	-14.600000	3.500000	-14.60000	-13.98600	-8.41500	82.10000
##	480	-18.94759	-21.400000	-3.300000	-21.40000	-21.68191	-15.17100	66.60000
##	481	-17.17599	-23.000000	-10.410357	-23.00000	-22.46800	-16.61094	41.70000
##	482	-17.99182	-11.930395	-5.600000	-23.70000	-23.16800	-16.95000	51.20000
##	483	-19.26884	-25.000000	-6.900000	-25.00000	-24.46800	-16.90400	52.00000
##	484	-18.98162	-21.800000	-3.700000	-21.98775	-21.26800	-16.03800	18.50000
##	485	-18.22143	-20.600000	-2.500000	-20.60000	-20.01700	-16.17722	21.30000
##	486	-17.52633	-21.200000	-3.100000	-21.20000	-20.61700	-14.88800	46.72385
##	487	-13.40825	-19.100000	-9.133395	-19.10000	-18.51700	-12.98600	60.70000
##	488	-15.76433	-20.600000	-2.500000	-20.60000	-20.01700	-14.69500	32.60000
##	489	-15.04914	-15.200000	12.540000	-15.20000	-14.59100	-9.74600	48.65925
##	490	-6.81663	-7.000000	20.740000	-7.00000	-6.39100	-13.78710	91.30000
##	491	-7.89254	-8.100000	19.640000	-8.10000	-7.49100	-3.00700	89.90000
##	492	-13.49426	-13.600000	14.140000	-13.60000	-12.99100	-7.61700	85.20000
##	493	-19.98868	-20.100000	-10.474051	-20.10000	-19.49100	-14.11700	63.40000
##	494	-21.62669	-21.800000	-12.110000	-21.80000	-21.21500	-16.09300	32.20000
##	495	-19.72117	-10.120679	-14.810000	-24.50000	-23.91500	-18.57400	18.10000
##	496	-22.92101	-23.100000	-13.410000	-23.10000	-22.51500	-16.58425	5.70000
##	497	-19.41040	-19.700000	-10.010000	-19.70000	-19.11500	-14.31000	53.20000
##	498	-18.89069	-18.300000	-8.610000	-18.30000	-17.71500	-12.50600	52.30000
##	499	-20.96088	-21.200000	-11.510000	-21.20000	-20.61500	-16.19609	44.10000
##	500	-17.32217	-17.500000	-7.810000	-17.50000	-16.91500	-11.93100	56.00000
##	501	-16.57562	-16.800000	-7.110000	-16.80000	-16.21500	-10.77300	62.90000
##	502	-22.33737	-22.400000	-10.470000	-22.40000	-21.82700	-15.80700	46.70000
##	503	-20.55473	-20.600000	-8.670000	-20.60000	-20.02700	-14.48000	56.10000
##	504	-23.83924	-23.900000	-11.970000	-23.90000	-23.32700	-16.73256	67.10000
##	505	-21.89041	-22.000000	-10.070000	-22.00000	-21.42700	-15.20600	67.30000
##	506	-17.77594	-11.900000	0.030000	-11.90000	-21.02595	-15.52247	68.90000
##		dis	rad	tax	ptratio	black	lstat	medv
##	1	-19.91000	-23.000000	272.0000	-8.700000	372.9000	-19.020000	0
##	2	-16.63290	-19.600000	220.4000	-3.800000	375.3000	-12.460000	0

## 3	-29.73290	-32.700000	207.3000	-16.900000	358.1300	-30.670000	0
## 4	-27.33780	-30.400000	188.6000	-14.700000	361.2300	-30.460000	0
## 5	-30.13780	-33.200000	185.8000	-6.933054	360.7000	-30.870000	0
## 6	-19.40144	-25.700000	193.3000	-10.000000	365.4200	-11.093678	0
## 7	-17.33950	-17.900000	386.5801	-7.700000	372.7000	-10.470000	0
## 8	-21.14950	-22.100000	283.9000	-11.900000	369.8000	-7.950000	0
## 9	-10.41790	-11.500000	294.5000	-3.917693	370.1300	13.430000	0
## 10	-12.30790	-13.900000	292.1000	-3.700000	367.8100	-1.800000	0
## 11	-8.65330	-10.000000	296.0000	-3.617979	333.6107	5.450000	0
## 12	-12.67330	-13.900000	382.6730	-3.700000	378.0000	-5.630000	0
## 13	-16.24910	-16.700000	289.3000	-6.500000	368.8000	-5.990000	0
## 14	-15.69250	-16.400000	286.6000	-4.038941	376.5000	-12.140000	0
## 15	-13.73810	-14.200000	288.8000	2.800000	326.7714	-7.940000	0
## 16	-15.40140	-15.900000	287.1000	1.100000	375.7200	-11.430000	0
## 17	-18.60140	-19.100000	283.9000	-2.100000	363.7500	-16.520000	0
## 18	-18.57192	-13.500000	289.5000	3.500000	369.2500	-2.830000	0
## 19	-16.40350	-16.200000	286.8000	-4.042038	268.7900	-8.510000	0
## 20	-14.40350	-14.200000	288.8000	2.800000	372.7500	-6.920000	0
## 21	-17.70769	-9.600000	293.4000	7.400000	362.9700	7.420000	0
## 22	-15.58770	-15.600000	287.4000	1.400000	372.9300	-5.770000	0
## 23	-11.22310	-11.200000	291.8000	5.800000	381.7000	3.520000	0
## 24	-17.78613	-10.500000	292.5000	6.500000	380.0400	5.380000	0
## 25	-11.20040	-11.600000	291.4000	5.400000	328.4682	0.700000	0
## 26	-9.44540	-9.900000	293.1000	7.100000	289.5200	2.610000	0
## 27	-18.34449	-12.600000	290.4000	4.400000	360.2800	-9.326156	0
## 28	-10.34660	-12.474260	292.2000	6.200000	291.5800	2.480000	0
## 29	-13.94530	-14.400000	288.6000	-3.872120	369.5400	-9.220863	0
## 30	-16.76100	-17.000000	286.0000	0.000000	333.1408	-9.020000	0
## 31	-17.90675	-8.700000	294.3000	8.300000	347.4700	9.900000	0
## 32	-10.32500	-10.500000	292.5000	-3.276279	362.2300	-1.460000	0
## 33	-9.21000	-9.200000	293.8000	7.800000	219.4000	-7.521748	0
## 34	-9.31280	-12.506375	293.9000	7.900000	345.6700	5.250000	0
## 35	-9.74020	-12.575885	293.5000	7.500000	234.8100	6.840000	0
## 36	-15.53970	-13.900000	260.1000	0.300000	378.0000	-9.220000	0
## 37	-16.62210	