Assignment 03-ADM

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Part A

QA1. What is the difference between SVM with hard margin and soft margin? Support Vector Machines (SVMs) are a type of supervised learning algorithm used for classification and regression.In SVM we can identify two types of margins as hard margins and soft margins. The main difference between SVM with hard margin and soft margin lies in their approach to data separability

Hard Margins Hard Margin SVM aims to find a hyperplane that perfectly separates the data points into two classes without any misclassification.This works well for the data which can linearly separable and has no noise as well as this is sensitive to outliers. This is less computationally expensive due to simpler optimization problem.

Soft Margin SVM Soft Margin SVM Soft margin SVM allows for some misclassifications or margin violations to achieve a balance between maximizing the margin and allowing some classification errors. This is more robust to noise and outliers and can handle non-linearly separable data. BY using penalty term called (C parameter) it controls controls the trade-off between the margin width and the classification error.A smaller C allows for a wider margin but might tolerate more misclassifications, while a larger C value emphasizes correct classification and may lead to a narrower margin.

QA2. What is the role of the cost parameter, C, in SVM (with soft margin) classifiers? The cost parameter C is used in SVM with soft margin. The parameter C do a very important task of controlling the trade-off between maximizing the margin and minimizing the classification error. Smaller C allows more margin violations in favor of a wider margin. This ensures a wider separation between the classes and potentially better generalization to unseen data.On the other hand a high value of C implies a higher penalty for misclassification. This leads the SVM to try harder to correctly classify all training examples, potentially resulting in a narrower margin.Due to higher penalty for misclassification, the Large C value tries to classify all the training data and that can lead to overfitting if the data contains noise or outliers. Therefore the choice of the optimal C value often involves techniques like cross-validation to find the best balance between bias and variance, ensuring better generalization to unseen data while avoiding overfitting.

QA3. Will the following perceptron be activated (2.8 is the activation threshold)

weighted sum = $(0.1*0.8)$+ $(11.1*$-0.2)= 0.08 + (-2.22) = -2.14 The weighted sum of above inputs is -2.14. the activation threshold is 2.8. Due to the weighted sum is below the activation threshold this perceptron will not be activated.

QA4. What is the role of alpha, the learning rate in the delta rule?

In the delta rule the learning rate is called as alpha (α). This is used to adjust the weights of neural network to minimize the error between its outputs and the desired targets.Simply it means the learning rate like steps taken while trying to find the lowest point in a valley.A smaller learning rate of alpha allows the model to take tiny steps ensuring you get closer to the bottom without overshooting it. On the other hand the bigger alpha learn in larger rate. It takes bigger steps on the way to find the minimum point of the curve of the loss function. But there's a risk of stepping too far and bouncing past the best spot. If the rate's too large, the model might miss the mark or struggle to settle on the best solution.Choosing the optimal learning rate

is crucial for the success of the delta rule. Following a bigger learning rate at the beginning and learn in a small rate is recommended to find the optimal.

Refrence

https://www.baeldung.com/cs/svm-hard-margin-vs-soft-margin https://towardsdatascience.com/support-vector-machines-svm-c9ef22815589 *https://www.svms.org/parameters/

Part B

This part of the assignment involves building SVM and neural network regression models to answer a number of questions. We will use the Carseats dataset that is part of the ISLR package (you need to install and load the library). We may also need the following packages: caret, dplyr and glmnet. Let's start by loading these libraries.

```
library(ISLR)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(glmnet)
```

```
## Warning: package 'glmnet' was built under R version 4.2.3
```

```
## Loading required package: Matrix
```

```
## Loaded glmnet 4.1-7
```

```
library(caret)
```

```
## Loading required package: ggplot2
```

```
## Loading required package: lattice
```

For this assignment, we only need the following attributes: "Sales", "Price", "Advertising", "Population", "Age", "Income" and "Education". The goal of the assignment is to build models to predict the sales of the carseats ("Sales" attribute) using the other attributes. We can use the dplyr select function to select these attributes.

```
Carseats_filterd <- Carseats%>% select("Sales","Price","Advertising","Population","Age","Income","Educat
```

QB1. Build a linear SVM regression model to predict Sales based on all other attributes ("Price", "Advertising", "Population", "Age", "Income" and "Education"). Hint: use caret train() with method set to "svmLinear". What is the R-squared of the model?

set up the training control

```
ctrl <- trainControl(method = "repeatedcv",number = 10, repeats = 3) # repeated cross validation method
```

Train the Model

```
set.seed(123)
svm_model <- train(Sales~ ., data= Carseats_filterd, method="svmLinear", trControl = ctrl)
svm_model
```

```
## Support Vector Machines with Linear Kernel
##
## 400 samples
##    6 predictor
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 3 times)
## Summary of sample sizes: 359, 360, 360, 360, 361, 360, ...
## Resampling results:
##
##    RMSE        Rsquared    MAE
##    2.275031    0.3666497    1.819981
##
## Tuning parameter 'C' was held constant at a value of 1
```

Rsquared is 0.3666497

The R-squared value ranges between 0 and 1, with 1 indicating a perfect fit where the model explains all the variance in the data. An R-squared of 0.367 suggests that the model explains about 36.7% of the variance in the 'Sales' variable using the predictors 'Price', 'Advertising', 'Population', 'Age', 'Income', and 'Education'.

QB2. Customize the search grid by checking the model's performance for C parameter of 0.1,.5,1 and 10 using 2 repeats of 5-fold cross validation. **Set up the training control**

```
ctrl2 <- trainControl(method = "repeatedcv", number = 5, repeats = 2)
```

**Define the search grid

```
grid <- expand.grid(C= c(0.1,0.5,1,10))
```

Train the model with the above grid

```
set.seed(123)
svm_model2 <- train(Sales~., data = Carseats_filterd, method="svmLinear", trControl=ctrl2,preProcess = 
10)
svm_model2
```

```
## Support Vector Machines with Linear Kernel
##
## 400 samples
##    6 predictor
##
## Pre-processing: centered (6), scaled (6)
## Resampling: Cross-Validated (5 fold, repeated 2 times)
## Summary of sample sizes: 320, 321, 319, 320, 320, 319, ...
## Resampling results across tuning parameters:
##
##    C     RMSE      Rsquared   MAE
##     0.1  2.299265  0.3462103  1.840099
##     0.5  2.298622  0.3466721  1.840422
##     1.0  2.300082  0.3457111  1.841175
##    10.0  2.298811  0.3464293  1.840017
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was C = 0.5.
```

Based on these results, the performance metrics for 'C' values 0.1, 0.5, 1.0, and 10.0 are close, but the model might slightly favor 'C = 0.5' due to its slightly lower RMSE compared to the other tested values.

QB3. Train a neural network model to predict Sales based on all other attributes ("Price", "Advertising", "Population", "Age", "Income" and "Education"). Hint: use caret train() with method set to "nnet". What is the R-square of the model with the best hyper parameters (using default caret search grid) – hint: don't forget to scale the data. set up the training control

```
ctrl3 <- trainControl(method = 'LOOCV',verboseIter = FALSE)
```