-15.000000	259.0000	-0.800000	357.5600	-8.590000	0
## 38	-17.06580	-16.000000	258.0000	-1.800000	375.9000	-12.230000	0
## 39	-20.85270	-19.700000	254.3000	-5.500000	368.7300	-14.570000	0
## 40	-25.39890	-27.800000	221.2000	-12.500000	335.3956	-26.480000	0
## 41	-29.49890	-16.394641	217.1000	-16.600000	360.7200	-32.920000	0
## 42	-20.87910	-23.600000	384.4556	-8.700000	358.8100	-21.760000	0
## 43	-19.57910	-22.300000	207.7000	-7.400000	358.0700	-19.490000	0
## 44	-18.97910	-21.700000	383.7787	-6.800000	369.7600	-17.260000	0
## 45	-15.47910	-18.200000	211.8000	-3.300000	368.1900	-11.650000	0
## 46	-14.19960	-16.300000	213.7000	-1.400000	332.8288	-9.090000	0
## 47	-18.33111	-17.000000	213.0000	-2.100000	376.9000	-5.850000	0
## 48	-17.87324	-13.600000	216.4000	1.300000	332.3602	2.200000	0
## 49	-8.53000	-11.400000	218.6000	3.500000	382.5000	16.410000	0
## 50	-13.31230	-13.420991	213.6000	-1.500000	377.5000	-3.200000	0
## 51	-18.38935	-15.700000	223.3000	-3.906927	375.8600	-6.250000	0
## 52	-13.68530	-16.500000	379.1746	-3.700000	373.4700	-11.070000	0
## 53	-18.18530	-13.688016	218.0000	-8.200000	371.9000	-19.720000	0
## 54	-16.58530	-19.400000	219.6000	-6.600000	334.2602	-10.529312	0
## 55	-18.29840	-13.232366	450.1000	2.200000	333.3900	-4.100000	0
## 56	-19.93637	-30.400000	190.6000	-17.500000	360.5300	-30.590000	0

## 57	-15.51240	-22.700000	374.0989	-7.400000	334.3311	-18.930000	0
## 58	-23.27520	-26.600000	224.4000	-16.500000	361.3000	-27.650000	0
## 59	-15.48520	-15.300000	260.7000	-4.323754	367.3800	-16.440000	0
## 60	-12.66800	-11.600000	264.4000	0.100000	377.3000	-10.380000	0
## 61	-11.47460	-10.700000	265.3000	1.000000	376.4100	-5.550000	0
## 62	-9.18150	-13.145480	268.0000	3.700000	362.0800	-8.708810	0
## 63	-14.97450	-14.200000	261.8000	-2.500000	374.7000	-15.470000	0
## 64	-17.01910	-17.000000	259.0000	-5.300000	370.5800	-15.500000	0
## 65	-23.77710	-30.000000	380.1134	-14.400000	360.2400	-24.950000	0
## 66	-16.88850	-19.500000	313.5000	-7.400000	373.4000	-18.830000	0
## 67	-12.78850	-15.400000	377.7868	-3.905148	377.5000	-9.160000	0
## 68	-15.50200	-18.000000	323.0000	-4.272549	374.2100	-13.900000	0
## 69	-18.11594	-13.400000	327.6000	1.500000	379.5000	-4.310000	0
## 70	-14.40200	-16.900000	324.1000	-4.055002	376.0000	-12.110000	0
## 71	-18.91270	-20.200000	280.8000	-5.000000	359.5300	-17.480000	0
## 72	-16.41270	-17.700000	283.3000	-2.500000	355.2400	-11.820000	0
## 73	-17.51270	-18.800000	282.2000	-3.600000	368.1100	-17.280000	0
## 74	-18.11270	-19.400000	281.6000	-4.200000	353.7700	-15.860000	0
## 75	-18.71167	-19.100000	373.9000	-5.400000	370.8200	-10.644482	0
## 76	-16.89740	-16.400000	376.6000	-2.700000	361.8300	-12.460000	0
## 77	-15.94780	-15.000000	378.0000	-1.300000	353.6600	-8.030000	0
## 78	-16.70950	-15.800000	377.2000	-2.100000	366.1600	-10.530000	0
## 79	-16.18590	-16.200000	376.8000	-2.500000	365.2000	-8.860000	0
## 80	-18.44489	-15.300000	377.7000	-1.600000	375.7600	-11.200000	0
## 81	-22.59930	-24.000000	253.0000	-9.000000	368.9000	-22.710000	0
## 82	-18.49930	-19.900000	257.1000	-4.900000	371.7300	-16.680000	0
## 83	-19.39930	-13.452730	256.2000	-5.800000	334.7958	-18.080000	0
## 84	-18.52492	-18.900000	381.2025	-3.900000	367.7400	-15.390000	0
## 85	-19.12060	-20.900000	223.1000	-5.400000	334.8947	-14.280000	0
## 86	-19.16759	-23.600000	220.4000	-8.100000	365.7000	-20.070000	0
## 87	-18.53528	-19.500000	384.1948	-4.000000	373.4900	-9.640000	0
## 88	-18.45240	-19.200000	224.8000	-4.327362	372.9500	-13.760000	0
## 89	-20.17830	-21.600000	381.4886	-4.500631	333.6682	-18.100000	0
## 90	-25.28550	-26.700000	241.3000	-10.900000	334.4234	-23.000000	0
## 91	-19.50770	-20.600000	247.4000	-4.800000	369.5800	-13.790000	0
## 92	-18.90790	-20.000000	248.0000	-4.200000	371.5500	-13.800000	0
## 93	-19.23410	-18.900000	247.1000	-4.700000	372.1100	-14.740000	0
## 94	-21.33410	-21.000000	245.0000	-6.800000	371.3300	-18.790000	0
## 95	-16.98500	-16.600000	249.4000	-2.400000	376.3000	-10.010000	0
## 96	-19.80257	-14.303110	247.6000	-10.400000	329.5800	-21.750000	0
## 97	-17.90480	-19.400000	383.0495	-3.400000	370.4300	-10.060000	0
## 98	-35.20480	-14.168130	237.3000	-20.700000	358.2000	-34.490000	0
## 99	-40.30480	-41.800000	232.2000	-25.800000	349.7300	-40.230000	0
## 100	-29.70480	-31.200000	242.8000	-15.200000	363.7000	-27.010000	0
## 101	-24.72220	-22.500000	356.5000	-4.866123	367.2600	-18.080000	0
## 102	-23.64390	-21.500000	357.5000	-5.600000	369.0800	-18.830000	0
## 103	-18.41212	-13.600000	365.4000	2.300000	52.2000	-7.970000	0
## 104	-16.58530	-14.300000	364.7000	