Train the Model

```
set.seed(123)
model3 <- train(Sales~.,data=Carseats_filterd,method="nnet",preProcess=c("center","scale"),trControl=ct:
```

```
## # weights:   9
## initial   value 22035.572902
## final   value 19990.920100
## converged
## # weights:   25
## initial   value 23014.793228
## final   value 19990.920100
## converged
## # weights:   41
## initial   value 22974.817124
## final   value 19990.920100
## converged
## # weights:   9
## initial   value 22376.180174
## iter   10 value 19997.478739
## final   value 19996.428870
## converged
## # weights:   25
## initial   value 21934.022453
```

```
## iter  10 value 19996.443399
## iter  20 value 19994.896688
## final  value 19994.895086
## converged
## # weights:  41
## initial  value 23355.606041
## iter  10 value 19995.950296
## iter  20 value 19994.235887
## iter  20 value 19994.235761
## iter  20 value 19994.235755
## final  value 19994.235755
## converged
## # weights:  9
## initial  value 23799.670620
## iter  10 value 19998.327219
## iter  20 value 19991.005498
## iter  20 value 19991.005464
## final  value 19991.005464
## converged
## # weights:  25
## initial  value 22641.298364
## iter  10 value 20004.741480
## iter  20 value 19991.079450
## iter  30 value 19990.933366
## iter  30 value 19990.933366
## iter  30 value 19990.933366
## final  value 19990.933366
## converged
## # weights:  41
## initial  value 23449.717036
## iter  10 value 20008.249738
## iter  20 value 19991.119897
## final  value 19990.932026
## converged
## # weights:  9
## initial  value 22031.783588
## final  value 19958.721700
## converged
## # weights:  25
## initial  value 22556.852529
## final  value 19958.721700
## converged
## # weights:  41
## initial  value 21958.382852
## final  value 19958.721700
## converged
## # weights:  9
## initial  value 22272.915578
## iter  10 value 19964.467651
## final  value 19964.229888
## converged
## # weights:  25
## initial  value 22769.883767
## iter  10 value 19964.250073
```

```
## iter  20 value 19962.696658
## final  value 19962.696280
## converged
## # weights:  41
## initial  value 21466.357721
## iter  10 value 19972.667840
## iter  20 value 19962.038413
## final  value 19962.037066
## converged
## # weights:  9
## initial  value 21952.823269
## iter  10 value 19968.403210
## iter  20 value 19958.833320
## iter  20 value 19958.833276
## final  value 19958.833276
## converged
## # weights:  25
## initial  value 22342.102379
## iter  10 value 19973.135282
## iter  20 value 19958.887877
## final  value 19958.737239
## converged
## # weights:  41
## initial  value 22208.700601
## iter  10 value 19979.989750
## iter  20 value 19958.966904
## final  value 19958.733638
## converged
## # weights:  9
## initial  value 23321.063658
## final  value 19981.086500
## converged
## # weights:  25
## initial  value 22000.972447
## final  value 19981.086500
## converged
## # weights:  41
## initial  value 23456.768394
## final  value 19981.086500
## converged
## # weights:  9
## initial  value 23419.594230
## iter  10 value 19988.055612
## final  value 19986.595082
## converged
## # weights:  25
## initial  value 22956.335708
## iter  10 value 19987.002514
## iter  20 value 19985.061556
## iter  20 value 19985.061392
## iter  20 value 19985.061335
## final  value 19985.061335
## converged
## # weights:  41
```

```
## initial  value 23166.445851
## iter  10 value 19989.902522
## iter  20 value 19984.402539
## final  value 19984.402067
## converged
## # weights:  9
## initial  value 21866.742980
## iter  10 value 19989.901050
## iter  20 value 19981.188125
## iter  20 value 19981.188084
## final  value 19981.188084
## converged
## # weights:  25
## initial  value 21836.767288
## iter  10 value 19992.012298
## iter  20 value 19981.212466
## final  value 19981.098887
## converged
## # weights:  41
## initial  value 24662.490407
## iter  10 value 19987.401175
## iter  20 value 19981.159303
## final  value 19981.102878
## converged
## # weights:  9
## initial  value 23369.834984
## final  value 20022.210100
## converged
## # weights:  25
## initial  value 23313.113857
## final  value 20022.210100
## converged
## # weights:  41
## initial  value 22166.439882
## final  value 20022.210100
## converged
## # weights:  9
## initial  value 22838.946953
## iter  10 value 20027.798132
## final  value 20027.719636
## converged
## # weights:  25
## initial  value 22031.617185
## iter  10 value 20026.554607
## final  value 20026.185528
## converged
## # weights:  41
## initial  value 21975.533187
## iter  10 value 20026.910272
## iter  20 value 20025.526248
## iter  20 value 20025.526140
## iter  20 value 20025.526130
## final  value 20025.526130
## converged
```

```
## # weights:  9
## initial   value 21900.765686
## iter   10 value 20030.326616
## iter   20 value 20022.303677
## iter   20 value 20022.303640
## final   value 20022.303640
## converged
## # weights:  25
## initial   value 22123.485148
## iter   10 value 20037.022212
## iter   20 value 20022.380872
## final   value 20022.222845
## converged
## # weights:  41
## initial   value 23058.588785
## iter   10 value 20043.806620
## iter   20 value 20022.459091
## final   value 20022.222329
## converged
## # weights:  9
## initial   value 23187.522250
## final   value 20053.247600
## converged
## # weights:  25
## initial   value 21506.307266
## final   value 20053.247600
## converged
## # weights:  41
## initial   value 22693.374102
## final   value 20053.247600
## converged
## # weights:  9
## initial   value 21679.332854
## iter   10 value 20059.056874
## final   value 20058.758383
## converged
## # weights:  25
## initial   value 22176.660800
## iter   10 value 20058.097159
## final   value 20057.223875
## converged
## # weights:  41
## initial   value 22452.140808
## iter   10 value 20057.212011
## final   value 20056.564313
## converged
## # weights:  9
## initial   value 22206.722415
## iter   10 value 20062.560706
## iter   20 value 20053.354973
## iter   20 value 20053.354930
## final   value 20053.354930
## converged
## # weights:  25
```

```
## initial  value 23338.398633
## iter  10 value 20068.068002
## iter  20 value 20053.418468
## final  value 20053.263257
## converged
## # weights:  41
## initial  value 22159.722189
## iter  10 value 20071.155287
## iter  20 value 20053.454062
## final  value 20053.257335
## converged
## # weights:  9
## initial  value 22038.038286
## final  value 19966.934000
## converged
## # weights:  25
## initial  value 23757.077573
## final  value 19966.934000
## converged
## # weights:  41
## initial  value 23215.483179
## final  value 19966.934000
## converged
## # weights:  9
## initial  value 21522.660042
## iter  10 value 19972.683997
## final  value 19972.442334
## converged
## # weights:  25
## initial  value 22788.352983
## iter  10 value 19971.759957
## final  value 19970.908694
## converged
## # weights:  41
## initial  value 22061.696220
## iter  10 value 19984.252833
## iter  20 value 19970.251907
## final  value 19970.249422
## converged
## # weights:  9
## initial  value 23546.583006
## iter  10 value 19975.676532
## iter  20 value 19967.034795
## iter  20 value 19967.034754
## final  value 19967.034754
## converged
## # weights:  25
## initial  value 22091.991878
## iter  10 value 19980.730210
## iter  20 value 19967.093059
## final  value 19966.946807
## converged
## # weights:  41
## initial  value 23791.442106
```

```
## iter   10 value 19980.888975
## iter   20 value 19967.094890
## final   value 19966.947162
## converged
## # weights:  9
## initial   value 22565.980790
## final   value 20031.473200
## converged
## # weights:  25
## initial   value 23790.701932
## final   value 20031.473200
## converged
## # weights:  41
## initial   value 22968.792145
## final   value 20031.473200
## converged
## # weights:  9
## initial   value 22566.262170
## iter   10 value 20037.494154
## final   value 20036.983028
## converged
## # weights:  25
## initial   value 23889.315415
## iter   10 value 20035.958723
## final   value 20035.448817
## converged
## # weights:  41
## initial   value 22383.132344
## iter   10 value 20047.338505
## iter   20 value 20034.798976
## final   value 20034.789404
## converged
## # weights:  9
## initial   value 21668.390181
## iter   10 value 20038.179732
## iter   20 value 20031.550521
## iter   20 value 20031.550490
## final   value 20031.550490
## converged
## # weights:  25
## initial   value 21719.120438
## iter   10 value 20042.344699
## iter   20 value 20031.598540
## final   value 20031.486826
## converged
## # weights:  41
## initial   value 21642.392418
## iter   10 value 20044.201324
## iter   20 value 20031.619945
## final   value 20031.483119
## converged
## # weights:  9
## initial   value 23326.954697
## final   value 19945.447600
```

```
## converged
## # weights:  25
## initial  value 22336.204596
## final  value 19945.447600
## converged
## # weights:  41
## initial  value 21729.625174
## final  value 19945.447600
## converged
## # weights:  9
## initial  value 23709.152049
## iter  10 value 19952.187057
## final  value 19950.955493
## converged
## # weights:  25
## initial  value 21742.145460
## iter  10 value 19956.543899
## iter  20 value 19949.422413
## final  value 19949.421972
## converged
## # weights:  41
## initial  value 24110.465517
## iter  10 value 19951.868343
## iter  20 value 19948.763385
## final  value 19948.762742
## converged
## # weights:  9
## initial  value 22223.627841
## iter  10 value 19955.503751
## iter  20 value 19945.563540
## iter  20 value 19945.563493
## final  value 19945.563493
## converged
## # weights:  25
## initial  value 21424.582965
## iter  10 value 19954.795541
## iter  20 value 19945.555374
## final  value 19945.459839
## converged
## # weights:  41
## initial  value 21391.962721
## iter  10 value 19956.817058
## iter  20 value 19945.578681
## final  value 19945.456925
## converged
## # weights:  9
## initial  value 22343.987187
## final  value 20032.478500
## converged
## # weights:  25
## initial  value 22677.945180
## final  value 20032.478500
## converged
## # weights:  41
```

```
## initial  value 24235.100638
## final   value 20032.478500
## converged
## # weights:  9
## initial  value 22155.122387
## iter  10 value 20039.095885
## final   value 20037.988361
## converged
## # weights:  25
## initial  value 22404.666575
## iter  10 value 20038.789607
## iter  20 value 20036.454424
## final   value 20036.454133
## converged
## # weights:  41
## initial  value 21764.804328
## iter  10 value 20050.384327
## iter  20 value 20035.796299
## final   value 20035.794745
## converged
## # weights:  9
## initial  value 23084.711255
## iter  10 value 20042.894355
## iter  20 value 20032.598587
## iter  20 value 20032.598539
## final   value 20032.598539
## converged
## # weights:  25
## initial  value 21211.860605
## iter  10 value 20039.291727
## iter  20 value 20032.557051
## final   value 20032.489382
## converged
## # weights:  41
## initial  value 23025.828518
## iter  10 value 20049.967113
## iter  20 value 20032.680130
## final   value 20032.488386
## converged
## # weights:  9
## initial  value 22639.589637
## final   value 20049.554000
## converged
## # weights:  25
## initial  value 23793.869339
## final   value 20049.554000
## converged
## # weights:  41
## initial  value 22118.343895
## final   value 20049.554000
## converged
## # weights:  9
## initial  value 21961.892957
## iter  10 value 20055.406259
```

```
## final   value 20055.064610
## converged
## # weights:  25
## initial   value 23699.386193
## iter  10 value 20054.693780
## final   value 20053.530221
## converged
## # weights:  41
## initial   value 22567.812415
## iter  10 value 20054.191651
## iter  20 value 20052.870773
## iter  20 value 20052.870659
## iter  20 value 20052.870653
## final   value 20052.870653
## converged
## # weights:  9
## initial   value 23718.042013
## iter  10 value 20058.428377
## iter  20 value 20049.656315
## iter  20 value 20049.656274
## final   value 20049.656274
## converged
## # weights:  25
## initial   value 21952.098594
## iter  10 value 20060.105961
## iter  20 value 20049.675656
## final   value 20049.567001
## converged
## # weights:  41
## initial   value 22920.266250
## iter  10 value 20070.034896
## iter  20 value 20049.790129
## final   value 20049.565670
## converged
## # weights:  9
## initial   value 23288.451506
## final   value 19999.010000
## converged
## # weights:  25
## initial   value 23264.155616
## final   value 19999.010000
## converged
## # weights:  41
## initial   value 24003.384208
## final   value 19999.010000
## converged
## # weights:  9
## initial   value 23008.749351
## iter  10 value 20004.704513
## final   value 20004.518955
## converged
## # weights:  25
## initial   value 23479.532586
## iter  10 value 20004.089047
```

```
## iter  20 value 20002.985638
## final  value 20002.985067
## converged
## # weights:  41
## initial  value 23426.327509
## iter  10 value 20017.447102
## iter  20 value 20002.326510
## final  value 20002.325810
## converged
## # weights:  9
## initial  value 21879.308896
## iter  10 value 20008.092603
## iter  20 value 19999.114715
## iter  20 value 19999.114673
## final  value 19999.114673
## converged
## # weights:  25
## initial  value 22271.164220
## iter  10 value 20012.541253
## iter  20 value 19999.166005
## final  value 19999.024075
## converged
## # weights:  41
## initial  value 23043.626147
## iter  10 value 20017.921677
## iter  20 value 19999.228037
## final  value 19999.021292
## converged
## # weights:  9
## initial  value 22228.410261
## final  value 19943.048500
## converged
## # weights:  25
## initial  value 22753.731719
## final  value 19943.048500
## converged
## # weights:  41
## initial  value 22509.577196
## final  value 19943.048500
## converged
## # weights:  9
## initial  value 23255.334968
## iter  10 value 19949.449222
## final  value 19948.556438
## converged
## # weights:  25
## initial  value 21789.914873
## iter  10 value 19947.657123
## final  value 19947.022948
## converged
## # weights:  41
## initial  value 22571.265624
## iter  10 value 19947.910815
## final  value 19946.363809
```

```
## converged
## # weights:  9
## initial  value 21888.333497
## iter  10 value 19952.710061
## iter  20 value 19943.159890
## iter  20 value 19943.159846
## final  value 19943.159846
## converged
## # weights:  25
## initial  value 22194.245747
## iter  10 value 19955.103142
## iter  20 value 19943.187481
## final  value 19943.063201
## converged
## # weights:  41
## initial  value 22107.238731
## iter  10 value 19960.784147
## iter  20 value 19943.252978
## final  value 19943.058517
## converged
## # weights:  9
## initial  value 21898.033023
## final  value 20054.289700
## converged
## # weights:  25
## initial  value 23096.480040
## final  value 20054.289700
## converged
## # weights:  41
## initial  value 23570.800926
## final  value 20054.289700
## converged
## # weights:  9
## initial  value 23555.060844
## iter  10 value 20060.583066
## final  value 20059.800632
## converged
## # weights:  25
## initial  value 22202.894771
## iter  10 value 20060.070195
## final  value 20058.266188
## converged
## # weights:  41
## initial  value 23171.003142
## iter  10 value 20058.726022
## iter  20 value 20057.606596
## iter  20 value 20057.606538
## iter  20 value 20057.606533
## final  value 20057.606533
## converged
## # weights:  9
## initial  value 22413.907624
## iter  10 value 20063.729962
## iter  20 value 20054.398539
```

```
## iter   20 value 20054.398495
## final   value 20054.398495
## converged
## # weights:   25
## initial   value 22736.678933
## iter   10 value 20067.808482
## iter   20 value 20054.445561
## final   value 20054.303116
## converged
## # weights:   41
## initial   value 22093.691469
## iter   10 value 20073.502720
## iter   20 value 20054.511211
## final   value 20054.300225
## converged
## # weights:   9
## initial   value 21992.045113
## final   value 19963.968500
## converged
## # weights:   25
## initial   value 22101.381029
## final   value 19963.968500
## converged
## # weights:   41
## initial   value 21389.339460
## final   value 19963.968500
## converged
## # weights:   9
## initial   value 21818.610480
## iter   10 value 19970.064168
## final   value 19969.476770
## converged
## # weights:   25
## initial   value 22056.706665
## iter   10 value 19969.537584
## iter   20 value 19967.943322
## iter   20 value 19967.943181
## iter   20 value 19967.943154
## final   value 19967.943154
## converged
## # weights:   41
## initial   value 21672.716698
## iter   10 value 19969.154704
## final   value 19967.284040
## converged
## # weights:   9
## initial   value 22233.290654
## iter   10 value 19974.492066
## iter   20 value 19964.089828
## iter   20 value 19964.089780
## final   value 19964.089780
## converged
## # weights:   25
## initial   value 22505.220407
```

```
## iter  10 value 19977.461950
## iter  20 value 19964.124069
## final  value 19963.987870
## converged
## # weights:  41
## initial  value 22670.986000
## iter  10 value 19979.880024
## iter  20 value 19964.151947
## final  value 19963.979315
## converged
## # weights:  9
## initial  value 21975.386042
## final  value 19959.741200
## converged
## # weights:  25
## initial  value 23006.250762
## final  value 19959.741200
## converged
## # weights:  41
## initial  value 22995.799675
## final  value 19959.741200
## converged
## # weights:  9
## initial  value 22907.330537
## iter  10 value 19966.494039
## final  value 19965.249367
## converged
## # weights:  25
## initial  value 21973.963912
## iter  10 value 19964.892445
## final  value 19963.715741
## converged
## # weights:  41
## initial  value 22668.687703
## iter  10 value 19977.159806
## iter  20 value 19963.057285
## final  value 19963.056522
## converged
## # weights:  9
## initial  value 22057.805600
## iter  10 value 19968.519620
## iter  20 value 19959.842408
## iter  20 value 19959.842368
## final  value 19959.842368
## converged
## # weights:  25
## initial  value 22914.366282
## iter  10 value 19974.851172
## iter  20 value 19959.915406
## final  value 19959.753102
## converged
## # weights:  41
## initial  value 22936.942396
## iter  10 value 19979.876486
```

```
## iter  20 value 19959.973344
## final  value 19959.754195
## converged
## # weights:  9
## initial  value 23873.366655
## final  value 20003.726000
## converged
## # weights:  25
## initial  value 22644.191146
## final  value 20003.726000
## converged
## # weights:  41
## initial  value 21913.983897
## final  value 20003.726000
## converged
## # weights:  9
## initial  value 22780.770158
## iter  10 value 20010.667148
## final  value 20009.234924
## converged
## # weights:  25
## initial  value 23143.360791
## iter  10 value 20008.800901
## final  value 20007.700958
## converged
## # weights:  41
## initial  value 23480.915135
## iter  10 value 20020.411869
## iter  20 value 20007.042313
## final  value 20007.041675
## converged
## # weights:  9
## initial  value 23536.828391
## iter  10 value 20013.920535
## iter  20 value 20003.843535
## iter  20 value 20003.843488
## final  value 20003.843488
## converged
## # weights:  25
## initial  value 22875.948160
## iter  10 value 20018.284699
## iter  20 value 20003.893850
## final  value 20003.743273
## converged
## # weights:  41
## initial  value 22865.057724
## iter  10 value 20025.570563
## iter  20 value 20003.977851
## final  value 20003.736974
## converged
## # weights:  9
## initial  value 22608.751095
## final  value 20019.873700
## converged
```

```
## # weights:  25
## initial   value 22040.445425
## final   value 20019.873700
## converged
## # weights:  41
## initial   value 23203.242046
## final   value 20019.873700
## converged
## # weights:  9
## initial   value 23741.819360
## iter   10 value 20025.821828
## final   value 20025.383153
## converged
## # weights:  25
## initial   value 22770.799078
## iter   10 value 20025.648376
## final   value 20023.849108
## converged
## # weights:  41
## initial   value 22499.091195
## iter   10 value 20037.995285
## iter   20 value 20023.190624
## final   value 20023.189702
## converged
## # weights:  9
## initial   value 22597.593713
## iter   10 value 20032.019299
## iter   20 value 20020.013729
## iter   20 value 20020.013673
## final   value 20020.013673
## converged
## # weights:  25
## initial   value 22833.698837
## iter   10 value 20033.851743
## iter   20 value 20020.034856
## final   value 20019.888702
## converged
## # weights:  41
## initial   value 22404.099853
## iter   10 value 20038.189526
## iter   20 value 20020.084867
## final   value 20019.884666
## converged
## # weights:  9
## initial   value 22178.705358
## final   value 19935.706000
## converged
## # weights:  25
## initial   value 21707.580946
## final   value 19935.706000
## converged
## # weights:  41
## initial   value 23927.148973
## final   value 19935.706000
```

```
## converged
## # weights:  9
## initial   value 22476.384366
## iter   10 value 19943.378350
## final   value 19941.213712
## converged
## # weights:  25
## initial   value 23377.198114
## iter   10 value 19940.383122
## final   value 19939.680278
## converged
## # weights:  41
## initial   value 22014.743546
## iter   10 value 19948.751378
## iter   20 value 19939.022427
## final   value 19939.021081
## converged
## # weights:  9
## initial   value 21493.537391
## iter   10 value 19942.467334
## iter   20 value 19935.783953
## iter   20 value 19935.783922
## final   value 19935.783922
## converged
## # weights:  25
## initial   value 23274.627544
## iter   10 value 19949.588999
## iter   20 value 19935.866060
## final   value 19935.722059
## converged
## # weights:  41
## initial   value 21558.147650
## iter   10 value 19951.471894
## iter   20 value 19935.887768
## final   value 19935.716117
## converged
## # weights:  9
## initial   value 22974.633584
## final   value 19896.502000
## converged
## # weights:  25
## initial   value 23331.481575
## final   value 19896.502000
## converged
## # weights:  41
## initial   value 22060.187673
## final   value 19896.502000
## converged
## # weights:  9
## initial   value 22413.772622
## iter   10 value 19902.028716
## final   value 19902.009297
## converged
## # weights:  25
```

```
## initial  value 22734.222152
## iter  10 value 19901.594426
## final  value 19900.476070
## converged
## # weights:  41
## initial  value 21439.248488
## iter  10 value 19901.206026
## final  value 19899.816900
## converged
## # weights:  9
## initial  value 21766.975843
## iter  10 value 19906.132489
## iter  20 value 19896.613032
## iter  20 value 19896.612988
## final  value 19896.612988
## converged
## # weights:  25
## initial  value 22539.301866
## iter  10 value 19911.676522
## iter  20 value 19896.676950
## final  value 19896.517398
## converged
## # weights:  41
## initial  value 21924.576692
## iter  10 value 19914.603636
## iter  20 value 19896.710698
## final  value 19896.511684
## converged
## # weights:  9
## initial  value 23262.402777
## final  value 20003.417200
## converged
## # weights:  25
## initial  value 22904.226802
## final  value 20003.417200
## converged
## # weights:  41
## initial  value 22937.565584
## final  value 20003.417200
## converged
## # weights:  9
## initial  value 22791.178083
## iter  10 value 20009.837353
## final  value 20008.926241
## converged
## # weights:  25
## initial  value 23391.319995
## iter  10 value 20009.672719
## final  value 20007.392346
## converged
## # weights:  41
## initial  value 21762.501824
## iter  10 value 20008.259397
## iter  20 value 20006.733137
```

```
## iter   20 value 20006.733011
## iter   20 value 20006.733000
## final   value 20006.733000
## converged
## # weights:  9
## initial   value 21489.189147
## iter   10 value 20010.139890
## iter   20 value 20003.494707
## iter   20 value 20003.494676
## final   value 20003.494676
## converged
## # weights:  25
## initial   value 22937.743724
## iter   10 value 20018.417937
## iter   20 value 20003.590147
## final   value 20003.434036
## converged
## # weights:  41
## initial   value 21540.733046
## iter   10 value 20016.455599
## iter   20 value 20003.567523
## final   value 20003.427361
## converged
## # weights:  9
## initial   value 21703.466149
## final   value 20033.902000
## converged
## # weights:  25
## initial   value 23111.503359
## final   value 20033.902000
## converged
## # weights:  41
## initial   value 22168.963825
## final   value 20033.902000
## converged
## # weights:  9
## initial   value 23160.694705
## iter   10 value 20060.598102
## iter   20 value 20039.606710
## final   value 20039.411916
## converged
## # weights:  25
## initial   value 22881.871293
## iter   10 value 20039.006493
## iter   20 value 20037.889361
## final   value 20037.877679
## converged
## # weights:  41
## initial   value 23099.660881
## iter   10 value 20052.935483
## iter   20 value 20037.223344
## final   value 20037.218309
## converged
## # weights:  9
```

```
## initial  value 22759.121628
## iter  10 value 20045.604401
## iter  20 value 20034.036919
## iter  20 value 20034.036866
## final  value 20034.036866
## converged
## # weights:  25
## initial  value 23021.777630
## iter  10 value 20049.072868
## iter  20 value 20034.076908
## final  value 20033.913590
## converged
## # weights:  41
## initial  value 21672.280746
## iter  10 value 20047.863073
## iter  20 value 20034.062960
## final  value 20033.912428
## converged
## # weights:  9
## initial  value 21973.404259
## final  value 19939.293200
## converged
## # weights:  25
## initial  value 21524.265846
## final  value 19939.293200
## converged
## # weights:  41
## initial  value 21250.409746
## final  value 19939.293200
## converged
## # weights:  9
## initial  value 23365.175725
## iter  10 value 19945.173737
## final  value 19944.800962
## converged
## # weights:  25
## initial  value 22248.369119
## iter  10 value 19944.310723
## final  value 19943.267481
## converged
## # weights:  41
## initial  value 23018.789556
## iter  10 value 19944.203499
## iter  20 value 19942.608390
## iter  20 value 19942.608292
## iter  20 value 19942.608270
## final  value 19942.608270
## converged
## # weights:  9
## initial  value 22645.216694
## iter  10 value 19949.389876
## iter  20 value 19939.409607
## iter  20 value 19939.409560
## final  value 19939.409560
```

```
## converged
## # weights:  25
## initial  value 22890.003699
## iter  10 value 19953.134706
## iter  20 value 19939.452782
## final  value 19939.304428
## converged
## # weights:  41
## initial  value 22938.147461
## iter  10 value 19959.231641
## iter  20 value 19939.523075
## final  value 19939.305289
## converged
## # weights:  9
## initial  value 23260.483100
## final  value 20046.523700
## converged
## # weights:  25
## initial  value 23023.812409
## final  value 20046.523700
## converged
## # weights:  41
## initial  value 23434.079860
## final  value 20046.523700
## converged
## # weights:  9
## initial  value 22604.362949
## iter  10 value 20052.288164
## final  value 20052.034136
## converged
## # weights:  25
## initial  value 23322.343644
## iter  10 value 20051.181968
## final  value 20050.499763
## converged
## # weights:  41
## initial  value 22054.691765
## iter  10 value 20061.172467
## iter  20 value 20049.843702
## final  value 20049.840245
## converged
## # weights:  9
## initial  value 23118.678324
## iter  10 value 20057.512992
## iter  20 value 20046.650398
## iter  20 value 20046.650347
## final  value 20046.650347
## converged
## # weights:  25
## initial  value 22178.848090
## iter  10 value 20060.001145
## iter  20 value 20046.679084
## final  value 20046.537319
## converged
```

```
## # weights:  41
## initial   value 22949.175563
## iter  10 value 20067.268076
## iter  20 value 20046.762866
## final   value 20046.534204
## converged
## # weights:  9
## initial   value 22785.567241
## final   value 20039.453200
## converged
## # weights:  25
## initial   value 21951.300329
## final   value 20039.453200
## converged
## # weights:  41
## initial   value 22807.175433
## final   value 20039.453200
## converged
## # weights:  9
## initial   value 23942.594320
## iter  10 value 20045.555981
## final   value 20044.963332
## converged
## # weights:  25
## initial   value 22098.301142
## iter  10 value 20043.933757
## final   value 20043.429072
## converged
## # weights:  41
## initial   value 22575.942213
## iter  10 value 20044.322948
## iter  20 value 20042.769852
## iter  20 value 20042.769684
## iter  20 value 20042.769615
## final   value 20042.769615
## converged
## # weights:  9
## initial   value 22544.110866
## iter  10 value 20050.100359
## iter  20 value 20039.575953
## iter  20 value 20039.575904
## final   value 20039.575904
## converged
## # weights:  25
## initial   value 21571.647084
## iter  10 value 20048.698494
## iter  20 value 20039.559791
## final   value 20039.465689
## converged
## # weights:  41
## initial   value 22965.754370
## iter  10 value 20061.477742
## iter  20 value 20039.707126
## final   value 20039.462985
```

```
## converged
## # weights:  9
## initial  value 23936.572885
## final  value 19979.630500
## converged
## # weights:  25
## initial  value 23960.953117
## final  value 19979.630500
## converged
## # weights:  41
## initial  value 22167.181130
## final  value 19979.630500
## converged
## # weights:  9
## initial  value 22618.797065
## iter  10 value 19985.515893
## final  value 19985.139069
## converged
## # weights:  25
## initial  value 22677.385649
## iter  10 value 19987.028555
## iter  20 value 19983.605967
## final  value 19983.605335
## converged
## # weights:  41
## initial  value 22073.812568
## iter  10 value 19984.529710
## iter  20 value 19982.946362
## final  value 19982.946032
## converged
## # weights:  9
## initial  value 23373.564054
## iter  10 value 19989.316168
## iter  20 value 19979.742168
## iter  20 value 19979.742123
## final  value 19979.742123
## converged
## # weights:  25
## initial  value 22155.786421
## iter  10 value 19993.296275
## iter  20 value 19979.788056
## final  value 19979.643677
## converged
## # weights:  41
## initial  value 21958.315165
## iter  10 value 19995.621868
## iter  20 value 19979.814868
## iter  30 value 19979.640149
## iter  30 value 19979.640148
## iter  30 value 19979.640145
## final  value 19979.640145
## converged
## # weights:  9
## initial  value 22891.794292
```

```
## final  value 19869.960100
## converged
## # weights:  25
## initial  value 23624.616230
## final  value 19869.960100
## converged
## # weights:  41
## initial  value 23844.730427
## final  value 19869.960100
## converged
## # weights:  9
## initial  value 22587.990817
## iter  10 value 19875.567263
## final  value 19875.466887
## converged
## # weights:  25
## initial  value 22063.870329
## iter  10 value 19875.073817
## iter  20 value 19873.934284
## final  value 19873.933742
## converged
## # weights:  41
## initial  value 23357.933921
## iter  10 value 19877.527741
## iter  20 value 19873.275195
## final  value 19873.274696
## converged
## # weights:  9
## initial  value 23009.736729
## iter  10 value 19880.070557
## iter  20 value 19870.076666
## iter  20 value 19870.076619
## final  value 19870.076619
## converged
## # weights:  25
## initial  value 22640.631515
## iter  10 value 19885.369209
## iter  20 value 19870.137755
## final  value 19869.972245
## converged
## # weights:  41
## initial  value 22493.695844
## iter  10 value 19893.542160
## iter  20 value 19870.231983
## final  value 19869.970975
## converged
## # weights:  9
## initial  value 22247.448869
## final  value 20009.441200
## converged
## # weights:  25
## initial  value 23072.341506
## final  value 20009.441200
## converged
```

```
## # weights:  41
## initial  value 22882.646499
## final  value 20009.441200
## converged
## # weights:  9
## initial  value 23129.047751
## iter  10 value 20015.163869
## final  value 20014.950394
## converged
## # weights:  25
## initial  value 21329.965180
## iter  10 value 20014.731443
## iter  20 value 20013.417418
## final  value 20013.416490
## converged
## # weights:  41
## initial  value 23414.396108
## iter  10 value 20026.149259
## iter  20 value 20012.757425
## iter  20 value 20012.757228
## iter  20 value 20012.757174
## final  value 20012.757174
## converged
## # weights:  9
## initial  value 22659.562316
## iter  10 value 20018.989607
## iter  20 value 20009.551286
## iter  20 value 20009.551242
## final  value 20009.551242
## converged
## # weights:  25
## initial  value 22077.286751
## iter  10 value 20021.811481
## iter  20 value 20009.583820
## final  value 20009.456410
## converged
## # weights:  41
## initial  value 22174.087791
## iter  10 value 20028.294714
## iter  20 value 20009.658566
## final  value 20009.451355
## converged
## # weights:  9
## initial  value 22389.818613
## final  value 20044.937200
## converged
## # weights:  25
## initial  value 22589.470877
## final  value 20044.937200
## converged
## # weights:  41
## initial  value 23694.806293
## final  value 20044.937200
## converged
```

```
## # weights:  9
## initial  value 21816.660975
## iter  10 value 20051.710041
## final  value 20050.447540
## converged
## # weights:  25
## initial  value 22058.071885
## iter  10 value 20053.327726
## iter  20 value 20048.913338
## iter  20 value 20048.913197
## iter  20 value 20048.913196
## final  value 20048.913196
## converged
## # weights:  41
## initial  value 23548.322337
## iter  10 value 20049.349893
## iter  20 value 20048.253759
## iter  20 value 20048.253680
## iter  20 value 20048.253653
## final  value 20048.253653
## converged
## # weights:  9
## initial  value 23138.565185
## iter  10 value 20055.095084
## iter  20 value 20045.054312
## iter  20 value 20045.054266
## final  value 20045.054266
## converged
## # weights:  25
## initial  value 22156.846513
## iter  10 value 20058.976215
## iter  20 value 20045.099059
## final  value 20044.950002
## converged
## # weights:  41
## initial  value 23462.289262
## iter  10 value 20063.254644
## iter  20 value 20045.148386
## final  value 20044.948400
## converged
## # weights:  9
## initial  value 22099.866530
## final  value 20059.210000
## converged
## # weights:  25
## initial  value 22720.220623
## final  value 20059.210000
## converged
## # weights:  41
## initial  value 22453.594329
## final  value 20059.210000
## converged
## # weights:  9
## initial  value 23832.206166
```

```
## iter  10 value 20065.115466
## final  value 20064.721166
## converged
## # weights:  25
## initial  value 22844.196179
## iter  10 value 20063.880578
## final  value 20063.186554
## converged
## # weights:  41
## initial  value 22889.358124
## iter  10 value 20063.553263
## final  value 20062.526999
## converged
## # weights:  9
## initial  value 21618.333123
## iter  10 value 20065.580342
## iter  20 value 20059.283445
## iter  20 value 20059.283416
## final  value 20059.283416
## converged
## # weights:  25
## initial  value 22128.429744
## iter  10 value 20071.628103
## iter  20 value 20059.353171
## final  value 20059.225047
## converged
## # weights:  41
## initial  value 23232.734714
## iter  10 value 20080.924209
## iter  20 value 20059.460348
## final  value 20059.222411
## converged
## # weights:  9
## initial  value 22391.965900
## final  value 20016.794000
## converged
## # weights:  25
## initial  value 22112.607074
## final  value 20016.794000
## converged
## # weights:  41
## initial  value 22673.249250
## final  value 20016.794000
## converged
## # weights:  9
## initial  value 23484.485593
## iter  10 value 20022.648970
## final  value 20022.303377
## converged
## # weights:  25
## initial  value 22171.427743
## iter  10 value 20023.336906
## final  value 20020.769325
## converged
```

```
## # weights:  41
## initial  value 23729.304277
## iter  10 value 20021.137293
## final  value 20020.109979
## converged
## # weights:  9
## initial  value 23757.242466
## iter  10 value 20025.285649
## iter  20 value 20016.891902
## iter  20 value 20016.891863
## final  value 20016.891863
## converged
## # weights:  25
## initial  value 23106.248306
## iter  10 value 20031.476295
## iter  20 value 20016.963275
## final  value 20016.811050
## converged
## # weights:  41
## initial  value 22566.100171
## iter  10 value 20036.651890
## iter  20 value 20017.022946
## final  value 20016.809654
## converged
## # weights:  9
## initial  value 23408.648625
## final  value 19905.667600
## converged
## # weights:  25
## initial  value 23947.422412
## final  value 19905.667600
## converged
## # weights:  41
## initial  value 21206.619056
## final  value 19905.667600
## converged
## # weights:  9
## initial  value 22055.350140
## iter  10 value 19911.301267
## final  value 19911.174997
## converged
## # weights:  25
## initial  value 22128.926509
## iter  10 value 19911.056645
## final  value 19909.641696
## converged
## # weights:  41
## initial  value 21819.849133
## iter  10 value 19910.370660
## iter  20 value 19908.982576
## iter  20 value 19908.982543
## iter  20 value 19908.982532
## final  value 19908.982532
## converged
```

```
## # weights:  9
## initial   value 22282.438121
## iter   10 value 19915.029304
## iter   20 value 19905.775533
## iter   20 value 19905.775490
## final   value 19905.775490
## converged
## # weights:  25
## initial   value 23264.386170
## iter   10 value 19920.511315
## iter   20 value 19905.838736
## final   value 19905.685786
## converged
## # weights:  41
## initial   value 21849.736780
## iter   10 value 19919.081948
## iter   20 value 19905.822257
## final   value 19905.677288
## converged
## # weights:  9
## initial   value 23357.966337
## final   value 20010.607600
## converged
## # weights:  25
## initial   value 22334.717746
## final   value 20010.607600
## converged
## # weights:  41
## initial   value 22400.435714
## final   value 20010.607600
## converged
## # weights:  9
## initial   value 22663.347974
## iter   10 value 20017.593318
## final   value 20016.116821
## converged
## # weights:  25
## initial   value 22202.385816
## iter   10 value 20015.557287
## final   value 20014.582805
## converged
## # weights:  41
## initial   value 22058.500651
## iter   10 value 20026.221374
## iter   20 value 20013.923966
## final   value 20013.923527
## converged
## # weights:  9
## initial   value 22163.547657
## iter   10 value 20021.484615
## iter   20 value 20010.733003
## iter   20 value 20010.732953
## final   value 20010.732953
## converged
```

```
## # weights:  25
## initial   value 22945.644175
## iter   10 value 20025.430907
## iter   20 value 20010.778501
## final   value 20010.619238
## converged
## # weights:  41
## initial   value 21997.881851
## iter   10 value 20027.978466
## iter   20 value 20010.807872
## final   value 20010.618074
## converged
## # weights:  9
## initial   value 21962.900293
## final   value 20036.130100
## converged
## # weights:  25
## initial   value 22353.087771
## final   value 20036.130100
## converged
## # weights:  41
## initial   value 22136.932321
## final   value 20036.130100
## converged
## # weights:  9
## initial   value 22570.085798
## iter   10 value 20115.110871
## iter   20 value 20042.116233
## final   value 20041.640098
## converged
## # weights:  25
## initial   value 22064.441819
## iter   10 value 20041.153165
## final   value 20040.105906
## converged
## # weights:  41
## initial   value 22027.618766
## iter   10 value 20051.315572
## iter   20 value 20039.446991
## final   value 20039.446364
## converged
## # weights:  9
## initial   value 23137.583393
## iter   10 value 20047.452677
## iter   20 value 20036.260640
## iter   20 value 20036.260588
## final   value 20036.260588
## converged
## # weights:  25
## initial   value 22308.915928
## iter   10 value 20049.678444
## iter   20 value 20036.286302
## final   value 20036.144148
## converged
```

```