1.600000	375.1700	-9.286285	0
## 105	-17.67900	-15.100000	363.9000	0.800000	372.5900	-7.770000	0
## 106	-17.39310	-14.500000	364.5000	1.400000	374.5500	-3.030000	0
## 107	-17.28900	-14.500000	364.5000	1.400000	376.1700	-0.840000	0
## 108	-18.27760	-15.400000	363.6000	0.500000	333.0252	-6.310000	0
## 109	-17.36710	-14.800000	364.2000	1.100000	375.4400	-7.530000	0
## 110	-16.85490	-14.400000	364.6000	1.500000	371.8300	-3.850000	0

## 111	-18.92220	-16.700000	362.3000	-0.800000	371.7900	-8.700000	0
## 112	-20.12250	-16.800000	382.0352	-5.000000	372.7900	-12.640000	0
## 113	-16.44660	-12.800000	413.2000	-1.000000	376.1500	-9.290402	0
## 114	-16.15200	-12.700000	413.3000	-0.900000	378.2000	-1.610000	0
## 115	-16.24350	-12.500000	413.5000	-0.700000	370.2400	-8.050000	0
## 116	-15.83690	-12.300000	413.7000	-0.500000	326.6100	-2.540000	0
## 117	-18.46990	-15.200000	410.8000	-3.400000	333.1025	-9.929188	0
## 118	-16.45260	-13.200000	412.8000	-3.744243	375.3100	-8.900000	0
## 119	-18.58034	-14.400000	380.3890	-2.600000	318.2300	-5.030000	0
## 120	-16.54080	-13.300000	412.7000	-1.500000	372.2000	-5.690000	0
## 121	-19.74230	-20.000000	166.0000	-2.900000	367.1500	-10.055314	0
## 122	-18.10260	-18.300000	167.7000	-1.200000	357.3700	-6.030000	0
## 123	-18.41310	-18.500000	167.5000	-1.400000	357.5900	-2.570000	0
## 124	-15.35560	-15.300000	170.7000	1.800000	353.0100	8.110000	0
## 125	-16.79370	-16.800000	169.2000	0.300000	360.5800	-1.220000	0
## 126	-19.40710	-19.400000	166.6000	-2.300000	363.6200	-9.587949	0
## 127	-13.94280	-13.700000	172.3000	3.400000	330.3636	11.560000	0
## 128	-14.41170	-12.200000	420.8000	5.000000	375.9100	0.990000	0
## 129	-16.18750	-14.000000	419.0000	3.200000	329.7804	-2.610000	0
## 130	-12.32010	-10.300000	422.7000	-3.288401	382.6000	4.040000	0
## 131	-17.08150	-15.200000	417.8000	2.000000	375.8400	-6.600000	0
## 132	-17.32900	-15.600000	417.4000	1.600000	377.3000	-7.340000	0
## 133	-20.67260	-19.000000	414.0000	-1.800000	362.7600	-11.880000	0
## 134	-15.93010	-14.400000	418.6000	2.800000	370.2900	-3.370000	0
## 135	-13.25400	-11.600000	421.4000	5.600000	247.1600	1.710000	0
## 136	-15.98930	-14.100000	387.7852	3.100000	376.5700	-1.140000	0
## 137	-15.43310	-13.400000	419.6000	-4.006229	360.8500	-0.500000	0
## 138	-15.25020	-13.100000	419.9000	4.100000	376.9800	-2.510000	0
## 139	-11.63140	-9.300000	423.7000	7.900000	378.7400	8.020000	0
## 140	-16.13130	-13.800000	419.2000	3.400000	379.1000	0.660000	0
## 141	-12.38810	-10.000000	423.0000	7.200000	374.0800	10.160000	0
## 142	-12.96060	-10.400000	422.6000	6.800000	382.5000	20.010000	0
## 143	-12.07840	-8.400000	389.6000	1.300000	337.5227	13.420000	0
## 144	-14.18820	-10.600000	387.4000	-3.473400	381.3000	-8.649256	0
## 145	-10.45410	-6.800000	391.2000	2.900000	385.1000	17.490000	0
## 146	-12.38090	-8.800000	389.2000	0.900000	159.1100	14.000000	0
## 147	-14.08340	-10.600000	387.4000	-0.900000	153.6700	-8.671403	0
## 148	-13.13920	-9.600000	388.4000	0.100000	377.1100	14.930000	0
## 149	-16.27040	-12.800000	390.4802	-3.590261	339.1900	10.520000	0
## 150	-13.87430	-10.400000	387.6000	-0.700000	336.4500	6.050000	0
## 151	-19.88200	-16.500000	381.5000	-6.800000	351.3000	-7.400000	0
## 152	-18.00840	-14.600000	383.4000	-4.900000	322.0000	-6.320000	0
## 153	-13.68980	-10.300000	387.7000	-0.600000	327.9800	-3.180000	0
## 154	-17.77680	-14.400000	383.6000	-4.700000	242.5500	-3.610000	0
## 155	-15.25060	-12.000000	386.0000	-2.300000	304.0200	-1.880000	0
## 156	-13.85450	-10.600000	387.4000	-0.900000	72.4100	-0.580000	0
## 157	-11.36360	-8.100000	389.9000	1.600000	75.5300	3.040000	0
## 158	-39.42270	-36.300000	361.7000	-26.600000	322.1300	-36.710000	0
## 159	-22.54270	-19.300000	378.7000	-4.648637	329.5900	-10.361253	0
## 160	-21.53410	-18.300000	387.6363	-8.600000	341.0100	-15.910000	0
## 161	-25.20160	-13.911665	376.0000	-4.876203	311.9200	-21.500000	0
## 162	-48.02910	-45.000000	353.0000	-35.300000	324.4300	-48.270000	0
## 163	-47.95930	-19.222905	353.0000	-35.300000	339.6100	-48.080000	0
## 164	-47.83800	-45.000000	371.6638	-35.300000	338.4500	-46.680000	0

## 165	-20.27800	-13.670247	380.3000	-8.000000	372.4100	-11.060000	0
## 166	-22.71660	-20.000000	378.0000	-10.300000	215.1600	-15.190000	0
## 167	-47.95410	-45.000000	353.0000	-35.300000	319.3000	-16.022309	0
## 168	-21.37410	-18.800000	379.2000	-9.100000	203.8100	-11.660000	0
## 169	-21.70000	-18.800000	379.2000	-9.100000	273.2900	-12.700000	0
## 170	-20.03750	-17.300000	390.4314	-7.600000	307.7400	-10.980000	0
## 171	-18.30564	-12.400000	385.6000	-2.700000	274.8900	-2.970000	0
## 172	-16.71130	-14.100000	383.9000	-4.400000	329.0300	-7.070000	0
## 173	-20.50390	-18.100000	272.9000	-6.500000	373.8000	-8.410000	0
## 174	-20.95370	-18.600000	272.4000	-7.000000	371.9000	-14.560000	0
## 175	-19.89810	-17.600000	273.4000	-6.000000	370.6300	-12.960000	0
## 176	-19.54980	-24.400000	266.6000	-12.800000	361.5600	-24.070000	0
## 177	-19.64510	-13.500770	272.8000	-6.600000	370.0300	-13.090000	0
## 178	-21.28250	-19.600000	271.4000	-8.000000	371.0000	-18.310000	0
## 179	-19.71369	-14.799704	266.1000	-13.300000	361.3700	-22.980000	0
## 180	-34.37100	-34.200000	155.8000	-19.400000	359.7000	-32.160000	0
## 181	-37.05900	-36.800000	153.2000	-22.000000	355.7600	-32.240000	0
## 182	-20.00193	-33.200000	156.8000	-18.400000	360.7000	-26.750000	0
## 183	-35.19940	-15.203208	155.1000	-20.100000	335.0858	-33.080000	0
## 184	-29.65300	-29.500000	160.5000	-14.700000	364.4000	-26.820000	0
## 185	-23.41210	-14.063887	166.6000	-8.600000	364.6000	-12.420000	0
## 186	-26.32030	-26.600000	163.4000	-11.800000	357.5100	-16.450000	0
## 187	-46.80080	-47.000000	143.0000	-32.200000	342.6300	-45.550000	0
## 188	-19.60302	-27.000000	366.0000	-6.111466	361.8700	-13.275724	0
## 189	-25.23330	-24.800000	368.2000	-14.600000	353.0400	-25.240000	0
## 190	-30.33330	-29.900000	363.1000	-19.700000	362.0000	-29.510000	0
## 191	-20.65973	-15.540295	361.0000	-21.800000	340.6800	-15.030541	0
## 192	-24.02020	-25.500000	367.5000	-15.300000	359.2100	-25.810000	0
## 193	-20.21194	-31.400000	361.6000	-21.200000	354.0900	-33.530000	0
## 194	-24.88040	-30.100000	233.9000	-15.500000	362.2700	-26.070000	0
## 195	-22.88040	-28.100000	235.9000	-13.500000	334.3017	-24.720000	0
## 196	-44.35160	-46.000000	205.0000	-35.600000	344.2300	-47.030000	0
## 197	-25.99100	-31.300000	295.7000	-20.700000	363.6000	-29.220000	0
## 198	-22.99100	-28.300000	298.7000	-17.700000	324.0100	-21.690000	0
## 199	-27.29100	-32.600000	294.4000	-22.000000	357.6000	-27.980000	0
## 200	-27.24660	-31.900000	367.1000	-17.900000	362.0000	-30.340000	0
## 201	-25.24660	-29.900000	369.1000	-15.900000	334.9022	-28.450000	0
## 202	-17.83000	-22.100000	323.9000	-9.400000	369.6700	-16.670000	0
## 203	-36.03000	-40.300000	305.7000	-27.600000	353.0800	-39.190000	0
## 204	-23.00158	-44.500000	175.5000	-33.800000	344.2800	-44.690000	0
## 205	-44.88200	-46.000000	174.0000	-35.300000	340.5500	-47.120000	0
## 206	-18.65460	-18.600000	254.4000	-4.000000	333.8576	-11.730000	0
## 207	-20.04510	-20.400000	252.6000	-5.800000	370.4700	-13.430000	0
## 208	-18.14510	-18.500000	254.5000	-3.900000	366.9300	-4.440000	0
## 209	-20.16080	-20.400000	252.6000	-5.800000	356.9200	-9.740000	0
## 210	-16.12500	-16.000000	257.0000	-1.400000	376.9000	3.090000	0
## 211	-17.82290	-17.700000	255.3000	-3.100000	371.5500	-4.430000	0
## 212	-15.63500	-13.541377	257.7000	-0.700000	375.9400	-9.660424	0
## 213	-18.74740	-18.400000	254.6000	-3.800000	368.5400	-6.370000	0
## 214	-24.15460	-24.100000	248.9000	-9.500000	357.7100	-18.720000	0
## 215	-20.11250	-19.700000	253.3000	-5.100000	325.2300	5.850000	0
## 216	-18.76772	-21.000000	252.0000	-4.394838	368.6300	-15.530000	0
## 217	-20.18790	-13.462993	381.2641	-6.900000	369.5000	-10.239203	0
## 218	-25.27890	-23.700000	247.3000	-12.300000	364.0800	-19.010000	0

##	219	-18.61070	-16.500000	254.5000	-5.100000	375.4000	-3.580000	0
##	220	-19.63670	-18.000000	253.0000	-6.600000	370.7400	-12.500000	0
##	221	-23.83830	-18.700000	280.3000	-9.300000	365.0000	-16.990000	0
##	222	-18.65200	-13.700000	285.3000	-4.300000	373.5400	-0.240000	0
##	223	-24.22790	-19.500000	279.5000	-10.100000	362.8900	-17.570000	0
##	224	-26.82790	-22.100000	276.9000	-12.700000	334.3136	-11.522826	0
##	225	-41.90560	-36.800000	262.2000	-27.400000	340.2500	-40.660000	0
##	226	-47.10560	-42.000000	257.0000	-32.600000	332.0000	-45.370000	0
##	227	-20.27468	-29.600000	377.7423	-20.200000	349.7800	-34.470000	0
##	228	-28.38430	-23.600000	275.4000	-14.200000	340.4800	-11.777785	0
##	229	-23.51220	-38.700000	365.9265	-29.300000	330.8100	-42.780000	0
##	230	-28.12490	-23.500000	275.5000	-14.100000	348.8400	-27.740000	0
##	231	-20.62850	-16.300000	282.7000	-6.900000	354.0500	-12.650000	0
##	232	-28.02850	-23.700000	275.3000	-14.300000	344.4400	-12.712902	0
##	233	-37.86160	-15.760788	265.3000	-24.300000	344.2100	-39.230000	0
##	234	-44.64810	-40.300000	258.7000	-30.900000	330.6500	-44.350000	0
##	235	-25.34810	-21.000000	278.0000	-11.600000	331.2000	-20.950000	0
##	236	-20.34810	-16.000000	283.0000	-6.600000	352.7500	-10.536857	0
##	237	-20.95200	-17.100000	281.9000	-7.700000	363.3500	