## # weights:  41
## initial   value 23758.704100
## iter   10 value 20050.481223
## iter   20 value 20036.295557
## final   value 20036.141637
## converged
## # weights:  9
## initial   value 23746.114720
## final   value 20002.797200
## converged
## # weights:  25
## initial   value 23021.619099
## final   value 20002.797200
## converged
## # weights:  41
## initial   value 22472.850092
## final   value 20002.797200
## converged
## # weights:  9
## initial   value 23391.524510
## iter   10 value 20010.335245
## iter   20 value 20008.306474
## iter   20 value 20008.306368
## final   value 20008.306368
## converged
## # weights:  25
## initial   value 23810.626134
## iter   10 value 20008.766778
## iter   20 value 20006.772570
## final   value 20006.772268
## converged
## # weights:  41
## initial   value 21834.375995
## iter   10 value 20010.140792
## iter   20 value 20006.114361
## final   value 20006.112994
## converged
## # weights:  9
## initial   value 22164.305726
## iter   10 value 20013.291805
## iter   20 value 20002.918195
## iter   20 value 20002.918146
## final   value 20002.918146
## converged
## # weights:  25
## initial   value 22392.479128
## iter   10 value 20017.848131
## iter   20 value 20002.970725
## final   value 20002.809016
## converged
## # weights:  41
## initial   value 21727.926274
## iter   10 value 20017.431221
## iter   20 value 20002.965919
```

```
## final   value 20002.807026
## converged
## # weights:  9
## initial   value 22751.950498
## final   value 20060.381200
## converged
## # weights:  25
## initial   value 22028.550753
## final   value 20060.381200
## converged
## # weights:  41
## initial   value 24442.717322
## final   value 20060.381200
## converged
## # weights:  9
## initial   value 22348.099568
## iter  10 value 20068.078929
## final   value 20065.892617
## converged
## # weights:  25
## initial   value 22150.049423
## iter  10 value 20065.069844
## final   value 20064.357904
## converged
## # weights:  41
## initial   value 23461.521325
## iter  10 value 20076.220843
## iter  20 value 20063.698446
## iter  20 value 20063.698339
## iter  20 value 20063.698330
## final   value 20063.698330
## converged
## # weights:  9
## initial   value 22335.247917
## iter  10 value 20070.927354
## iter  20 value 20060.502789
## iter  20 value 20060.502740
## final   value 20060.502740
## converged
## # weights:  25
## initial   value 22279.656117
## iter  10 value 20074.559651
## iter  20 value 20060.544666
## final   value 20060.397545
## converged
## # weights:  41
## initial   value 23715.992992
## iter  10 value 20076.986796
## iter  20 value 20060.572649
## final   value 20060.392610
## converged
## # weights:  9
## initial   value 21746.465008
## final   value 19961.765200
```

```
## converged
## # weights:  25
## initial  value 22388.477283
## final  value 19961.765200
## converged
## # weights:  41
## initial  value 23066.756950
## final  value 19961.765200
## converged
## # weights:  9
## initial  value 22573.552284
## iter  10 value 19969.157061
## final  value 19967.273445
## converged
## # weights:  25
## initial  value 21920.982270
## iter  10 value 19966.746517
## final  value 19965.739842
## converged
## # weights:  41
## initial  value 22454.660479
## iter  10 value 19966.765449
## iter  20 value 19965.080616
## iter  20 value 19965.080573
## iter  20 value 19965.080566
## final  value 19965.080566
## converged
## # weights:  9
## initial  value 21556.366245
## iter  10 value 19969.381577
## iter  20 value 19961.853011
## iter  20 value 19961.852976
## final  value 19961.852976
## converged
## # weights:  25
## initial  value 22037.897078
## iter  10 value 19975.672093
## iter  20 value 19961.925536
## final  value 19961.777523
## converged
## # weights:  41
## initial  value 22684.408539
## iter  10 value 19983.218738
## iter  20 value 19962.012542
## final  value 19961.774441
## converged
## # weights:  9
## initial  value 23873.706556
## final  value 20000.918000
## converged
## # weights:  25
## initial  value 22856.613048
## final  value 20000.918000
## converged
```

```
## # weights:  41
## initial  value 23450.155446
## final  value 20000.918000
## converged
## # weights:  9
## initial  value 22867.687590
## iter  10 value 20007.283277
## final  value 20006.426969
## converged
## # weights:  25
## initial  value 22675.868834
## iter  10 value 20006.085980
## final  value 20004.893109
## converged
## # weights:  41
## initial  value 22981.889972
## iter  10 value 20005.119607
## final  value 20004.233684
## converged
## # weights:  9
## initial  value 22947.011316
## iter  10 value 20011.943280
## iter  20 value 20001.045113
## iter  20 value 20001.045062
## final  value 20001.045062
## converged
## # weights:  25
## initial  value 22865.447271
## iter  10 value 20015.479785
## iter  20 value 20001.085886
## final  value 20000.937061
## converged
## # weights:  41
## initial  value 22690.967926
## iter  10 value 20020.374084
## iter  20 value 20001.142313
## final  value 20000.932459
## converged
## # weights:  9
## initial  value 22881.934142
## final  value 20047.567600
## converged
## # weights:  25
## initial  value 23824.623184
## final  value 20047.567600
## converged
## # weights:  41
## initial  value 21852.454427
## final  value 20047.567600
## converged
## # weights:  9
## initial  value 22107.798378
## iter  10 value 20053.774023
## final  value 20053.078062
```

```
## converged
## # weights:  25
## initial  value 22959.973759
## iter  10 value 20053.635659
## final  value 20051.543650
## converged
## # weights:  41
## initial  value 22586.311716
## iter  10 value 20052.213250
## iter  20 value 20050.884325
## iter  20 value 20050.884158
## iter  20 value 20050.884136
## final  value 20050.884136
## converged
## # weights:  9
## initial  value 22583.055695
## iter  10 value 20057.806844
## iter  20 value 20047.685650
## iter  20 value 20047.685603
## final  value 20047.685603
## converged
## # weights:  25
## initial  value 23099.282130
## iter  10 value 20065.016592
## iter  20 value 20047.768773
## final  value 20047.583117
## converged
## # weights:  41
## initial  value 22672.940433
## iter  10 value 20068.538640
## iter  20 value 20047.809380
## final  value 20047.578068
## converged
## # weights:  9
## initial  value 22065.405370
## final  value 20031.922000
## converged
## # weights:  25
## initial  value 22074.097792
## final  value 20031.922000
## converged
## # weights:  41
## initial  value 24099.011219
## final  value 20031.922000
## converged
## # weights:  9
## initial  value 22325.486710
## iter  10 value 20040.029041
## final  value 20037.431844
## converged
## # weights:  25
## initial  value 22908.645935
## iter  10 value 20036.915394
## final  value 20035.897657
```

```
## converged
## # weights:  41
## initial  value 22539.325225
## iter  10 value 20049.162540
## iter  20 value 20035.240255
## final  value 20035.238276
## converged
## # weights:  9
## initial  value 23500.552771
## iter  10 value 20040.796182
## iter  20 value 20032.024312
## iter  20 value 20032.024271
## final  value 20032.024271
## converged
## # weights:  25
## initial  value 23866.004543
## iter  10 value 20043.061163
## iter  20 value 20032.050426
## final  value 20031.941242
## converged
## # weights:  41
## initial  value 22522.053623
## iter  10 value 20050.914898
## iter  20 value 20032.140973
## final  value 20031.934709
## converged
## # weights:  9
## initial  value 23889.742421
## final  value 20058.152500
## converged
## # weights:  25
## initial  value 23296.241912
## final  value 20058.152500
## converged
## # weights:  41
## initial  value 23515.188940
## final  value 20058.152500
## converged
## # weights:  9
## initial  value 22503.276050
## iter  10 value 20064.041288
## final  value 20063.663668
## converged
## # weights:  25
## initial  value 22725.948388
## iter  10 value 20062.852235
## final  value 20062.129113
## converged
## # weights:  41
## initial  value 22332.500285
## iter  10 value 20073.134909
## iter  20 value 20061.469982
## final  value 20061.469469
## converged
```

```
## # weights:  9
## initial   value 22200.067028
## iter  10 value 20067.558284
## iter  20 value 20058.260941
## iter  20 value 20058.260898
## final   value 20058.260898
## converged
## # weights:  25
## initial   value 23488.937301
## iter  10 value 20072.129918
## iter  20 value 20058.313649
## final   value 20058.171518
## converged
## # weights:  41
## initial   value 23619.092463
## iter  10 value 20075.514316
## iter  20 value 20058.352668
## final   value 20058.163173
## converged
## # weights:  9
## initial   value 22621.986957
## final   value 20062.025200
## converged
## # weights:  25
## initial   value 22920.982135
## final   value 20062.025200
## converged
## # weights:  41
## initial   value 22795.517348
## final   value 20062.025200
## converged
## # weights:  9
## initial   value 23833.518414
## iter  10 value 20068.425904
## final   value 20067.536879
## converged
## # weights:  25
## initial   value 22143.620065
## iter  10 value 20066.495164
## final   value 20066.002131
## converged
## # weights:  41
## initial   value 22979.847811
## iter  10 value 20065.880053
## iter  20 value 20065.342972
## final   value 20065.342512
## converged
## # weights:  9
## initial   value 23022.174484
## iter  10 value 20073.595651
## iter  20 value 20062.158598
## iter  20 value 20062.158545
## final   value 20062.158545
## converged
```

```
## # weights:  25
## initial  value 23649.149773
## iter  10 value 20074.019176
## iter  20 value 20062.163481
## final  value 20062.040941
## converged
## # weights:  41
## initial  value 21873.984307
## iter  10 value 20077.276628
## iter  20 value 20062.201037
## iter  30 value 20062.034462
## iter  30 value 20062.034461
## iter  30 value 20062.034459
## final  value 20062.034459
## converged
## # weights:  9
## initial  value 22428.344557
## final  value 20014.728500
## converged
## # weights:  25
## initial  value 24169.596353
## final  value 20014.728500
## converged
## # weights:  41
## initial  value 22987.615210
## final  value 20014.728500
## converged
## # weights:  9
## initial  value 21893.134115
## iter  10 value 20022.039455
## final  value 20020.237787
## converged
## # weights:  25
## initial  value 21983.745958
## iter  10 value 20019.528171
## final  value 20018.703782
## converged
## # weights:  41
## initial  value 22167.655636
## iter  10 value 20020.590699
## iter  20 value 20018.044432
## iter  20 value 20018.044361
## iter  20 value 20018.044354
## final  value 20018.044354
## converged
## # weights:  9
## initial  value 22445.673893
## iter  10 value 20026.319789
## iter  20 value 20014.862138
## iter  20 value 20014.862085
## final  value 20014.862085
## converged
## # weights:  25
## initial  value 21536.949594
```

```
## iter   10 value 20023.355379
## iter   20 value 20014.827961
## final   value 20014.740916
## converged
## # weights:  41
## initial   value 21519.241978
## iter   10 value 20024.287590
## iter   20 value 20014.838709
## final   value 20014.737702
## converged
## # weights:  9
## initial   value 22435.695794
## final   value 19974.245200
## converged
## # weights:  25
## initial   value 23972.708104
## final   value 19974.245200
## converged
## # weights:  41
## initial   value 21512.060182
## final   value 19974.245200
## converged
## # weights:  9
## initial   value 23343.623598
## iter   10 value 19981.177922
## iter   20 value 19979.762511
## final   value 19979.753773
## converged
## # weights:  25
## initial   value 23305.918733
## iter   10 value 19980.190091
## final   value 19978.219934
## converged
## # weights:  41
## initial   value 22734.793673
## iter   10 value 19990.181336
## final   value 19977.560706
## converged
## # weights:  9
## initial   value 22575.228492
## iter   10 value 19985.973139
## iter   20 value 19974.380414
## iter   20 value 19974.380360
## final   value 19974.380360
## converged
## # weights:  25
## initial   value 21809.195825
## iter   10 value 19985.804143
## iter   20 value 19974.378466
## final   value 19974.258524
## converged
## # weights:  41
## initial   value 23394.438093
## iter   10 value 19993.519299
```

```
## iter  20 value 19974.467415
## final  value 19974.256111
## converged
## # weights:  9
## initial  value 23933.302948
## final  value 20053.435700
## converged
## # weights:  25
## initial  value 23517.782223
## final  value 20053.435700
## converged
## # weights:  41
## initial  value 23029.860228
## final  value 20053.435700
## converged
## # weights:  9
## initial  value 23533.143853
## iter  10 value 20062.297296
## final  value 20058.946520
## converged
## # weights:  25
## initial  value 22504.755271
## iter  10 value 20058.498191
## final  value 20057.411982
## converged
## # weights:  41
## initial  value 22180.958635
## iter  10 value 20063.626481
## iter  20 value 20056.754110
## final  value 20056.752506
## converged
## # weights:  9
## initial  value 22680.136330
## iter  10 value 20064.229229
## iter  20 value 20053.560141
## iter  20 value 20053.560091
## final  value 20053.560091
## converged
## # weights:  25
## initial  value 23428.708778
## iter  10 value 20066.710342
## iter  20 value 20053.588746
## final  value 20053.454083
## converged
## # weights:  41
## initial  value 22460.319280
## iter  10 value 20073.259965
## iter  20 value 20053.664258
## final  value 20053.445593
## converged
## # weights:  9
## initial  value 22673.308669
## final  value 20053.184500
## converged
```

```
## # weights:  25
## initial  value 22685.074206
## final  value 20053.184500
## converged
## # weights:  41
## initial  value 22684.181830
## final  value 20053.184500
## converged
## # weights:  9
## initial  value 23676.996729
## iter  10 value 20071.437331
## iter  20 value 20058.708863
## final  value 20058.695277
## converged
## # weights:  25
## initial  value 22860.372247
## iter  10 value 20058.362746
## final  value 20057.160819
## converged
## # weights:  41
## initial  value 21671.876422
## iter  10 value 20070.892452
## iter  20 value 20056.510725
## final  value 20056.501201
## converged
## # weights:  9
## initial  value 23150.308980
## iter  10 value 20064.427274
## iter  20 value 20053.314120
## iter  20 value 20053.314069
## final  value 20053.314069
## converged
## # weights:  25
## initial  value 23382.290131
## iter  10 value 20065.983499
## iter  20 value 20053.332062
## final  value 20053.197970
## converged
## # weights:  41
## initial  value 23678.232705
## iter  10 value 20070.136588
## iter  20 value 20053.379944
## final  value 20053.197688
## converged
## # weights:  9
## initial  value 23312.165101
## final  value 20050.496500
## converged
## # weights:  25
## initial  value 23024.373785
## final  value 20050.496500
## converged
## # weights:  41
## initial  value 23107.123848
```

```
## final  value 20050.496500
## converged
## # weights:  9
## initial  value 23629.556916
## iter  10 value 20066.791615
## iter  20 value 20056.007376
## iter  20 value 20056.007190
## final  value 20056.007190
## converged
## # weights:  25
## initial  value 23449.760031
## iter  10 value 20056.023607
## final  value 20054.472703
## converged
## # weights:  41
## initial  value 23880.122383
## iter  10 value 20055.020654
## final  value 20053.813189
## converged
## # weights:  9
## initial  value 23740.929021
## iter  10 value 20059.166770
## iter  20 value 20050.596461
## iter  20 value 20050.596421
## final  value 20050.596421
## converged
## # weights:  25
## initial  value 22136.053025
## iter  10 value 20064.127363
## iter  20 value 20050.653653
## final  value 20050.513224
## converged
## # weights:  41
## initial  value 22474.270934
## iter  10 value 20068.302996
## iter  20 value 20050.701795
## final  value 20050.509347
## converged
## # weights:  9
## initial  value 23233.033730
## final  value 19932.296500
## converged
## # weights:  25
## initial  value 21679.750327
## final  value 19932.296500
## converged
## # weights:  41
## initial  value 22245.590019
## final  value 19932.296500
## converged
## # weights:  9
## initial  value 22506.849399
## iter  10 value 19938.098962
## final  value 19937.804307
```

```
## converged
## # weights:  25
## initial  value 23161.816519
## iter  10 value 19937.179981
## final  value 19936.270922
## converged
## # weights:  41
## initial  value 21840.488792
## iter  10 value 19937.384155
## iter  20 value 19935.611990
## iter  20 value 19935.611846
## iter  20 value 19935.611789
## final  value 19935.611789
## converged
## # weights:  9
## initial  value 23471.144864
## iter  10 value 19942.529277
## iter  20 value 19932.414476
## iter  20 value 19932.414429
## final  value 19932.414429
## converged
## # weights:  25
## initial  value 22723.945416
## iter  10 value 19945.905466
## iter  20 value 19932.453401
## final  value 19932.313734
## converged
## # weights:  41
## initial  value 21437.492202
## iter  10 value 19946.518403
## iter  20 value 19932.460467
## final  value 19932.306208
## converged
## # weights:  9
## initial  value 22167.194137
## final  value 20051.745700
## converged
## # weights:  25
## initial  value 24023.804164
## final  value 20051.745700
## converged
## # weights:  41
## initial  value 22503.950410
## final  value 20051.745700
## converged
## # weights:  9
## initial  value 23061.867504
## iter  10 value 20057.845047
## final  value 20057.256374
## converged
## # weights:  25
## initial  value 22827.043781
## iter  10 value 20056.466597
## final  value 20055.722036
```

```
## converged
## # weights:  41
## initial  value 23237.854894
## iter  10 value 20056.528035
## iter  20 value 20055.062522
## iter  20 value 20055.062381
## iter  20 value 20055.062364
## final  value 20055.062364
## converged
## # weights:  9
## initial  value 23633.365780
## iter  10 value 20062.039913
## iter  20 value 20051.864384
## iter  20 value 20051.864337
## final  value 20051.864337
## converged
## # weights:  25
## initial  value 22830.347772
## iter  10 value 20067.925585
## iter  20 value 20051.932241
## final  value 20051.757535
## converged
## # weights:  41
## initial  value 21828.947754
## iter  10 value 20064.625286
## iter  20 value 20051.894192
## final  value 20051.755800
## converged
## # weights:  9
## initial  value 23381.764070
## final  value 20054.702000
## converged
## # weights:  25
## initial  value 21545.847658
## final  value 20054.702000
## converged
## # weights:  41
## initial  value 23376.871139
## final  value 20054.702000
## converged
## # weights:  9
## initial  value 23833.124964
## iter  10 value 20061.004796
## final  value 20060.212886
## converged
## # weights:  25
## initial  value 22633.606800
## iter  10 value 20059.830402
## final  value 20058.678351
## converged
## # weights:  41
## initial  value 22551.801793
## iter  10 value 20077.683468
## iter  20 value 20058.022207
```

```
## final  value 20058.018831
## converged
## # weights:  9
## initial  value 22805.127932
## iter  10 value 20066.605133
## iter  20 value 20054.839234
## iter  20 value 20054.839179
## final  value 20054.839179
## converged
## # weights:  25
## initial  value 23368.075305
## iter  10 value 20067.724001
## iter  20 value 20054.852133
## final  value 20054.715741
## converged
## # weights:  41
## initial  value 22690.785762
## iter  10 value 20071.420436
## iter  20 value 20054.894750
## final  value 20054.711350
## converged
## # weights:  9
## initial  value 23147.978040
## final  value 19970.818000
## converged
## # weights:  25
## initial  value 22020.962574
## final  value 19970.818000
## converged
## # weights:  41
## initial  value 22728.553898
## final  value 19970.818000
## converged
## # weights:  9
## initial  value 21905.553190
## iter  10 value 19977.051211
## final  value 19976.326230
## converged
## # weights:  25
## initial  value 23306.549692
## iter  10 value 19975.553406
## final  value 19974.792519
## converged
## # weights:  41
## initial  value 21765.972572
## iter  10 value 19975.646603
## iter  20 value 19974.133402
## iter  20 value 19974.133254
## iter  20 value 19974.133238
## final  value 19974.133238
## converged
## # weights:  9
## initial  value 22288.463454
## iter  10 value 19980.147557
```