-15.560000	0
##	238	-27.35200	-23.500000	275.5000	-14.100000	358.5700	-26.770000	0
##	239	-17.51010	-13.456250	276.3000	-7.100000	355.7100	-17.340000	0
##	240	-17.11010	-17.300000	276.7000	-6.700000	360.4800	-15.930000	0
##	241	-15.66390	-16.000000	278.0000	-5.400000	369.2500	-10.620000	0
##	242	-13.76390	-14.100000	279.9000	-3.500000	374.5200	-7.700000	0
##	243	-15.16450	-16.200000	277.8000	-5.600000	350.5500	-10.980000	0
##	244	-16.66450	-13.726451	276.3000	-7.100000	351.0100	-18.510000	0
##	245	-9.64510	-13.256541	312.4000	1.500000	354.8900	-5.100000	0
##	246	-10.54510	-13.420570	311.5000	0.600000	370.6300	-0.040000	0
##	247	-18.61057	-17.300000	305.7000	-5.200000	365.8800	-15.140000	0
##	248	-12.44450	-13.500000	309.5000	-1.400000	355.6400	-10.350000	0
##	249	-18.75644	-17.500000	305.5000	-5.400000	350.2100	-14.980000	0
##	250	-18.37350	-19.200000	303.8000	-7.100000	367.5400	-19.640000	0
##	251	-17.00330	-17.400000	305.6000	-5.300000	371.8800	-18.500000	0
##	252	-17.40330	-17.800000	305.2000	-5.700000	352.2700	-21.210000	0
##	253	-20.69330	-22.600000	300.4000	-10.500000	356.4900	-26.070000	0
##	254	-33.89330	-35.800000	287.2000	-23.700000	354.1000	-12.887797	0
##	255	-12.67970	-13.714076	293.1000	-5.500000	370.9900	-10.390831	0
##	256	-11.67970	-19.900000	294.1000	-3.996443	374.2800	-11.650000	0
##	257	-37.66390	-41.000000	200.0000	-28.100000	342.3400	-40.890000	0
##	258	-48.19900	-45.000000	214.0000	-37.000000	339.7000	-44.880000	0
##	259	-34.10540	-31.000000	228.0000	-23.000000	347.2900	-28.210000	0
##	260	-28.08930	-25.100000	233.9000	-17.100000	361.8300	-23.200000	0
##	261	-31.68790	-28.800000	230.2000	-20.800000	359.0000	-24.210000	0
##	262	-40.96020	-17.485300	220.9000	-30.100000	345.2700	-35.840000	0
##	263	-46.51150	-43.800000	215.2000	-35.800000	338.0600	-42.890000	0
##	264	-28.92120	-26.000000	233.0000	-18.000000	362.4200	-19.750000	0
##	265	-34.56990	-31.500000	370.4409	-23.500000	351.3900	-28.400000	0
##	266	-20.81350	-17.800000	241.2000	-9.800000	369.6000	-12.350000	0
##	267	-28.56710	-25.700000	233.3000	-17.700000	353.3700	-15.910000	0
##	268	-47.57840	-45.000000	214.0000	-37.000000	334.5400	-42.560000	0
##	269	-40.62800	-38.500000	220.5000	-30.500000	346.8000	-40.340000	0
##	270	-16.78250	-17.700000	202.3000	-2.100000	370.6400	-9.890638	0
##	271	-16.67100	-18.100000	201.9000	-2.500000	367.5500	-8.100000	0
##	272	-20.77100	-22.200000	381.1142	-6.600000	371.7000	-18.610000	0

##	273	-20.48250	-13.929840	198.6000	-5.800000	370.5600	-16.670000	0
##	274	-19.84657	-32.200000	187.8000	-16.600000	355.5700	-28.620000	0
##	275	-28.32240	-28.400000	221.6000	-6.142696	364.5000	-28.870000	0
##	276	-27.73270	-28.000000	222.0000	-14.400000	364.9000	-29.020000	0
##	277	-28.41280	-16.137608	220.8000	-6.248909	356.0500	-27.150000	0
##	278	-28.23720	-29.100000	220.9000	-15.500000	360.3500	-28.940000	0
##	279	-24.95970	-25.100000	224.9000	-11.500000	367.8000	-21.910000	0
##	280	-30.99930	-30.100000	180.9000	-20.200000	361.8000	-30.250000	0
##	281	-40.70530	-40.400000	170.6000	-30.500000	341.9100	-41.640000	0
##	282	-19.98954	-30.400000	372.3921	-20.500000	356.8300	-30.810000	0
##	283	-40.78810	-41.000000	170.0000	-31.100000	331.0700	-42.990000	0
##	284	-44.11500	-49.000000	148.0000	-36.400000	345.5200	-46.840000	0
##	285	-24.89270	-15.822054	372.4921	-16.900000	362.5200	-24.350000	0
##	286	-14.69270	-21.000000	278.0000	-6.700000	372.7200	-13.770000	0
##	287	-11.01080	-19.100000	220.9000	-1.900000	321.5000	-9.928192	0
##	288	-15.88280	-17.200000	269.8000	-6.600000	373.7000	-16.060000	0
##	289	-14.98280	-16.300000	270.7000	-5.700000	374.6000	-14.700000	0
##	290	-17.48280	-18.800000	268.2000	-8.200000	346.9200	-15.290000	0
##	291	-23.38330	-24.500000	216.5000	-9.300000	368.4000	-25.170000	0
##	292	-32.18330	-33.300000	207.7000	-18.100000	359.6000	-33.740000	0
##	293	-22.78330	-23.900000	217.1000	-8.700000	369.0000	-23.200000	0
##	294	-18.39730	-13.792400	382.3207	-7.900000	373.0000	-15.320000	0
##	295	-16.19730	-17.700000	267.3000	-5.700000	375.2000	-11.300000	0
##	296	-22.63960	-24.600000	260.4000	-5.514624	368.3000	-22.330000	0
##	297	-19.52651	-23.100000	261.9000	-4.994695	365.7500	-19.710000	0
##	298	-13.98000	-16.300000	268.7000	-4.300000	376.6000	-4.460000	0
##	299	-14.67220	-13.637199	335.5000	-7.700000	345.7400	-17.530000	0
##	300	-21.17220	-24.000000	329.0000	-14.200000	342.5800	-24.260000	0
##	301	-16.97220	-19.800000	333.2000	-10.000000	366.0600	-18.730000	0
##	302	-16.50830	-13.778493	307.0000	-5.900000	334.9461	-12.500000	0
##	303	-19.13969	-14.375150	302.6000	-10.300000	357.2100	-17.730000	0
##	304	-20.21467	-26.100000	295.9000	-17.000000	357.3300	-28.240000	0
##	305	-32.07800	-29.100000	185.9000	-17.700000	357.5800	-29.170000	0
##	306	-25.03000	-21.400000	193.6000	-10.000000	364.9600	-19.470000	0
##	307	-19.71011	-26.400000	188.6000	-15.000000	363.5000	-12.968604	0
##	308	-25.01730	-21.200000	193.8000	-9.800000	368.7000	-20.670000	0
##	309	-19.48250	-18.800000	281.2000	-4.400000	334.7345	-18.260000	0
##	310	-17.19750	-13.725423	283.7000	-1.900000	375.9400	-10.330000	0
##	311	-13.58060	-12.100000	287.9000	2.300000	334.3500	-3.460000	0
##	312	-19.45970	-18.100000	281.9000	-3.700000	374.8000	-16.120000	0
##	313	-16.56600	-15.400000	284.6000	-1.000000	334.7528	-7.680000	0
##	314	-18.33720	-17.600000	282.4000	-3.200000	371.7900	-13.700000	0
##	315	-20.19770	-19.800000	280.2000	-5.400000	332.7019	-10.096032	0
##	316	-12.25500	-12.200000	287.8000	2.200000	380.2200	-4.700000	0
##	317	-13.80140	-13.800000	286.2000	0.600000	372.9000	0.530000	0
##	318	-15.76830	-15.800000	284.2000	-1.400000	377.1000	-3.860000	0
##	319	-19.56750	-19.100000	280.9000	-4.700000	372.1100	-12.740000	0
##	320	-16.99810	-17.000000	283.0000	-2.600000	375.2300	-8.270000	0
##	321	-19.25960	-18.800000	263.2000	-4.200000	373.1000	-16.600000	0
##	322	-18.55960	-18.100000	263.9000	-3.500000	373.8000	-16.230000	0
##	323	-15.67890	-13.736773	381.1474	-0.800000	332.8235	-12.700000	0
##	324	-13.77890	-13.500000	382.9541	1.100000	372.6300	-6.760000	0
##	325	-20.27890	-20.000000	262.0000	-5.400000	333.9547	-10.918897	0
##	326	-18.77468	-19.600000	262.4000	-5.000000	369.0800	-19.520000	0



##	327	-17.58410	-18.000000	264.0000	-3.400000	373.9000	-16.850000	0
##	328	-16.78410	-17.200000	264.8000	-2.600000	374.7000	-9.410000	0
##	329	-14.08540	-15.300000	410.7000	-2.400000	333.8604	-9.330000	0
##	330	-17.38540	-18.600000	407.4000	-5.700000	352.6100	-10.660611	0
##	331	-13.92640	-15.800000	410.2000	-2.900000	348.7700	-10.710000	0
##	332	-10.45930	-16.100000	286.9000	-4.093285	376.9200	-4.670000	0
##	333	-18.16027	-13.545914	284.6000	-3.815000	342.8500	-11.570000	0
##	334	-15.74160	-13.867693	201.8000	-2.000000	367.5100	-16.520000	0
##	335	-14.24160	-15.700000	203.3000	-0.500000	368.7000	-13.950000	0
##	336	-15.11470	-16.100000	202.9000	-0.900000	375.8000	-13.090000	0
##	337	-14.26890	-14.500000	204.5000	0.700000	377.4000	-9.700000	0
##	338	-18.11747	-13.500000	205.5000	1.700000	376.3100	-7.940000	0
##	339	-15.78780	-15.600000	203.4000	-0.400000	375.5400	-10.188315	0
##	340	-14.18780	-14.000000	205.0000	1.200000	377.9000	-9.260000	0
##	341	-13.88780	-13.700000	205.3000	1.500000	333.9915	-9.410000	0
##	342	-25.66210	-31.700000	251.3000	-17.200000	362.0400	-27.210000	0
##	343	-10.23310	-15.500000	405.5000	-0.600000	373.4600	-7.850000	0
##	344	-18.16790	-13.991634	346.1000	-6.300000	373.0000	-16.720000	0
##	345	-24.73460	-26.200000	338.8000	-6.464594	356.7700	-26.590000	0
##	346	-9.48640	-14.500000	334.5000	1.300000	332.7793	-6.970000	0
##	347	-9.18640	-14.200000	334.8000	-3.796767	333.0336	-4.530000	0
##	348	-14.56470	-19.100000	327.9000	-5.200000	369.3300	-16.740000	0
##	349	-16.15600	-20.500000	255.5000	-4.855900	334.3934	-18.510000	0
##	350	-17.80790	-25.600000	308.4000	-6.900000	363.2500	-20.710000	0
##	351	-14.10790	-21.900000	312.1000	-3.200000	374.0000	-16.920000	0
##	352	-13.38970	-20.100000	386.9000	-5.800000	346.6800	-18.610000	0
##	353	-7.88970	-14.600000	392.4000	-0.300000	373.7300	-10.810000	0
##	354	-17.97350	-25.100000	376.5222	-13.100000	354.3600	-25.600000	0
##	355	-7.61430	-14.200000	315.8000	3.800000	364.6000	-10.150000	0
##	356	-10.01430	-16.600000	313.4000	1.400000	355.4400	-15.030000	0
##	357	-15.67780	6.200000	648.2000	2.400000	359.9300	-0.200000	0
##	358	-19.19480	2.300000	644.3000	-1.500000	369.6400	-10.047104	0
##	359	-19.97730	1.300000	643.3000	-2.500000	372.7300	-11.220000	0
##	360	-20.09090	1.400000	643.4000	-2.400000	368.1400	-9.930000	0
##	361	-22.48180	-11.799417	641.0000	-4.800000	349.5600	-17.210000	0
##	362	-17.60450	4.100000	646.1000	0.300000	330.7500	-5.710000	0
##	363	-18.62549	3.200000	645.2000	-0.600000	359.9900	-10.610000	0
##	364	-18.30786	7.200000	649.2000	3.400000	336.2400	-2.160000	0
##	365	-19.99530	2.100000	644.1000	-1.700000	332.6500	-16.610000	0
##	366	-25.88680	-3.500000	638.5000	-7.300000	327.2000	-20.380000	0
##	367	-20.14770	2.100000	644.1000	-1.700000	294.1300	-7.900000	0
##	368	-19.15170	0.900000	642.9000	-2.900000	108.3200	-9.770000	0
##	369	-23.69851	-26.000000	616.0000	-29.800000	332.2838	-46.740000	0
##	370	-48.64330	-26.000000	616.0000	-29.800000	325.3300	