```
## iter  20 value 19970.925562
## iter  20 value 19970.925519
## final   value 19970.925519
## converged
## # weights:  25
## initial   value 23720.359886
## iter  10 value 19983.866718
## iter  20 value 19970.968441
## final   value 19970.833749
## converged
## # weights:  41
## initial   value 23364.236213
## iter  10 value 19987.084392
## iter  20 value 19971.005539
## final   value 19970.828767
## converged
## # weights:  9
## initial   value 24084.916704
## final   value 20062.993700
## converged
## # weights:  25
## initial   value 23474.707400
## final   value 20062.993700
## converged
## # weights:  41
## initial   value 23966.897874
## final   value 20062.993700
## converged
## # weights:  9
## initial   value 23323.518078
## iter  10 value 20070.634315
## final   value 20068.505471
## converged
## # weights:  25
## initial   value 22483.902903
## iter  10 value 20069.559372
## iter  20 value 20066.970976
## final   value 20066.970594
## converged
## # weights:  41
## initial   value 23231.796276
## iter  10 value 20083.619813
## iter  20 value 20066.392639
## final   value 20066.310960
## converged
## # weights:  9
## initial   value 23135.920496
## iter  10 value 20075.047387
## iter  20 value 20063.132670
## iter  20 value 20063.132614
## final   value 20063.132614
## converged
## # weights:  25
## initial   value 22035.367166
```

```
## iter  10 value 20076.798908
## iter  20 value 20063.152863
## iter  30 value 20063.007538
## iter  30 value 20063.007506
## iter  30 value 20063.007501
## final   value 20063.007501
## converged
## # weights:  41
## initial   value 23243.952882
## iter  10 value 20083.659238
## iter  20 value 20063.231957
## final   value 20063.005973
## converged
## # weights:  9
## initial   value 23288.149704
## final   value 20051.473700
## converged
## # weights:  25
## initial   value 23193.647524
## final   value 20051.473700
## converged
## # weights:  41
## initial   value 21794.099509
## final   value 20051.473700
## converged
## # weights:  9
## initial   value 22240.998213
## iter  10 value 20057.651765
## final   value 20056.984399
## converged
## # weights:  25
## initial   value 22761.434470
## iter  10 value 20056.661720
## final   value 20055.449964
## converged
## # weights:  41
## initial   value 22538.701965
## iter  10 value 20056.070697
## final   value 20054.790381
## converged
## # weights:  9
## initial   value 22111.072377
## iter  10 value 20061.134795
## iter  20 value 20051.585085
## iter  20 value 20051.585040
## final   value 20051.585040
## converged
## # weights:  25
## initial   value 22377.547533
## iter  10 value 20066.392244
## iter  20 value 20051.645699
## final   value 20051.490913
## converged
## # weights:  41
```

```
## initial  value 22294.479887
## iter  10 value 20068.984337
## iter  20 value 20051.675584
## final  value 20051.483975
## converged
## # weights:  9
## initial  value 22371.417072
## final  value 20015.422000
## converged
## # weights:  25
## initial  value 22027.848397
## final  value 20015.422000
## converged
## # weights:  41
## initial  value 22849.496846
## final  value 20015.422000
## converged
## # weights:  9
## initial  value 22376.329968
## iter  10 value 20046.001326
## iter  20 value 20021.014931
## final  value 20020.931329
## converged
## # weights:  25
## initial  value 23036.683999
## iter  10 value 20020.070991
## final  value 20019.397289
## converged
## # weights:  41
## initial  value 23276.484192
## iter  10 value 20019.238922
## final  value 20018.737967
## converged
## # weights:  9
## initial  value 23120.421107
## iter  10 value 20025.789688
## iter  20 value 20015.541531
## iter  20 value 20015.541484
## final  value 20015.541484
## converged
## # weights:  25
## initial  value 23089.732575
## iter  10 value 20027.932868
## iter  20 value 20015.566240
## final  value 20015.436213
## converged
## # weights:  41
## initial  value 23475.909846
## iter  10 value 20033.382132
## iter  20 value 20015.629066
## final  value 20015.439824
## converged
## # weights:  9
## initial  value 21689.527526
```

```
## final   value 20028.123700
## converged
## # weights:  25
## initial  value 23753.734074
## final   value 20028.123700
## converged
## # weights:  41
## initial  value 22900.201708
## final   value 20028.123700
## converged
## # weights:  9
## initial  value 22621.044039
## iter  10 value 20036.469462
## final   value 20033.633415
## converged
## # weights:  25
## initial  value 22545.686404
## iter  10 value 20033.007846
## final   value 20032.099261
## converged
## # weights:  41
## initial  value 22747.231253
## iter  10 value 20033.937682
## iter  20 value 20031.439897
## iter  20 value 20031.439826
## iter  20 value 20031.439811
## final   value 20031.439811
## converged
## # weights:  9
## initial  value 23110.779476
## iter  10 value 20039.268160
## iter  20 value 20028.252187
## iter  20 value 20028.252135
## final   value 20028.252135
## converged
## # weights:  25
## initial  value 23959.069898
## iter  10 value 20037.974413
## iter  20 value 20028.237271
## final   value 20028.146562
## converged
## # weights:  41
## initial  value 22304.765849
## iter  10 value 20047.926215
## iter  20 value 20028.352007
## final   value 20028.134146
## converged
## # weights:  9
## initial  value 22934.086577
## final   value 20047.960100
## converged
## # weights:  25
## initial  value 22695.095899
## final   value 20047.960100
```

```
## converged
## # weights:  41
## initial  value 24207.875270
## final  value 20047.960100
## converged
## # weights:  9
## initial  value 22450.764749
## iter  10 value 20055.160055
## final  value 20053.470612
## converged
## # weights:  25
## initial  value 23137.751803
## iter  10 value 20064.806888
## iter  20 value 20051.956971
## final  value 20051.936189
## converged
## # weights:  41
## initial  value 22647.106467
## iter  10 value 20057.567891
## iter  20 value 20051.277868
## final  value 20051.276676
## converged
## # weights:  9
## initial  value 22781.864815
## iter  10 value 20059.022222
## iter  20 value 20048.087638
## iter  20 value 20048.087587
## final  value 20048.087587
## converged
## # weights:  25
## initial  value 22485.350809
## iter  10 value 20061.537133
## iter  20 value 20048.116633
## final  value 20047.972738
## converged
## # weights:  41
## initial  value 22956.580837
## iter  10 value 20064.860050
## iter  20 value 20048.154943
## final  value 20047.972200
## converged
## # weights:  9
## initial  value 23384.534469
## final  value 20028.947600
## converged
## # weights:  25
## initial  value 22553.952784
## final  value 20028.947600
## converged
## # weights:  41
## initial  value 24220.010479
## final  value 20028.947600
## converged
## # weights:  9
```

```
## initial  value 22824.598533
## iter  10 value 20034.701339
## final  value 20034.457312
## converged
## # weights:  25
## initial  value 22092.472358
## iter  10 value 20034.413887
## final  value 20032.923150
## converged
## # weights:  41
## initial  value 22672.901763
## iter  10 value 20051.282744
## iter  20 value 20032.269391
## final  value 20032.263709
## converged
## # weights:  9
## initial  value 23383.490120
## iter  10 value 20038.435377
## iter  20 value 20029.056987
## iter  20 value 20029.056943
## final  value 20029.056943
## converged
## # weights:  25
## initial  value 22595.773034
## iter  10 value 20045.690665
## iter  20 value 20029.140634
## final  value 20028.960486
## converged
## # weights:  41
## initial  value 23378.999884
## iter  10 value 20047.049797
## iter  20 value 20029.156304
## final  value 20028.958166
## converged
## # weights:  9
## initial  value 22598.237568
## final  value 19944.142000
## converged
## # weights:  25
## initial  value 22701.401919
## final  value 19944.142000
## converged
## # weights:  41
## initial  value 22782.305960
## final  value 19944.142000
## converged
## # weights:  9
## initial  value 23345.382286
## iter  10 value 19950.316761
## final  value 19949.649913
## converged
## # weights:  25
## initial  value 21811.813195
## iter  10 value 19949.343833
```

```
## final   value 19948.116425
## converged
## # weights:  41
## initial   value 21284.939716
## iter  10 value 19955.810609
## iter  20 value 19947.457906
## final   value 19947.457192
## converged
## # weights:  9
## initial   value 21727.628457
## iter  10 value 19952.165570
## iter  20 value 19944.234505
## iter  20 value 19944.234468
## final   value 19944.234468
## converged
## # weights:  25
## initial   value 22852.865248
## iter  10 value 19958.173892
## iter  20 value 19944.303777
## final   value 19944.153316
## converged
## # weights:  41
## initial   value 22957.356025
## iter  10 value 19963.276892
## iter  20 value 19944.362610
## final   value 19944.154968
## converged
## # weights:  9
## initial   value 22986.011725
## final   value 20063.162000
## converged
## # weights:  25
## initial   value 23566.032682
## final   value 20063.162000
## converged
## # weights:  41
## initial   value 23925.653683
## final   value 20063.162000
## converged
## # weights:  9
## initial   value 23268.401431
## iter  10 value 20069.964675
## final   value 20068.674098
## converged
## # weights:  25
## initial   value 23095.610637
## iter  10 value 20068.389917
## final   value 20067.139213
## converged
## # weights:  41
## initial   value 22054.067035
## iter  10 value 20067.250403
## final   value 20066.479582
## converged
```

```
## # weights:  9
## initial  value 22227.622490
## iter  10 value 20073.438884
## iter  20 value 20063.280484
## iter  20 value 20063.280437
## final  value 20063.280437
## converged
## # weights:  25
## initial  value 23250.063582
## iter  10 value 20076.396172
## iter  20 value 20063.314580
## final  value 20063.174349
## converged
## # weights:  41
## initial  value 22297.742389
## iter  10 value 20083.839476
## iter  20 value 20063.400395
## final  value 20063.171642
## converged
## # weights:  9
## initial  value 23647.351773
## final  value 20043.633700
## converged
## # weights:  25
## initial  value 23636.969171
## final  value 20043.633700
## converged
## # weights:  41
## initial  value 22429.555248
## final  value 20043.633700
## converged
## # weights:  9
## initial  value 22041.354169
## iter  10 value 20049.516477
## final  value 20049.143943
## converged
## # weights:  25
## initial  value 23026.884317
## iter  10 value 20048.607136
## final  value 20047.609744
## converged
## # weights:  41
## initial  value 22780.833573
## iter  10 value 20048.289762
## iter  20 value 20046.950468
## final  value 20046.950073
## converged
## # weights:  9
## initial  value 22484.667843
## iter  10 value 20053.252023
## iter  20 value 20043.744592
## iter  20 value 20043.744547
## final  value 20043.744547
## converged
```

```
## # weights:  25
## initial   value 24268.193389
## iter   10 value 20052.722971
## iter   20 value 20043.738492
## final   value 20043.654001
## converged
## # weights:  41
## initial   value 23414.142790
## iter   10 value 20061.729691
## iter   20 value 20043.842333
## final   value 20043.644141
## converged
## # weights:  9
## initial   value 22630.828025
## final   value 20045.446000
## converged
## # weights:  25
## initial   value 22073.771417
## final   value 20045.446000
## converged
## # weights:  41
## initial   value 22270.888983
## final   value 20045.446000
## converged
## # weights:  9
## initial   value 22202.533443
## iter   10 value 20052.458895
## final   value 20050.956392
## converged
## # weights:  25
## initial   value 23335.348016
## iter   10 value 20050.569195
## final   value 20049.422035
## converged
## # weights:  41
## initial   value 22220.134717
## iter   10 value 20049.771707
## iter   20 value 20048.762702
## iter   20 value 20048.762550
## iter   20 value 20048.762514
## final   value 20048.762514
## converged
## # weights:  9
## initial   value 22396.226590
## iter   10 value 20055.940559
## iter   20 value 20045.566994
## iter   20 value 20045.566946
## final   value 20045.566946
## converged
## # weights:  25
## initial   value 23176.193710
## iter   10 value 20060.638874
## iter   20 value 20045.621162
## final   value 20045.458849
```

```
## converged
## # weights:  41
## initial  value 22742.496938
## iter  10 value 20064.454265
## iter  20 value 20045.665150
## final  value 20045.456751
## converged
## # weights:  9
## initial  value 22003.003700
## final  value 20009.587700
## converged
## # weights:  25
## initial  value 23309.455955
## final  value 20009.587700
## converged
## # weights:  41
## initial  value 23485.901501
## final  value 20009.587700
## converged
## # weights:  9
## initial  value 22866.004159
## iter  10 value 20017.656096
## final  value 20015.096892
## converged
## # weights:  25
## initial  value 21830.060500
## iter  10 value 20015.248684
## final  value 20013.562946
## converged
## # weights:  41
## initial  value 22489.341207
## iter  10 value 20026.532393
## iter  20 value 20012.904433
## final  value 20012.903640
## converged
## # weights:  9
## initial  value 22646.104517
## iter  10 value 20020.613840
## iter  20 value 20009.714823
## iter  20 value 20009.714772
## final  value 20009.714772
## converged
## # weights:  25
## initial  value 23636.819940
## iter  10 value 20021.173508
## iter  20 value 20009.721275
## final  value 20009.609971
## converged
## # weights:  41
## initial  value 22238.532720
## iter  10 value 20027.419966
## iter  20 value 20009.793292
## final  value 20009.599678
## converged
```

```
## # weights:  9
## initial  value 21824.565617
## final  value 20023.227700
## converged
## # weights:  25
## initial  value 22140.744265
## final  value 20023.227700
## converged
## # weights:  41
## initial  value 24225.051153
## final  value 20023.227700
## converged
## # weights:  9
## initial  value 22921.005359
## iter  10 value 20051.035798
## iter  20 value 20028.737541
## iter  20 value 20028.737347
## final  value 20028.737347
## converged
## # weights:  25
## initial  value 22196.438516
## iter  10 value 20028.008562
## final  value 20027.203191
## converged
## # weights:  41
## initial  value 22651.878525
## iter  10 value 20029.275334
## final  value 20026.543834
## converged
## # weights:  9
## initial  value 21689.806800
## iter  10 value 20030.215566
## iter  20 value 20023.308265
## iter  20 value 20023.308232
## final  value 20023.308232
## converged
## # weights:  25
## initial  value 23192.182456
## iter  10 value 20036.119864
## iter  20 value 20023.376337
## final  value 20023.243539
## converged
## # weights:  41
## initial  value 24279.754996
## iter  10 value 20033.149232
## iter  20 value 20023.342087
## final  value 20023.241342
## converged
## # weights:  9
## initial  value 23438.550122
## final  value 20062.497700
## converged
## # weights:  25
## initial  value 23334.469848
```

```
## final   value 20062.497700
## converged
## # weights:  41
## initial   value 21978.300670
## final   value 20062.497700
## converged
## # weights:  9
## initial   value 23738.538574
## iter   10 value 20069.155839
## final   value 20068.009579
## converged
## # weights:  25
## initial   value 22413.750882
## iter   10 value 20066.574545
## final   value 20066.474855
## converged
## # weights:  41
## initial   value 22644.974096
## iter   10 value 20066.018422
## final   value 20065.815137
## converged
## # weights:  9
## initial   value 22120.182350
## iter   10 value 20071.199765
## iter   20 value 20062.598028
## iter   20 value 20062.597988
## final   value 20062.597988
## converged
## # weights:  25
## initial   value 23134.881851
## iter   10 value 20078.675353
## iter   20 value 20062.684216
## final   value 20062.514237
## converged
## # weights:  41
## initial   value 22682.288188
## iter   10 value 20079.961452
## iter   20 value 20062.699043
## final   value 20062.507806
## converged
## # weights:  9
## initial   value 23977.392348
## final   value 20007.369200
## converged
## # weights:  25
## initial   value 21812.436730
## final   value 20007.369200
## converged
## # weights:  41
## initial   value 23537.846874
## final   value 20007.369200
## converged
## # weights:  9
## initial   value 22037.847619
```

```
## iter  10 value 20013.717370
## final  value 20012.878347
## converged
## # weights:  25
## initial  value 22729.702215
## iter  10 value 20012.772454
## final  value 20011.344386
## converged
## # weights:  41
## initial  value 21483.588185
## iter  10 value 20023.704611
## iter  20 value 20010.688374
## final  value 20010.685066
## converged
## # weights:  9
## initial  value 23412.649397
## iter  10 value 20017.744336
## iter  20 value 20007.488817
## iter  20 value 20007.488769
## final  value 20007.488769
## converged
## # weights:  25
## initial  value 21668.078878
## iter  10 value 20017.739883
## iter  20 value 20007.488766
## final  value 20007.381115
## converged
## # weights:  41
## initial  value 22500.897427
## iter  10 value 20026.420311
## iter  20 value 20007.588844
## final  value 20007.379440
## converged
## # weights:  9
## initial  value 23014.978823
## final  value 20016.930100
## converged
## # weights:  25
## initial  value 22266.491056
## final  value 20016.930100
## converged
## # weights:  41
## initial  value 22219.635084
## final  value 20016.930100
## converged
## # weights:  9
## initial  value 23034.116871
## iter  10 value 20023.332112
## final  value 20022.439476
## converged
## # weights:  25
## initial  value 22564.179872
## iter  10 value 20021.461301
## iter  20 value 20020.908181
```

```
## final   value 20020.905411
## converged
## # weights:  41
## initial   value 21370.724752
## iter  10 value 20023.917941
## iter  20 value 20020.247825
## final   value 20020.246086
## converged
## # weights:  9
## initial   value 23774.630226
## iter  10 value 20024.781367
## iter  20 value 20017.020619
## iter  20 value 20017.020583
## final   value 20017.020583
## converged
## # weights:  25
## initial   value 22297.454431
## iter  10 value 20032.203894
## iter  20 value 20017.106195
## final   value 20016.945624
## converged
## # weights:  41
## initial   value 23230.995869
## iter  10 value 20036.456165
## iter  20 value 20017.155220
## final   value 20016.940328
## converged
## # weights:  9
## initial   value 23014.506858
## final   value 20047.960100
## converged
## # weights:  25
## initial   value 23088.109084
## final   value 20047.960100
## converged
## # weights:  41
## initial   value 23543.794084
## final   value 20047.960100
## converged
## # weights:  9
## initial   value 22034.674819
## iter  10 value 20054.134244
## final   value 20053.470632
## converged
## # weights:  25
## initial   value 23745.454307
## iter  10 value 20053.822115
## final   value 20051.936277
## converged
## # weights:  41
## initial   value 23978.777720
## iter  10 value 20063.209533
## iter  20 value 20051.278708
## final   value 20051.276702
```

```
## converged
## # weights:  9
## initial  value 22332.467592
## iter  10 value 20058.513524
## iter  20 value 20048.081773
## iter  20 value 20048.081724
## final  value 20048.081724
## converged
## # weights:  25
## initial  value 23299.595542
## iter  10 value 20063.083656
## iter  20 value 20048.134463
## final  value 20047.974242
## converged
## # weights:  41
## initial  value 23085.444448
## iter  10 value 20064.789427
## iter  20 value 20048.154129
## iter  30 value 20047.970314
## iter  30 value 20047.970313
## iter  30 value 20047.970313
## final  value 20047.970313
## converged
## # weights:  9
## initial  value 21921.390246
## final  value 20001.547600
## converged
## # weights:  25
## initial  value 22297.657982
## final  value 20001.547600
## converged
## # weights:  41
## initial  value 21448.733024
## final  value 20001.547600
## converged
## # weights:  9
## initial  value 21638.413519
## iter  10 value 20007.419766
## final  value 20007.056604
## converged
## # weights:  25
## initial  value 21979.621607
## iter  10 value 20008.233213
## iter  20 value 20005.522941
## final  value 20005.522675
## converged
## # weights:  41
## initial  value 21226.402343
## iter  10 value 20006.197757
## final  value 20004.863340
## converged
## # weights:  9
## initial  value 23487.117013
## iter  10 value 20010.911916
```

```
## iter   20 value 20001.655563
## iter   20 value 20001.655520
## final   value 20001.655520
## converged
## # weights:  25
## initial  value 22939.592731
## iter   10 value 20017.446503
## iter   20 value 20001.730902
## final   value 20001.568907
## converged
## # weights:  41
## initial  value 21932.954193
## iter   10 value 20020.628174
## iter   20 value 20001.767584
## final   value 20001.557670
## converged
## # weights:  9
## initial  value 22311.989261
## final   value 19999.010000
## converged
## # weights:  25
## initial  value 21289.298430
## final   value 19999.010000
## converged
## # weights:  41
## initial  value 22408.211658
## final   value 19999.010000
## converged
## # weights:  9
## initial  value 21901.983141
## iter   10 value 20005.273624
## final   value 20004.518976
## converged
## # weights:  25
## initial  value 23257.106628
## iter   10 value 20003.193243
## final   value 20002.985122
## converged
## # weights:  41
## initial  value 23741.344956
## iter   10 value 20010.377984
## iter   20 value 20002.330392
## final   value 20002.325727
## converged
## # weights:  9
## initial  value 23006.604417
## iter   10 value 20010.694364
## iter   20 value 19999.144712
## iter   20 value 19999.144658
## final   value 19999.144658
## converged
## # weights:  25
## initial  value 23348.291659
## iter   10 value 20013.043006
```

```
## iter  20 value 19999.171790
## final  value 19999.029374
## converged
## # weights:  41
## initial  value 21877.503556
## iter  10 value 20016.559934
## iter  20 value 19999.212337
## final  value 19999.019750
## converged
## # weights:  9
## initial  value 22575.300121
## final  value 19909.658000
## converged
## # weights:  25
## initial  value 22103.957414
## final  value 19909.658000
## converged
## # weights:  41
## initial  value 22991.686711
## final  value 19909.658000
## converged
## # weights:  9
## initial  value 22869.117040
## iter  10 value 19916.784104
## final  value 19915.165302
## converged
## # weights:  25
## initial  value 21851.115066
## iter  10 value 19916.189265
## iter  20 value 19913.632105
## iter  20 value 19913.632015
## iter  20 value 19913.631987
## final  value 19913.631987
## converged
## # weights:  41
## initial  value 23029.076417
## iter  10 value 19914.318250
## iter  20 value 19912.973026
## iter  20 value 19912.972854
## iter  20 value 19912.972832
## final  value 19912.972832
## converged
## # weights:  9
## initial  value 22440.547060
## iter  10 value 19920.162327
## iter  20 value 19909.779107
## iter  20 value 19909.779058
## final  value 19909.779058
## converged
## # weights:  25
## initial  value 22103.822385
## iter  10 value 19922.964486
## iter  20 value 19909.811413
## final  value 19909.673072
```

```
## converged
## # weights:  41
## initial  value 23579.319260
## iter  10 value 19925.432584
## iter  20 value 19909.839869
## final  value 19909.670359
## converged
## # weights:  9
## initial  value 22777.009706
## final  value 20014.310000
## converged
## # weights:  25
## initial  value 23165.794294
## final  value 20014.310000
## converged
## # weights:  41
## initial  value 22745.024195
## final  value 20014.310000
## converged
## # weights:  9
## initial  value 22917.226729
## iter  10 value 20094.339580
## iter  20 value 20019.946084
## final  value 20019.819316
## converged
## # weights:  25
## initial  value 21948.502624
## iter  10 value 20019.107653
## final  value 20018.285524
## converged
## # weights:  41
## initial  value 22361.557236
## iter  10 value 20017.771452
## final  value 20017.625999
## converged
## # weights:  9
## initial  value 22324.812799
## iter  10 value 20024.568337
## iter  20 value 20014.428271
## iter  20 value 20014.428223
## final  value 20014.428223
## converged
## # weights:  25
## initial  value 22612.181795
## iter  10 value 20029.823760
## iter  20 value 20014.488861
## final  value 20014.326049
## converged
## # weights:  41
## initial  value 23545.361232
## iter  10 value 20030.381486
## iter  20 value 20014.495292
## final  value 20014.321442
## converged
```

```
## # weights:  9
## initial   value 22752.122370
## final   value 19991.598500
## converged
## # weights:  25
## initial   value 22187.107708
## final   value 19991.598500
## converged
## # weights:  41
## initial   value 23320.764465
## final   value 19991.598500
## converged
## # weights:  9
## initial   value 23002.704817
## iter   10 value 20000.794233
## iter   20 value 19997.107341
## iter   20 value 19997.107331
## final   value 19997.107331
## converged
## # weights:  25
## initial   value 22783.447198
## iter   10 value 20009.777283
## iter   20 value 19995.590439
## final   value 19995.573460
## converged
## # weights:  41
## initial   value 23658.534954
## iter   10 value 19997.859223
## iter   20 value 19994.915644
## final   value 19994.914193
## converged
## # weights:  9
## initial   value 23255.152077
## iter   10 value 20000.955671
## iter   20 value 19991.706381
## iter   20 value 19991.706338
## final   value 19991.706338
## converged
## # weights:  25
## initial   value 23564.324889
## iter   10 value 20004.137715
## iter   20 value 19991.743067
## final   value 19991.622773
## converged
## # weights:  41
## initial   value 21992.302813
## iter   10 value 20006.376189
## iter   20 value 19991.768875
## iter   30 value 19991.607257
## iter   30 value 19991.607257
## iter   30 value 19991.607257
## final   value 19991.607257
## converged
## # weights:  9
```

```
## initial  value 23691.203068
## final   value 20032.920100
## converged
## # weights:  25
## initial  value 21535.432668
## final   value 20032.920100
## converged
## # weights:  41
## initial  value 21780.440812
## final   value 20032.920100
## converged
## # weights:  9
## initial  value 22862.843193
## iter  10 value 20039.041271
## final   value 20038.429973
## converged
## # weights:  25
## initial  value 24313.826308
## iter  10 value 20037.805037
## final   value 20036.895866
## converged
## # weights:  41
## initial  value 22103.000115
## iter  10 value 20037.111698
## final   value 20036.236287
## converged
## # weights:  9
## initial  value 23516.277004
## iter  10 value 20041.833014
## iter  20 value 20033.022859
## iter  20 value 20033.022818
## final   value 20033.022818
## converged
## # weights:  25
## initial  value 23046.993500
## iter  10 value 20049.914888
## iter  20 value 20033.116037
## final   value 20032.934862
## converged
## # weights:  41
## initial  value 23956.876790
## iter  10 value 20045.350005
## iter  20 value 20033.063407
## final   value 20032.932072
## converged
## # weights:  9
## initial  value 22240.727455
## final   value 20042.739700
## converged
## # weights:  25
## initial  value 21562.497874
## final   value 20042.739700
## converged
## # weights:  41
```

```
## initial  value 23798.923114
## final  value 20042.739700
## converged
## # weights:  9
## initial  value 23597.278379
## iter  10 value 20051.000231
## final  value 20048.249934
## converged
## # weights:  25
## initial  value 23326.406568
## iter  10 value 20047.156826
## iter  20 value 20046.734050
## final  value 20046.715599
## converged
## # weights:  41
## initial  value 22141.029321
## iter  10 value 20048.995598
## iter  20 value 20046.056540
## final  value 20046.056107
## converged
## # weights:  9
## initial  value 23855.221508
## iter  10 value 20051.339999
## iter  20 value 20042.838855
## iter  20 value 20042.838815
## final  value 20042.838815
## converged
## # weights:  25
## initial  value 23665.323928
## iter  10 value 20054.602449
## iter  20 value 20042.876468
## final  value 20042.756487
## converged
## # weights:  41
## initial  value 22364.214416
## iter  10 value 20062.024052
## iter  20 value 20042.962033
## final  value 20042.750104
## converged
## # weights:  9
## initial  value 21766.451852
## final  value 19928.378000
## converged
## # weights:  25
## initial  value 22324.353317
## final  value 19928.378000
## converged
## # weights:  41
## initial  value 21281.349330
## final  value 19928.378000
## converged
## # weights:  9
## initial  value 22907.804992
## iter  10 value 19936.084236
```

```
## final  value 19933.885725
## converged
## # weights:  25
## initial  value 22965.730280
## iter  10 value 19941.320604
## iter  20 value 19932.352715
## final  value 19932.352316
## converged
## # weights:  41
## initial  value 21271.438161
## iter  10 value 19932.056193
## final  value 19931.693110
## converged
## # weights:  9
## initial  value 22307.284233
## iter  10 value 19938.699146
## iter  20 value 19928.496995
## iter  20 value 19928.496947
## final  value 19928.496947
## converged
## # weights:  25
## initial  value 21763.691676
## iter  10 value 19940.166906
## iter  20 value 19928.513917
## final  value 19928.388987
## converged
## # weights:  41
## initial  value 24356.140777
## iter  10 value 19936.793483
## iter  20 value 19928.475024
## final  value 19928.393830
## converged
## # weights:  9
## initial  value 22065.509706
## final  value 20036.130100
## converged
## # weights:  25
## initial  value 21352.961615
## final  value 20036.130100
## converged
## # weights:  41
## initial  value 21908.563283
## final  value 20036.130100
## converged
## # weights:  9
## initial  value 23469.156798
## iter  10 value 20042.245510
## final  value 20041.640100
## converged
## # weights:  25
## initial  value 23174.433615
## iter  10 value 20040.961563
## final  value 20040.105889
## converged
```

```
## # weights:  41
## initial  value 23385.501008
## iter  10 value 20040.611484
## iter  20 value 20039.446575
## iter  20 value 20039.446432
## iter  20 value 20039.446386
## final  value 20039.446386
## converged
## # weights:  9
## initial  value 22130.328731
## iter  10 value 20045.175931
## iter  20 value 20036.234391
## iter  20 value 20036.234350
## final  value 20036.234350
## converged
## # weights:  25
## initial  value 22766.054683
## iter  10 value 20051.427645
## iter  20 value 20036.306469
## final  value 20036.142638
## converged
## # weights:  41
## initial  value 22305.776067
## iter  10 value 20052.026501
## iter  20 value 20036.313373
## final  value 20036.140690
## converged
## # weights:  9
## initial  value 21892.396918
## final  value 20006.167600
## converged
## # weights:  25
## initial  value 22855.553438
## final  value 20006.167600
## converged
## # weights:  41
## initial  value 24022.252916
## final  value 20006.167600
## converged
## # weights:  9
## initial  value 23015.735851
## iter  10 value 20012.079169
## final  value 20011.676672
## converged
## # weights:  25
## initial  value 24208.908269
## iter  10 value 20011.237642
## final  value 20010.142711
## converged
## # weights:  41
## initial  value 22494.808740
## iter  10 value 20013.084254
## iter  20 value 20009.685404
## final  value 20009.483428
```

```
## converged
## # weights:  9
## initial  value 23424.721067
## iter  10 value 20015.331641
## iter  20 value 20006.273254
## iter  20 value 20006.273212
## final  value 20006.273212
## converged
## # weights:  25
## initial  value 23507.290531
## iter  10 value 20019.997027
## iter  20 value 20006.327042
## final  value 20006.190486
## converged
## # weights:  41
## initial  value 21709.172619
## iter  10 value 20019.009791
## iter  20 value 20006.315660
## final  value 20006.177640
## converged
## # weights:  9
## initial  value 23226.832197
## final  value 19970.240500
## converged
## # weights:  25
## initial  value 24116.269517
## final  value 19970.240500
## converged
## # weights:  41
## initial  value 21391.170527
## final  value 19970.240500
## converged
## # weights:  9
## initial  value 23451.632698
## iter  10 value 19977.087781
## final  value 19975.748888
## converged
## # weights:  25
## initial  value 21849.737127
## iter  10 value 19975.318031
## final  value 19974.215261
## converged
## # weights:  41
## initial  value 22563.294768
## iter  10 value 19975.032021
## final  value 19973.555986
## converged
## # weights:  9
## initial  value 23198.582087
## iter  10 value 19980.140303
## iter  20 value 19970.354637
## iter  20 value 19970.354591
## final  value 19970.354591
## converged
```

```
## # weights:  25
## initial   value 21774.314028
## iter  10 value 19982.121865
## iter  20 value 19970.377483
## final   value 19970.254039
## converged
## # weights:  41
## initial   value 23545.807310
## iter  10 value 19988.439462
## iter  20 value 19970.450320
## final   value 19970.255269
## converged
## # weights:  9
## initial   value 22911.422463
## final   value 20018.280100
## converged
## # weights:  25
## initial   value 22384.088696
## final   value 20018.280100
## converged
## # weights:  41
## initial   value 22199.340930
## final   value 20018.280100
## converged
## # weights:  9
## initial   value 21735.295291
## iter  10 value 20024.321761
## final   value 20023.789518
## converged
## # weights:  25
## initial   value 21728.177424
## iter  10 value 20023.910044
## final   value 20022.255468
## converged
## # weights:  41
## initial   value 21726.418825
## iter  10 value 20036.371109
## iter  20 value 20021.596421
## iter  20 value 20021.596236
## iter  20 value 20021.596159
## final   value 20021.596159
## converged
## # weights:  9
## initial   value 22244.116843
## iter  10 value 20027.503821
## iter  20 value 20018.386442
## iter  20 value 20018.386400
## final   value 20018.386400
## converged
## # weights:  25
## initial   value 23086.043381
## iter  10 value 20035.094406
## iter  20 value 20018.473956
## final   value 20018.293217
```

```
## converged
## # weights:  41
## initial  value 21639.648016
## iter  10 value 20030.618288
## iter  20 value 20018.422350
## final   value 20018.289445
## converged
## # weights:  9
## initial  value 23509.503819
## final   value 20051.405200
## converged
## # weights:  25
## initial  value 22791.101572
## final   value 20051.405200
## converged
## # weights:  41
## initial  value 23170.516713
## final   value 20051.405200
## converged
## # weights:  9
## initial  value 23376.720625
## iter  10 value 20057.580381
## final   value 20056.915944
## converged
## # weights:  25
## initial  value 22943.847107
## iter  10 value 20063.989980
## iter  20 value 20055.385961
## final   value 20055.381509
## converged
## # weights:  41
## initial  value 22327.878123
## iter  10 value 20056.373084
## iter  20 value 20054.722049
## iter  20 value 20054.721939
## iter  20 value 20054.721924
## final   value 20054.721924
## converged
## # weights:  9
## initial  value 21963.569278
## iter  10 value 20060.466227
## iter  20 value 20051.509667
## iter  20 value 20051.509625
## final   value 20051.509625
## converged
## # weights:  25
## initial  value 21457.895842
## iter  10 value 20060.123473
## iter  20 value 20051.505715
## final   value 20051.417017
## converged
## # weights:  41
## initial  value 23972.796486
## iter  10 value 20064.449079
```

```
## iter  20 value 20051.555586
## final  value 20051.420681
## converged
## # weights:  9
## initial  value 21851.697507
## final  value 19996.910500
## converged
## # weights:  25
## initial  value 22325.562863
## final  value 19996.910500
## converged
## # weights:  41
## initial  value 22589.751694
## final  value 19996.910500
## converged
## # weights:  9
## initial  value 22933.914846
## iter  10 value 20004.657099
## final  value 20002.419403
## converged
## # weights:  25
## initial  value 23390.751637
## iter  10 value 20001.911197
## final  value 20000.885544
## converged
## # weights:  41
## initial  value 21911.438775
## iter  10 value 20002.839349
## iter  20 value 20000.226445
## iter  20 value 20000.226292
## iter  20 value 20000.226221
## final  value 20000.226221
## converged
## # weights:  9
## initial  value 22327.033970
## iter  10 value 20007.339557
## iter  20 value 19997.030739
## iter  20 value 19997.030691
## final  value 19997.030691
## converged
## # weights:  25
## initial  value 22214.465790
## iter  10 value 20010.497524
## iter  20 value 19997.067148
## final  value 19996.923486
## converged
## # weights:  41
## initial  value 23129.303634
## iter  10 value 20014.338081
## iter  20 value 19997.111426
## final  value 19996.922036
## converged
## # weights:  9
## initial  value 22065.849504
```

```
## final   value 20014.030000
## converged
## # weights:  25
## initial   value 23436.126106
## final   value 20014.030000
## converged
## # weights:  41
## initial   value 23832.655320
## final   value 20014.030000
## converged
## # weights:  9
## initial   value 23572.007951
## iter   10 value 20020.006296
## final   value 20019.539285
## converged
## # weights:  25
## initial   value 22746.754102
## iter   10 value 20020.753764
## iter   20 value 20018.005546
## iter   20 value 20018.005422
## iter   20 value 20018.005354
## final   value 20018.005354
## converged
## # weights:  41
## initial   value 23166.411528
## iter   10 value 20018.119857
## final   value 20017.345912
## converged
## # weights:  9
## initial   value 22429.971221
## iter   10 value 20024.400523
## iter   20 value 20014.149564
## iter   20 value 20014.149516
## final   value 20014.149516
## converged
## # weights:  25
## initial   value 23290.307128
## iter   10 value 20027.783557
## iter   20 value 20014.188568
## final   value 20014.045257
## converged
## # weights:  41
## initial   value 22757.985160
## iter   10 value 20031.706520
## iter   20 value 20014.233796
## final   value 20014.040689
## converged
## # weights:  9
## initial   value 22562.696379
## final   value 20020.659700
## converged
## # weights:  25
## initial   value 23976.793625
## final   value 20020.659700
```

```
## converged
## # weights:  41
## initial  value 22911.507257
## final  value 20020.659700
## converged
## # weights:  9
## initial  value 21783.909762
## iter  10 value 20027.816940
## final  value 20026.169153
## converged
## # weights:  25
## initial  value 21786.321839
## iter  10 value 20026.813071
## final  value 20024.635100
## converged
## # weights:  41
## initial  value 21902.816533
## iter  10 value 20035.888594
## iter  20 value 20023.982246
## final  value 20023.975661
## converged
## # weights:  9
## initial  value 23599.866211
## iter  10 value 20029.750027
## iter  20 value 20020.764504
## iter  20 value 20020.764462
## final  value 20020.764462
## converged
## # weights:  25
## initial  value 22710.997407
## iter  10 value 20036.815328
## iter  20 value 20020.845962
## final  value 20020.671527
## converged
## # weights:  41
## initial  value 22172.691130
## iter  10 value 20034.918022
## iter  20 value 20020.824087
## final  value 20020.669355
## converged
## # weights:  9
## initial  value 23152.657591
## final  value 19950.385700
## converged
## # weights:  25
## initial  value 22305.162980
## final  value 19950.385700
## converged
## # weights:  41
## initial  value 22667.974053
## final  value 19950.385700
## converged
## # weights:  9
## initial  value 22718.493772
```

```
## iter   10 value 19956.405374
## final   value 19955.893617
## converged
## # weights:  25
## initial  value 21721.409253
## iter   10 value 19957.076095
## final   value 19954.360092
## converged
## # weights:  41
## initial  value 23289.438328
## iter   10 value 19955.762368
## iter   20 value 19953.701004
## iter   20 value 19953.700878
## iter   20 value 19953.700857
## final   value 19953.700857
## converged
## # weights:  9
## initial  value 22328.137587
## iter   10 value 19960.709714
## iter   20 value 19950.504728
## iter   20 value 19950.504680
## final   value 19950.504680
## converged
## # weights:  25
## initial  value 22859.241200
## iter   10 value 19963.825580
## iter   20 value 19950.540651
## final   value 19950.402945
## converged
## # weights:  41
## initial  value 22362.331520
## iter   10 value 19967.503388
## iter   20 value 19950.583054
## final   value 19950.396829
## converged
## # weights:  9
## initial  value 22211.574259
## final   value 20051.473700
## converged
## # weights:  25
## initial  value 23444.600013
## final   value 20051.473700
## converged
## # weights:  41
## initial  value 23252.349879
## final   value 20051.473700
## converged
## # weights:  9
## initial  value 22800.377866
## iter   10 value 20057.516112
## final   value 20056.984314
## converged
## # weights:  25
## initial  value 23948.764442
```