-46.270000	0
##	371	-48.79760	-26.000000	616.0000	-12.849707	342.0500	-47.040000	0
##	372	-48.83090	-26.000000	616.0000	-29.800000	316.1500	-40.470000	0
##	373	-48.87040	-26.000000	616.0000	-29.800000	297.8800	-41.120000	0
##	374	-12.62580	10.200000	652.2000	6.400000	335.5258	20.970000	0
##	375	-18.30962	-12.250117	652.2000	-2.894730	383.1000	24.170000	0
##	376	-13.68370	9.000000	651.0000	5.200000	381.9000	-1.560000	0
##	377	-12.55510	10.100000	652.1000	6.300000	349.1200	9.340000	0
##	378	-11.94200	10.700000	652.7000	6.900000	383.6000	7.940000	0
##	379	-18.28546	-11.585065	652.9000	7.100000	383.8000	10.590000	0
##	380	-8.81390	13.800000	655.8000	10.000000	329.7479	11.580000	0

## 381	-8.98350	-10.776450	655.6000	9.800000	386.5000	-6.553509	0
## 382	-9.38080	13.100000	655.1000	9.300000	386.0000	10.180000	0
## 383	-9.71960	12.700000	654.7000	8.900000	385.6000	12.300000	0
## 384	-10.76690	11.700000	409.8200	7.900000	384.6000	12.260000	0
## 385	-7.36050	-12.422774	391.5003	11.400000	325.5984	-6.590024	0
## 386	-5.77390	16.800000	658.8000	13.000000	389.7000	23.610000	0
## 387	-9.03280	13.500000	413.0114	9.700000	386.4000	17.780000	0
## 388	-5.88160	16.600000	658.6000	12.800000	389.5000	24.590000	0
## 389	-8.61050	13.800000	655.8000	10.000000	362.7200	20.420000	0
## 390	-9.77190	12.500000	654.5000	8.700000	328.4299	9.350000	0
## 391	-18.15806	-11.761639	650.9000	5.100000	379.3300	2.010000	0
## 392	-21.03220	0.800000	642.8000	-3.000000	355.1800	-4.440000	0
## 393	-7.93000	14.300000	656.3000	10.500000	387.2000	15.980000	0
## 394	-12.00880	10.200000	652.2000	6.400000	383.1000	1.370000	0
## 395	-10.91790	11.300000	653.3000	-3.141664	384.2000	3.650000	0
## 396	-11.37430	10.900000	404.4466	7.100000	331.3685	4.020000	0
## 397	-10.82320	11.500000	653.5000	7.700000	384.4000	6.870000	0
## 398	-6.86660	15.500000	657.5000	11.700000	384.6000	11.420000	0
## 399	-16.77933	19.000000	661.0000	15.200000	391.9000	25.590000	0
## 400	-4.79960	-11.728299	659.7000	13.900000	331.8600	23.670000	0
## 401	-4.01120	-11.028911	660.4000	14.600000	391.3000	21.170000	0
## 402	-5.62590	16.800000	658.8000	13.000000	389.7000	13.120000	0
## 403	-10.46100	11.900000	653.9000	8.100000	364.0100	-6.938522	0
## 404	-6.59720	15.700000	657.7000	11.900000	388.6000	11.470000	0
## 405	-6.89260	15.500000	657.5000	11.700000	320.9600	18.880000	0
## 406	-3.57460	19.000000	661.0000	15.200000	379.9700	17.980000	0
## 407	-10.72190	12.100000	654.1000	8.300000	358.3200	11.440000	0
## 408	-26.61480	-3.900000	638.1000	-7.700000	304.1900	-15.770000	0
## 409	-15.74530	6.800000	648.8000	3.000000	297.4400	9.200000	0
## 410	-26.03450	-13.119364	395.6867	-7.300000	151.8600	-10.642869	0
## 411	-13.58700	9.000000	651.0000	5.200000	-12.4000	-4.890000	0
## 412	-15.67250	6.800000	418.3082	-3.485209	17.8500	4.020000	0
## 413	-16.34610	6.100000	648.1000	2.300000	325.2870	16.470000	0
## 414	-14.71060	7.700000	649.7000	3.900000	194.6700	-8.727572	0
## 415	-5.34180	17.000000	659.0000	13.200000	81.2700	29.980000	0
## 416	-5.36530	16.800000	658.8000	-1.641851	20.0500	21.850000	0
## 417	-5.68050	16.500000	658.5000	12.700000	14.0700	18.290000	0
## 418	-8.75250	13.600000	655.6000	9.800000	116.9600	16.240000	0
## 419	-6.99740	15.200000	657.2000	11.400000	7.6500	11.820000	0
## 420	-6.60600	15.600000	657.6000	11.800000	40.0500	14.340000	0
## 421	-14.84110	7.300000	649.3000	3.500000	302.0500	-1.680000	0
## 422	-12.32540	9.800000	651.8000	6.000000	305.7800	1.500000	0
## 423	-18.60480	3.200000	645.2000	-0.600000	333.9479	-6.700000	0
## 424	-11.37820	10.600000	652.6000	6.800000	-10.8800	-6.814953	0
## 425	-17.75470	12.300000	654.3000	8.500000	-8.0500	5.460000	0
## 426	-16.99204	15.700000	657.7000	11.900000	-0.6200	16.090000	0
## 427	-8.20240	13.800000	655.8000	10.000000	314.0960	5.490000	0
## 428	-9.03710	13.100000	655.1000	9.300000	7.9200	3.620000	0
## 429	-9.06440	13.000000	655.0000	9.200000	85.7300	10.520000	0
## 430	-17.12303	14.500000	656.5000	10.700000	51.2200	14.580000	0
## 431	-12.44730	9.500000	651.5000	5.700000	68.9500	3.140000	0
## 432	-12.01180	9.900000	651.9000	6.100000	67.2300	5.590000	0
## 433	-13.89960	7.900000	649.9000	4.100000	81.8500	-4.070000	0
## 434	-11.98420	9.700000	651.7000	5.900000	85.8900	1.920000	0

## 435	-9.47780	12.300000	654.3000	8.500000	88.9300	3.470000	0
## 436	-11.27530	10.600000	652.6000	6.800000	96.4500	9.870000	0
## 437	-7.59740	14.400000	423.6626	10.600000	17.8900	8.450000	0
## 438	-6.78580	-8.782912	657.3000	11.500000	0.6200	17.750000	0
## 439	-6.57940	15.600000	657.6000	11.800000	317.1872	25.620000	0
## 440	-10.98280	-11.458122	