```
## iter   10 value 20065.631654
## iter   20 value 20055.454789
## final   value 20055.449847
## converged
## # weights:  41
## initial  value 22665.540007
## iter   10 value 20056.024311
## iter   20 value 20054.790502
## iter   20 value 20054.790327
## iter   20 value 20054.790327
## final   value 20054.790327
## converged
## # weights:  9
## initial  value 23016.308970
## iter   10 value 20062.970992
## iter   20 value 20051.606255
## iter   20 value 20051.606202
## final   value 20051.606202
## converged
## # weights:  25
## initial  value 23520.652750
## iter   10 value 20064.596269
## iter   20 value 20051.624993
## final   value 20051.488093
## converged
## # weights:  41
## initial  value 22145.096606
## iter   10 value 20069.048912
## iter   20 value 20051.676328
## final   value 20051.484420
## converged
## # weights:  9
## initial  value 23388.650878
## final   value 20061.657200
## converged
## # weights:  25
## initial  value 23106.468002
## final   value 20061.657200
## converged
## # weights:  41
## initial  value 24085.211049
## final   value 20061.657200
## converged
## # weights:  9
## initial  value 22815.337320
## iter   10 value 20067.309909
## final   value 20067.168768
## converged
## # weights:  25
## initial  value 22777.626919
## iter   10 value 20066.239794
## final   value 20065.634049
## converged
## # weights:  41
```

```
## initial  value 24042.641808
## iter  10 value 20078.097195
## iter  20 value 20064.976081
## final  value 20064.974359
## converged
## # weights:  9
## initial  value 22275.899537
## iter  10 value 20072.320706
## iter  20 value 20061.780142
## iter  20 value 20061.780093
## final  value 20061.780093
## converged
## # weights:  25
## initial  value 23417.912157
## iter  10 value 20076.047970
## iter  20 value 20061.823114
## final  value 20061.672301
## converged
## # weights:  41
## initial  value 22183.301226
## iter  10 value 20081.281600
## iter  20 value 20061.883454
## final  value 20061.666181
## converged
## # weights:  9
## initial  value 22219.002592
## final  value 20007.369200
## converged
## # weights:  25
## initial  value 22757.545671
## final  value 20007.369200
## converged
## # weights:  41
## initial  value 22640.375914
## final  value 20007.369200
## converged
## # weights:  9
## initial  value 23133.627551
## iter  10 value 20012.994983
## final  value 20012.878349
## converged
## # weights:  25
## initial  value 22628.991996
## iter  10 value 20013.324441
## iter  20 value 20011.347066
## final  value 20011.344369
## converged
## # weights:  41
## initial  value 23937.906451
## iter  10 value 20011.899856
## iter  20 value 20010.685032
## iter  20 value 20010.684988
## iter  20 value 20010.684986
## final  value 20010.684986
```

```
## converged
## # weights:  9
## initial  value 23548.273644
## iter  10 value 20016.596430
## iter  20 value 20007.475583
## iter  20 value 20007.475540
## final  value 20007.475540
## converged
## # weights:  25
## initial  value 22791.182186
## iter  10 value 20024.238896
## iter  20 value 20007.563694
## final  value 20007.386134
## converged
## # weights:  41
## initial  value 21235.223605
## iter  10 value 20015.995067
## iter  20 value 20007.468649
## final  value 20007.378152
## converged
## # weights:  9
## initial  value 23106.736086
## final  value 20003.880100
## converged
## # weights:  25
## initial  value 23374.678870
## final  value 20003.880100
## converged
## # weights:  41
## initial  value 23311.577177
## final  value 20003.880100
## converged
## # weights:  9
## initial  value 23141.842677
## iter  10 value 20009.644383
## final  value 20009.389117
## converged
## # weights:  25
## initial  value 22824.760391
## iter  10 value 20013.728589
## iter  20 value 20007.856571
## final  value 20007.855165
## converged
## # weights:  41
## initial  value 23524.065316
## iter  10 value 20014.825573
## iter  20 value 20007.196633
## final  value 20007.195824
## converged
## # weights:  9
## initial  value 22234.962890
## iter  10 value 20013.041282
## iter  20 value 20003.985721
## iter  20 value 20003.985679
```

```
## final   value 20003.985679
## converged
## # weights:  25
## initial   value 22046.795368
## iter  10 value 20019.827605
## iter  20 value 20004.063962
## final   value 20003.893859
## converged
## # weights:  41
## initial   value 23336.318290
## iter  10 value 20021.005953
## iter  20 value 20004.077548
## final   value 20003.891379
## converged
## # weights:  9
## initial   value 22973.743848
## final   value 19948.680100
## converged
## # weights:  25
## initial   value 22521.834492
## final   value 19948.680100
## converged
## # weights:  41
## initial   value 23003.623989
## final   value 19948.680100
## converged
## # weights:  9
## initial   value 23547.594953
## iter  10 value 19955.869119
## final   value 19954.187977
## converged
## # weights:  25
## initial   value 22768.311373
## iter  10 value 19970.474909
## iter  20 value 19952.662369
## final   value 19952.654406
## converged
## # weights:  41
## initial   value 23357.038570
## iter  10 value 19954.382303
## iter  20 value 19951.995383
## iter  20 value 19951.995262
## iter  20 value 19951.995251
## final   value 19951.995251
## converged
## # weights:  9
## initial   value 22115.527822
## iter  10 value 19958.545391
## iter  20 value 19948.793839
## iter  20 value 19948.793794
## final   value 19948.793794
## converged
## # weights:  25
## initial   value 23696.724669
```

```
## iter  10 value 19960.341338
## iter  20 value 19948.814545
## final   value 19948.697171
## converged
## # weights:  41
## initial   value 23494.647682
## iter  10 value 19966.676142
## iter  20 value 19948.887580
## final   value 19948.692826
## converged
## # weights:  9
## initial   value 23619.444581
## final   value 20032.256500
## converged
## # weights:  25
## initial   value 23184.077878
## final   value 20032.256500
## converged
## # weights:  41
## initial   value 23223.479695
## final   value 20032.256500
## converged
## # weights:  9
## initial   value 22465.249843
## iter  10 value 20040.221342
## final   value 20037.766361
## converged
## # weights:  25
## initial   value 22312.332098
## iter  10 value 20037.192689
## final   value 20036.232127
## converged
## # weights:  41
## initial   value 21663.300803
## iter  10 value 20037.408571
## iter  20 value 20035.573342
## final   value 20035.572731
## converged
## # weights:  9
## initial   value 22778.142117
## iter  10 value 20043.480623
## iter  20 value 20032.385905
## iter  20 value 20032.385854
## final   value 20032.385854
## converged
## # weights:  25
## initial   value 21356.464645
## iter  10 value 20039.804237
## iter  20 value 20032.343519
## final   value 20032.267386
## converged
## # weights:  41
## initial   value 21537.398219
## iter  10 value 20044.913687
```

```
## iter  20 value 20032.402427
## final  value 20032.266465
## converged
## # weights:  9
## initial  value 22811.343848
## final  value 20014.867600
## converged
## # weights:  25
## initial  value 22639.139092
## final  value 20014.867600
## converged
## # weights:  41
## initial  value 21065.137305
## final  value 20014.867600
## converged
## # weights:  9
## initial  value 22874.242018
## iter  10 value 20020.735088
## final  value 20020.376929
## converged
## # weights:  25
## initial  value 22916.153046
## iter  10 value 20028.892562
## iter  20 value 20018.881032
## final  value 20018.842922
## converged
## # weights:  41
## initial  value 20938.535165
## iter  10 value 20027.366235
## iter  20 value 20018.183581
## iter  20 value 20018.183523
## iter  20 value 20018.183508
## final  value 20018.183508
## converged
## # weights:  9
## initial  value 21738.025770
## iter  10 value 20022.299166
## iter  20 value 20014.953280
## iter  20 value 20014.953246
## final  value 20014.953246
## converged
## # weights:  25
## initial  value 21838.115991
## iter  10 value 20026.923413
## iter  20 value 20015.006594
## final  value 20014.878958
## converged
## # weights:  41
## initial  value 22459.792694
## iter  10 value 20035.125141
## iter  20 value 20015.101154
## final  value 20014.878023
## converged
## # weights:  9
```

```
## initial  value 21823.031753
## final  value 20044.421200
## converged
## # weights:  25
## initial  value 24176.035649
## final  value 20044.421200
## converged
## # weights:  41
## initial  value 24061.004311
## final  value 20044.421200
## converged
## # weights:  9
## initial  value 21705.401024
## iter  10 value 20050.206774
## final  value 20049.931538
## converged
## # weights:  25
## initial  value 21587.875311
## iter  10 value 20052.868876
## iter  20 value 20048.398096
## final  value 20048.397265
## converged
## # weights:  41
## initial  value 22825.769770
## iter  10 value 20064.290894
## iter  20 value 20047.738432
## final  value 20047.737708
## converged
## # weights:  9
## initial  value 21717.145476
## iter  10 value 20051.577181
## iter  20 value 20044.503703
## iter  20 value 20044.503670
## final  value 20044.503670
## converged
## # weights:  25
## initial  value 23703.361652
## iter  10 value 20057.567084
## iter  20 value 20044.572762
## final  value 20044.441048
## converged
## # weights:  41
## initial  value 22383.982161
## iter  10 value 20063.888254
## iter  20 value 20044.645640
## final  value 20044.431237
## converged
## # weights:  9
## initial  value 21831.106914
## final  value 20048.654000
## converged
## # weights:  25
## initial  value 23360.939135
## final  value 20048.654000
```

```
## converged
## # weights:  41
## initial   value 22343.154922
## final   value 20048.654000
## converged
## # weights:  9
## initial   value 22087.390797
## iter   10 value 20057.979601
## final   value 20054.164524
## converged
## # weights:  25
## initial   value 23298.044789
## iter   10 value 20054.544950
## iter   20 value 20052.630166
## iter   20 value 20052.630126
## iter   20 value 20052.630120
## final   value 20052.630120
## converged
## # weights:  41
## initial   value 21715.256491
## iter   10 value 20052.826486
## final   value 20051.970582
## converged
## # weights:  9
## initial   value 22247.218449
## iter   10 value 20058.196378
## iter   20 value 20048.764016
## iter   20 value 20048.763972
## final   value 20048.763972
## converged
## # weights:  25
## initial   value 23255.778606
## iter   10 value 20063.281480
## iter   20 value 20048.822643
## final   value 20048.668585
## converged
## # weights:  41
## initial   value 22246.865088
## iter   10 value 20066.721734
## iter   20 value 20048.862307
## final   value 20048.665637
## converged
## # weights:  9
## initial   value 22127.972853
## final   value 20050.709200
## converged
## # weights:  25
## initial   value 23217.503861
## final   value 20050.709200
## converged
## # weights:  41
## initial   value 22119.980819
## final   value 20050.709200
## converged
```

```
## # weights:  9
## initial  value 21978.291846
## iter  10 value 20056.702525
## final  value 20056.219788
## converged
## # weights:  25
## initial  value 22903.635509
## iter  10 value 20055.379459
## final  value 20054.685425
## converged
## # weights:  41
## initial  value 22461.948048
## iter  10 value 20060.750313
## iter  20 value 20054.026407
## final  value 20054.025828
## converged
## # weights:  9
## initial  value 21574.348795
## iter  10 value 20057.706879
## iter  20 value 20050.789878
## iter  20 value 20050.789845
## final  value 20050.789845
## converged
## # weights:  25
## initial  value 23525.998898
## iter  10 value 20064.986139
## iter  20 value 20050.873802
## final  value 20050.727659
## converged
## # weights:  41
## initial  value 23556.491897
## iter  10 value 20066.879378
## iter  20 value 20050.895629
## final  value 20050.720586
## converged
## # weights:  9
## initial  value 21583.027278
## final  value 20001.390500
## converged
## # weights:  25
## initial  value 23761.537025
## final  value 20001.390500
## converged
## # weights:  41
## initial  value 23456.824062
## final  value 20001.390500
## converged
## # weights:  9
## initial  value 23594.267102
## iter  10 value 20007.517204
## final  value 20006.899483
## converged
## # weights:  25
## initial  value 22884.451665
```

```
## iter   10 value 20010.036568
## iter   20 value 20005.365576
## iter   20 value 20005.365529
## iter   20 value 20005.365527
## final   value 20005.365527
## converged
## # weights:  41
## initial  value 21923.916677
## iter   10 value 20017.116608
## iter   20 value 20004.706723
## final   value 20004.706249
## converged
## # weights:  9
## initial  value 23513.985700
## iter   10 value 20011.508929
## iter   20 value 20001.507158
## iter   20 value 20001.507111
## final   value 20001.507111
## converged
## # weights:  25
## initial  value 21917.892412
## iter   10 value 20013.695815
## iter   20 value 20001.532371
## final   value 20001.403554
## converged
## # weights:  41
## initial  value 22223.597403
## iter   10 value 20019.880431
## iter   20 value 20001.603674
## final   value 20001.400491
## converged
## # weights:  9
## initial  value 21838.292754
## final   value 20008.558000
## converged
## # weights:  25
## initial  value 22998.665491
## final   value 20008.558000
## converged
## # weights:  41
## initial  value 21996.709296
## final   value 20008.558000
## converged
## # weights:  9
## initial  value 23362.026636
## iter   10 value 20014.129565
## final   value 20014.067170
## converged
## # weights:  25
## initial  value 23672.239298
## iter   10 value 20013.594149
## final   value 20012.533177
## converged
## # weights:  41
```

```
## initial  value 22087.723740
## iter  10 value 20025.609095
## iter  20 value 20011.913198
## final  value 20011.873830
## converged
## # weights:  9
## initial  value 22491.810367
## iter  10 value 20018.540260
## iter  20 value 20008.673088
## iter  20 value 20008.673042
## final  value 20008.673042
## converged
## # weights:  25
## initial  value 22165.309128
## iter  10 value 20024.337123
## iter  20 value 20008.739921
## final  value 20008.571245
## converged
## # weights:  41
## initial  value 22516.684611
## iter  10 value 20027.302564
## iter  20 value 20008.774110
## final  value 20008.568919
## converged
## # weights:  9
## initial  value 21998.706314
## final  value 20042.193700
## converged
## # weights:  25
## initial  value 22499.670822
## final  value 20042.193700
## converged
## # weights:  41
## initial  value 21446.296193
## final  value 20042.193700
## converged
## # weights:  9
## initial  value 22657.149937
## iter  10 value 20050.102040
## final  value 20047.703950
## converged
## # weights:  25
## initial  value 23800.709664
## iter  10 value 20049.517597
## iter  20 value 20046.170117
## final  value 20046.169648
## converged
## # weights:  41
## initial  value 22570.421070
## iter  10 value 20057.659044
## iter  20 value 20045.511889
## final  value 20045.510130
## converged
## # weights:  9
```

```
## initial  value 22440.761549
## iter  10 value 20053.159027
## iter  20 value 20042.320122
## iter  20 value 20042.320071
## final  value 20042.320071
## converged
## # weights:  25
## initial  value 21602.680557
## iter  10 value 20052.627238
## iter  20 value 20042.313991
## final  value 20042.204906
## converged
## # weights:  41
## initial  value 22667.938253
## iter  10 value 20063.128926
## iter  20 value 20042.435067
## final  value 20042.203380
## converged
## # weights:  9
## initial  value 22992.735316
## final  value 19991.259700
## converged
## # weights:  25
## initial  value 22574.261483
## final  value 19991.259700
## converged
## # weights:  41
## initial  value 24540.630644
## final  value 19991.259700
## converged
## # weights:  9
## initial  value 22806.819024
## iter  10 value 19998.876220
## final  value 19996.768366
## converged
## # weights:  25
## initial  value 21941.385784
## iter  10 value 19995.573162
## final  value 19995.234524
## converged
## # weights:  41
## initial  value 22707.456285
## iter  10 value 19995.213217
## final  value 19994.575219
## converged
## # weights:  9
## initial  value 21736.801041
## iter  10 value 19999.441929
## iter  20 value 19991.354035
## iter  20 value 19991.353997
## final  value 19991.353997
## converged
## # weights:  25
## initial  value 22513.668385
```

```
## iter  10 value 20005.066945
## iter  20 value 19991.418887
## final  value 19991.275493
## converged
## # weights:  41
## initial  value 22930.660880
## iter  10 value 20010.255042
## iter  20 value 19991.478701
## final  value 19991.270872
## converged
## # weights:  9
## initial  value 23273.470153
## final  value 20021.567600
## converged
## # weights:  25
## initial  value 21928.487177
## final  value 20021.567600
## converged
## # weights:  41
## initial  value 23609.843902
## final  value 20021.567600
## converged
## # weights:  9
## initial  value 22312.299954
## iter  10 value 20028.671879
## final  value 20027.077118
## converged
## # weights:  25
## initial  value 22530.272061
## iter  10 value 20026.159340
## final  value 20025.543043
## converged
## # weights:  41
## initial  value 24263.760672
## iter  10 value 20036.365375
## iter  20 value 20024.884811
## final  value 20024.883604
## converged
## # weights:  9
## initial  value 22620.341305
## iter  10 value 20031.333435
## iter  20 value 20021.680192
## iter  20 value 20021.680147
## final  value 20021.680147
## converged
## # weights:  25
## initial  value 21543.359321
## iter  10 value 20031.075635
## iter  20 value 20021.677220
## final  value 20021.579608
## converged
## # weights:  41
## initial  value 23384.754526
## iter  10 value 20038.594539
```

```
## iter   20 value 20021.763907
## final   value 20021.578335
## converged
## # weights:   9
## initial   value 23161.281147
## final   value 19931.150000
## converged
## # weights:   25
## initial   value 22234.544394
## final   value 19931.150000
## converged
## # weights:   41
## initial   value 21851.506459
## final   value 19931.150000
## converged
## # weights:   9
## initial   value 22019.659384
## iter   10 value 19937.789479
## final   value 19936.657745
## converged
## # weights:   25
## initial   value 24078.701359
## iter   10 value 19938.727638
## iter   20 value 19935.124542
## iter   20 value 19935.124396
## iter   20 value 19935.124368
## final   value 19935.124368
## converged
## # weights:   41
## initial   value 22519.830865
## iter   10 value 19938.919400
## iter   20 value 19934.465528
## final   value 19934.465117
## converged
## # weights:   9
## initial   value 22727.306729
## iter   10 value 19942.079156
## iter   20 value 19931.276005
## iter   20 value 19931.275954
## final   value 19931.275954
## converged
## # weights:   25
## initial   value 22321.961999
## iter   10 value 19945.368760
## iter   20 value 19931.313931
## final   value 19931.160871
## converged
## # weights:   41
## initial   value 23044.470473
## iter   10 value 19947.160085
## iter   20 value 19931.334584
## final   value 19931.162087
## converged
## # weights:   9
```

```