653.2000	7.400000	384.1000	10.080000	0
## 441	-8.63380	13.500000	655.5000	9.700000	380.9500	11.610000	0
## 442	-15.03490	6.900000	648.9000	3.100000	368.8600	2.420000	0
## 443	-16.39520	5.600000	647.6000	-3.380107	377.2900	-1.810000	0
## 444	-18.35659	8.600000	650.6000	4.800000	371.3300	3.450000	0
## 445	-8.90440	13.200000	655.2000	-2.118713	229.7200	12.990000	0
## 446	-9.81210	12.200000	654.2000	-2.911937	31.2600	12.180000	0
## 447	-12.82800	9.100000	651.1000	5.300000	333.7462	2.890000	0
## 448	-10.40200	-12.254368	653.4000	7.600000	375.9200	3.840000	0
## 449	-17.89720	9.900000	651.9000	6.100000	382.8000	4.030000	0
## 450	-10.81500	11.000000	653.0000	-2.709280	291.2100	6.310000	0
## 451	-11.07640	-10.620092	652.6000	6.800000	-13.0800	4.040000	0
## 452	-12.84480	8.800000	650.8000	5.000000	340.0900	2.530000	0
## 453	-13.73180	7.900000	649.9000	4.100000	368.9900	1.170000	0
## 454	-15.34730	6.200000	419.8306	2.400000	358.0700	-1.060000	0
## 455	-17.91599	9.100000	651.1000	5.300000	-8.2200	3.810000	0
## 456	-11.66420	-11.070561	651.9000	6.100000	36.8200	4.030000	0
## 457	-10.11940	11.300000	653.3000	7.500000	-2.2200	6.310000	0
## 458	-10.72080	10.500000	652.5000	6.700000	-10.0000	3.440000	0
## 459	-12.11690	9.100000	415.6478	-3.600221	257.3100	1.330000	0
## 460	-17.28250	4.000000	646.0000	0.200000	376.9000	-5.300000	0
## 461	-13.80250	-11.736285	649.6000	3.800000	238.8300	0.020000	0
## 462	-18.21210	6.300000	648.3000	2.500000	373.7300	-3.050000	0
## 463	-16.76560	4.500000	646.5000	0.700000	377.4000	-5.510000	0
## 464	-17.39840	3.800000	645.8000	0.000000	373.6200	-9.910000	0
## 465	-18.43660	-12.043821	644.6000	-1.200000	375.5000	-8.180000	0
## 466	-18.42565	4.100000	646.1000	0.300000	314.5000	-5.770000	0
## 467	-16.12850	-12.790758	647.0000	-4.098374	3.0100	-1.850000	0
## 468	-16.55970	4.900000	646.9000	1.100000	312.1900	2.220000	0
## 469	-16.19160	4.900000	646.9000	1.100000	349.6400	-0.970000	0
## 470	-17.27630	3.900000	645.9000	0.100000	376.8000	-5.340000	0
## 471	-16.86660	4.100000	646.1000	0.300000	377.0000	-3.610000	0
## 472	-16.50070	4.400000	646.4000	0.600000	375.7300	-6.730000	0
## 473	-20.30350	0.800000	642.8000	-3.000000	370.1700	-8.840000	0
## 474	-27.26710	-5.800000	636.2000	-9.600000	344.8800	-18.140000	0
## 475	-18.09626	10.200000	652.2000	-2.849135	338.7800	4.340000	0
## 476	-17.85524	10.700000	652.7000	6.900000	289.4600	10.800000	0
## 477	-14.39470	7.300000	649.3000	3.500000	379.5100	1.980000	0
## 478	-9.89930	12.000000	654.0000	8.200000	337.4800	12.910000	0
## 479	-12.42950	9.400000	403.7420	5.600000	318.5977	3.430000	0
## 480	-19.44880	-12.496163	644.6000	-3.797712	361.9200	-8.290000	0
## 481	-19.57580	1.000000	643.0000	-2.800000	373.9000	-12.260000	0
## 482	-20.36830	0.300000	642.3000	-3.500000	369.3700	-15.960000	0
## 483	-18.85565	-1.000000	641.0000	-4.800000	370.2800	-17.990000	0
## 484	-17.70170	2.200000	644.2000	-1.600000	371.1200	-11.380000	0
## 485	-16.87600	3.400000	645.4000	-0.400000	350.1300	-7.260000	0
## 486	-18.60627	2.800000	644.8000	-1.000000	332.3066	-10.620000	0
## 487	-15.55410	4.900000	646.9000	1.100000	373.5800	-4.120000	0
## 488	-17.44770	3.400000	645.4000	-0.400000	367.6200	-9.150000	0

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## 489 -13.37910 -11.722123 695.8000 -2.943252 379.8900 -7.330250 0
## 490 -5.24460 -10.811996 704.0000 13.100000 337.0500 16.970000 0
## 491 -6.27740 -4.100000 416.9712 12.000000 318.4823 21.580000 0
## 492 -11.73190 -9.600000 697.4000 6.500000 376.5100 4.470000 0
## 493 -17.99010 -16.100000 690.9000 0.000000 325.3094 -6.750000 0
## 494 -19.41830 -15.800000 369.2000 -2.600000 375.1000 -9.869886 0
## 495 -22.11830 -18.500000 366.5000 -5.300000 372.4000 -10.910000 0
## 496 -20.30140 -17.100000 367.9000 -3.900000 370.1900 -5.500000 0
## 497 -16.90140 -13.700000 371.3000 -0.500000 377.2000 1.440000 0
## 498 -15.40730 -12.300000 372.7000 0.900000 378.6000 -9.316607 0
## 499 -18.79090 -15.200000 369.8000 -2.000000 333.4974 -10.003358 0
## 500 -15.10010 -11.500000 373.5000 1.700000 333.4373 -8.717704 0
## 501 -14.30180 -13.091215 389.2154 -3.749190 380.1000 -2.470000 0
## 502 -19.92140 -21.400000 250.6000 -4.282312 369.5900 -10.432056 0
## 503 -18.31250 -19.600000 252.4000 0.400000 376.3000 -11.520000 0
## 504 -21.73250 -22.900000 249.1000 -2.900000 373.0000 -18.260000 0
## 505 -19.61110 -21.000000 251.0000 -1.000000 371.4500 -15.520000 0
## 506 -9.39500 -10.900000 393.9695 9.100000 385.0000 -4.020000 0

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#Debugging
#P

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