## initial  value 21883.965448
## final  value 20048.115700
## converged
## # weights:  25
## initial  value 23069.953967
## final  value 20048.115700
## converged
## # weights:  41
## initial  value 23329.576153
## final  value 20048.115700
## converged
## # weights:  9
## initial  value 21770.514929
## iter  10 value 20054.962738
## final  value 20053.626196
## converged
## # weights:  25
## initial  value 23326.567637
## iter  10 value 20052.888959
## final  value 20052.091881
## converged
## # weights:  41
## initial  value 21789.302366
## iter  10 value 20052.423857
## iter  20 value 20051.432410
## iter  20 value 20051.432274
## iter  20 value 20051.432253
## final  value 20051.432253
## converged
## # weights:  9
## initial  value 23011.601256
## iter  10 value 20057.893445
## iter  20 value 20048.228430
## iter  20 value 20048.228385
## final  value 20048.228385
## converged
## # weights:  25
## initial  value 23294.595186
## iter  10 value 20064.134508
## iter  20 value 20048.300384
## final  value 20048.128269
## converged
## # weights:  41
## initial  value 22611.920051
## iter  10 value 20065.475225
## iter  20 value 20048.315842
## final  value 20048.126302
## converged
## # weights:  9
## initial  value 22201.650170
## final  value 20053.498000
## converged
## # weights:  25
## initial  value 22366.034186
```

```
## final   value 20053.498000
## converged
## # weights:  41
## initial  value 23111.836674
## final   value 20053.498000
## converged
## # weights:  9
## initial  value 21488.808219
## iter  10 value 20059.061114
## final   value 20059.008762
## converged
## # weights:  25
## initial  value 22504.595569
## iter  10 value 20058.768000
## final   value 20057.474382
## converged
## # weights:  41
## initial  value 21507.695764
## iter  10 value 20068.526969
## iter  20 value 20056.874825
## final   value 20056.814826
## converged
## # weights:  9
## initial  value 23174.118194
## iter  10 value 20063.103135
## iter  20 value 20053.608740
## iter  20 value 20053.608695
## final   value 20053.608695
## converged
## # weights:  25
## initial  value 22364.270944
## iter  10 value 20067.523351
## iter  20 value 20053.659701
## final   value 20053.512358
## converged
## # weights:  41
## initial  value 21643.317321
## iter  10 value 20065.583784
## iter  20 value 20053.637340
## final   value 20053.506659
## converged
## # weights:  9
## initial  value 22611.348982
## final   value 20036.130100
## converged
## # weights:  25
## initial  value 22158.058055
## final   value 20036.130100
## converged
## # weights:  41
## initial  value 23730.024770
## final   value 20036.130100
## converged
## # weights:  9
```

```
## initial  value 23839.313549
## iter  10 value 20043.866984
## final  value 20041.640082
## converged
## # weights:  25
## initial  value 22827.559412
## iter  10 value 20042.702605
## final  value 20040.105837
## converged
## # weights:  41
## initial  value 23145.064650
## iter  10 value 20040.209675
## final  value 20039.446357
## converged
## # weights:  9
## initial  value 22547.772391
## iter  10 value 20046.476525
## iter  20 value 20036.249386
## iter  20 value 20036.249338
## final  value 20036.249338
## converged
## # weights:  25
## initial  value 23079.531017
## iter  10 value 20052.881427
## iter  20 value 20036.323230
## final  value 20036.141744
## converged
## # weights:  41
## initial  value 21301.242753
## iter  10 value 20046.241830
## iter  20 value 20036.246680
## final  value 20036.139892
## converged
## # weights:  9
## initial  value 22871.318646
## final  value 20044.680100
## converged
## # weights:  25
## initial  value 22551.147149
## final  value 20044.680100
## converged
## # weights:  41
## initial  value 22006.742754
## final  value 20044.680100
## converged
## # weights:  9
## initial  value 22647.121827
## iter  10 value 20053.843664
## final  value 20050.190523
## converged
## # weights:  25
## initial  value 22211.651862
## iter  10 value 20049.567352
## final  value 20048.656126
```

```
## converged
## # weights:  41
## initial  value 22322.653381
## iter  10 value 20048.578577
## final  value 20047.996601
## converged
## # weights:  9
## initial  value 22088.360680
## iter  10 value 20054.653084
## iter  20 value 20044.795081
## iter  20 value 20044.795035
## final  value 20044.795035
## converged
## # weights:  25
## initial  value 24102.918495
## iter  10 value 20055.036346
## iter  20 value 20044.799499
## final  value 20044.697194
## converged
## # weights:  41
## initial  value 21934.394872
## iter  10 value 20060.722431
## iter  20 value 20044.865055
## iter  30 value 20044.689814
## iter  30 value 20044.689814
## iter  30 value 20044.689813
## final  value 20044.689813
## converged
## # weights:  9
## initial  value 23083.401870
## final  value 20046.605200
## converged
## # weights:  25
## initial  value 22419.748385
## final  value 20046.605200
## converged
## # weights:  41
## initial  value 22600.206607
## final  value 20046.605200
## converged
## # weights:  9
## initial  value 21990.205433
## iter  10 value 20053.181721
## final  value 20052.115630
## converged
## # weights:  25
## initial  value 22195.846091
## iter  10 value 20051.330886
## final  value 20050.581223
## converged
## # weights:  41
## initial  value 22336.133405
## iter  10 value 20051.150733
## iter  20 value 20049.922066
```

```
## final   value 20049.921704
## converged
## # weights:  9
## initial  value 23859.968359
## iter  10 value 20055.468628
## iter  20 value 20046.707388
## iter  20 value 20046.707348
## final   value 20046.707348
## converged
## # weights:  25
## initial  value 23251.229015
## iter  10 value 20061.336835
## iter  20 value 20046.775044
## final   value 20046.618776
## converged
## # weights:  41
## initial  value 22866.640003
## iter  10 value 20067.116549
## iter  20 value 20046.841680
## final   value 20046.614687
## converged
## # weights:  9
## initial  value 22302.117618
## final   value 20050.065700
## converged
## # weights:  25
## initial  value 24185.117462
## final   value 20050.065700
## converged
## # weights:  41
## initial  value 22929.020370
## final   value 20050.065700
## converged
## # weights:  9
## initial  value 22268.454351
## iter  10 value 20056.705988
## final   value 20055.576331
## converged
## # weights:  25
## initial  value 23682.722385
## iter  10 value 20064.625183
## iter  20 value 20054.043933
## final   value 20054.041874
## converged
## # weights:  41
## initial  value 23000.253576
## iter  10 value 20059.598710
## iter  20 value 20053.383829
## final   value 20053.382349
## converged
## # weights:  9
## initial  value 23279.067057
## iter  10 value 20059.548759
## iter  20 value 20050.175032
```

```
## iter  20 value 20050.174988
## final  value 20050.174988
## converged
## # weights:  25
## initial  value 21775.930727
## iter  10 value 20062.427829
## iter  20 value 20050.208226
## final  value 20050.078813
## converged
## # weights:  41
## initial  value 23003.509150
## iter  10 value 20070.182903
## iter  20 value 20050.297636
## final  value 20050.076182
## converged
## # weights:  9
## initial  value 22704.429526
## final  value 20042.467600
## converged
## # weights:  25
## initial  value 23104.892000
## final  value 20042.467600
## converged
## # weights:  41
## initial  value 22708.007521
## final  value 20042.467600
## converged
## # weights:  9
## initial  value 22663.770763
## iter  10 value 20048.200587
## final  value 20047.977792
## converged
## # weights:  25
## initial  value 21935.624072
## iter  10 value 20047.285962
## final  value 20046.443525
## converged
## # weights:  41
## initial  value 24662.274921
## iter  10 value 20058.008004
## iter  20 value 20045.784336
## final  value 20045.783938
## converged
## # weights:  9
## initial  value 22570.786925
## iter  10 value 20053.189083
## iter  20 value 20042.591210
## iter  20 value 20042.591161
## final  value 20042.591161
## converged
## # weights:  25
## initial  value 22584.372220
## iter  10 value 20058.464952
## iter  20 value 20042.652037
```

```
## final   value 20042.481630
## converged
## # weights:  41
## initial   value 22714.868080
## iter  10 value 20061.056052
## iter  20 value 20042.681910
## final   value 20042.478484
## converged
## # weights:  9
## initial   value 22940.884290
## final   value 20062.464500
## converged
## # weights:  25
## initial   value 21788.582088
## final   value 20062.464500
## converged
## # weights:  41
## initial   value 21945.302055
## final   value 20062.464500
## converged
## # weights:  9
## initial   value 22660.090270
## iter  10 value 20068.434427
## final   value 20067.977118
## converged
## # weights:  25
## initial   value 22655.826785
## iter  10 value 20066.653318
## final   value 20066.442213
## converged
## # weights:  41
## initial   value 21645.330134
## iter  10 value 20067.666620
## iter  20 value 20065.783076
## final   value 20065.782430
## converged
## # weights:  9
## initial   value 23036.317738
## iter  10 value 20074.223844
## iter  20 value 20062.600076
## iter  20 value 20062.600022
## final   value 20062.600022
## converged
## # weights:  25
## initial   value 22507.579945
## iter  10 value 20077.710618
## iter  20 value 20062.640276
## final   value 20062.477605
## converged
## # weights:  41
## initial   value 23377.355869
## iter  10 value 20079.385799
## iter  20 value 20062.659589
## final   value 20062.475769
```

```
## converged
## # weights:  9
## initial  value 23756.758364
## final  value 20006.167600
## converged
## # weights:  25
## initial  value 23079.026662
## final  value 20006.167600
## converged
## # weights:  41
## initial  value 22209.982353
## final  value 20006.167600
## converged
## # weights:  9
## initial  value 23863.672033
## iter  10 value 20012.276985
## final  value 20011.676702
## converged
## # weights:  25
## initial  value 22402.326001
## iter  10 value 20018.115235
## iter  20 value 20010.149765
## final  value 20010.142773
## converged
## # weights:  41
## initial  value 22603.819974
## iter  10 value 20010.107309
## final  value 20009.483411
## converged
## # weights:  9
## initial  value 22886.651100
## iter  10 value 20015.850525
## iter  20 value 20006.279237
## iter  20 value 20006.279192
## final  value 20006.279192
## converged
## # weights:  25
## initial  value 22366.991717
## iter  10 value 20019.168663
## iter  20 value 20006.317492
## final  value 20006.184066
## converged
## # weights:  41
## initial  value 22708.871204
## iter  10 value 20025.791089
## iter  20 value 20006.393843
## final  value 20006.178664
## converged
## # weights:  9
## initial  value 23710.037181
## final  value 20057.069200
## converged
## # weights:  25
## initial  value 22588.951085
```

```
## final   value 20057.069200
## converged
## # weights:  41
## initial  value 21910.115568
## final   value 20057.069200
## converged
## # weights:  9
## initial  value 23759.406086
## iter  10 value 20063.509825
## final   value 20062.580233
## converged
## # weights:  25
## initial  value 23256.805119
## iter  10 value 20061.513293
## final   value 20061.045681
## converged
## # weights:  41
## initial  value 23297.331457
## iter  10 value 20065.070325
## iter  20 value 20060.386343
## iter  20 value 20060.386168
## iter  20 value 20060.386112
## final   value 20060.386112
## converged
## # weights:  9
## initial  value 21901.084829
## iter  10 value 20065.275567
## iter  20 value 20057.163813
## iter  20 value 20057.163775
## final   value 20057.163775
## converged
## # weights:  25
## initial  value 21669.900586
## iter  10 value 20067.276953
## iter  20 value 20057.186887
## final   value 20057.082270
## converged
## # weights:  41
## initial  value 22283.674155
## iter  10 value 20075.188627
## iter  20 value 20057.278103
## final   value 20057.078906
## converged
## # weights:  9
## initial  value 22186.300495
## final   value 19999.489700
## converged
## # weights:  25
## initial  value 24258.535246
## final   value 19999.489700
## converged
## # weights:  41
## initial  value 23461.236571
## final   value 19999.489700
```

```
## converged
## # weights:  9
## initial  value 21947.160983
## iter  10 value 20005.169775
## final  value 20004.998645
## converged
## # weights:  25
## initial  value 22104.811347
## iter  10 value 20004.181597
## final  value 20003.464737
## converged
## # weights:  41
## initial  value 23210.315980
## iter  10 value 20011.801030
## iter  20 value 20002.809890
## final  value 20002.805427
## converged
## # weights:  9
## initial  value 23063.883963
## iter  10 value 20010.529484
## iter  20 value 19999.616980
## iter  20 value 19999.616929
## final  value 19999.616929
## converged
## # weights:  25
## initial  value 22867.247263
## iter  10 value 20014.072490
## iter  20 value 19999.657828
## final  value 19999.501274
## converged
## # weights:  41
## initial  value 21503.128904
## iter  10 value 20012.176734
## iter  20 value 19999.635972
## final  value 19999.498987
## converged
## # weights:  9
## initial  value 23215.170418
## final  value 19999.170100
## converged
## # weights:  25
## initial  value 22034.050891
## final  value 19999.170100
## converged
## # weights:  41
## initial  value 22692.053069
## final  value 19999.170100
## converged
## # weights:  9
## initial  value 23120.080313
## iter  10 value 20009.818612
## iter  20 value 20004.679438
## final  value 20004.679055
## converged
```

```
## # weights:  25
## initial  value 22943.517623
## iter  10 value 20003.972988
## final  value 20003.145210
## converged
## # weights:  41
## initial  value 23114.195947
## iter  10 value 20015.877777
## iter  20 value 20002.497764
## final  value 20002.485802
## converged
## # weights:  9
## initial  value 22527.765060
## iter  10 value 20008.850036
## iter  20 value 19999.281702
## iter  20 value 19999.281657
## final  value 19999.281657
## converged
## # weights:  25
## initial  value 21402.375985
## iter  10 value 20007.884160
## iter  20 value 19999.270566
## final  value 19999.181548
## converged
## # weights:  41
## initial  value 22359.714880
## iter  10 value 20021.678104
## iter  20 value 19999.429600
## final  value 19999.181327
## converged
## # weights:  9
## initial  value 23086.047190
## final  value 20031.585700
## converged
## # weights:  25
## initial  value 22328.482916
## final  value 20031.585700
## converged
## # weights:  41
## initial  value 22092.895679
## final  value 20031.585700
## converged
## # weights:  9
## initial  value 22803.546904
## iter  10 value 20038.928369
## final  value 20037.095535
## converged
## # weights:  25
## initial  value 21431.898697
## iter  10 value 20036.617958
## final  value 20035.561360
## converged
## # weights:  41
## initial  value 23943.575730
```

```
## iter  10 value 20048.396189
## iter  20 value 20034.902969
## final  value 20034.901962
## converged
## # weights:  9
## initial  value 22070.989817
## iter  10 value 20041.449688
## iter  20 value 20031.699424
## iter  20 value 20031.699379
## final  value 20031.699379
## converged
## # weights:  25
## initial  value 22525.702258
## iter  10 value 20047.460484
## iter  20 value 20031.768724
## final  value 20031.598085
## converged
## # weights:  41
## initial  value 22162.778991
## iter  10 value 20048.994902
## iter  20 value 20031.786414
## final  value 20031.595263
## converged
## # weights:  9
## initial  value 23629.290955
## final  value 20031.021200
## converged
## # weights:  25
## initial  value 22819.408497
## final  value 20031.021200
## converged
## # weights:  41
## initial  value 22008.614272
## final  value 20031.021200
## converged
## # weights:  9
## initial  value 24060.153265
## iter  10 value 20036.969005
## final  value 20036.531022
## converged
## # weights:  25
## initial  value 22060.317985
## iter  10 value 20035.723124
## final  value 20034.996872
## converged
## # weights:  41
## initial  value 23382.331399
## iter  10 value 20037.500959
## iter  20 value 20034.339714
## final  value 20034.337502
## converged
## # weights:  9
## initial  value 23762.493831
## iter  10 value 20039.801608
```

```
## iter   20 value 20031.122431
## iter   20 value 20031.122391
## final   value 20031.122391
## converged
## # weights:   25
## initial   value 21716.566996
## iter   10 value 20042.470956
## iter   20 value 20031.153207
## final   value 20031.032882
## converged
## # weights:   41
## initial   value 22190.356259
## iter   10 value 20051.009543
## iter   20 value 20031.251650
## final   value 20031.030568
## converged
## # weights:   9
## initial   value 21858.244976
## final   value 20038.070000
## converged
## # weights:   25
## initial   value 22462.276205
## final   value 20038.070000
## converged
## # weights:   41
## initial   value 23330.399629
## final   value 20038.070000
## converged
## # weights:   9
## initial   value 22067.599566
## iter   10 value 20043.664039
## final   value 20043.580047
## converged
## # weights:   25
## initial   value 21912.119421
## iter   10 value 20043.559913
## final   value 20042.045767
## converged
## # weights:   41
## initial   value 22931.708550
## iter   10 value 20046.882851
## iter   20 value 20041.387523
## final   value 20041.386461
## converged
## # weights:   9
## initial   value 23289.968154
## iter   10 value 20049.548247
## iter   20 value 20038.202335
## iter   20 value 20038.202282
## final   value 20038.202282
## converged
## # weights:   25
## initial   value 23487.590080
## iter   10 value 20052.778819
```

```
## iter  20 value 20038.239581
## final  value 20038.083717
## converged
## # weights:  41
## initial  value 22435.627045
## iter  10 value 20055.991585
## iter  20 value 20038.276622
## final  value 20038.080991
## converged
## # weights:  9
## initial  value 22883.918966
## final  value 19994.114000
## converged
## # weights:  25
## initial  value 22530.824738
## final  value 19994.114000
## converged
## # weights:  41
## initial  value 23199.380378
## final  value 19994.114000
## converged
## # weights:  9
## initial  value 21602.817986
## iter  10 value 19999.720179
## final  value 19999.622836
## converged
## # weights:  25
## initial  value 22275.887396
## iter  10 value 19998.769587
## final  value 19998.089033
## converged
## # weights:  41
## initial  value 23665.965137
## iter  10 value 20008.562737
## iter  20 value 19997.432026
## final  value 19997.429721
## converged
## # weights:  9
## initial  value 21898.495635
## iter  10 value 20003.365805
## iter  20 value 19994.220666
## iter  20 value 19994.220623
## final  value 19994.220623
## converged
## # weights:  25
## initial  value 22860.094067
## iter  10 value 20008.447695
## iter  20 value 19994.279256
## final  value 19994.126736
## converged
## # weights:  41
## initial  value 21885.930521
## iter  10 value 20007.862821
## iter  20 value 19994.272513
```

```
## final   value 19994.124715
## converged
## # weights:   9
## initial   value 22334.556081
## final   value 20006.318500
## converged
## # weights:   25
## initial   value 22755.439902
## final   value 20006.318500
## converged
## # weights:   41
## initial   value 22113.136570
## final   value 20006.318500
## converged
## # weights:   9
## initial   value 23694.926400
## iter   10 value 20012.149898
## final   value 20011.827571
## converged
## # weights:   25
## initial   value 22086.283431
## iter   10 value 20012.680143
## final   value 20010.293692
## converged
## # weights:   41
## initial   value 22351.639208
## iter   10 value 20017.101202
## iter   20 value 20009.636775
## final   value 20009.634264
## converged
## # weights:   9
## initial   value 22145.398867
## iter   10 value 20015.214303
## iter   20 value 20006.421062
## iter   20 value 20006.421021
## final   value 20006.421021
## converged
## # weights:   25
## initial   value 23585.616564
## iter   10 value 20019.489460
## iter   20 value 20006.470351
## final   value 20006.332313
## converged
## # weights:   41
## initial   value 23308.055358
## iter   10 value 20026.700533
## iter   20 value 20006.553489
## final   value 20006.330103
## converged
## # weights:   9
## initial   value 23176.164152
## final   value 20046.523700
## converged
## # weights:   25
```

```
## initial  value 22978.864713
## final  value 20046.523700
## converged
## # weights:  41
## initial  value 22101.117678
## final  value 20046.523700
## converged
## # weights:  9
## initial  value 21830.933089
## iter  10 value 20052.475559
## final  value 20052.034202
## converged
## # weights:  25
## initial  value 22555.195949
## iter  10 value 20051.570397
## final  value 20050.499849
## converged
## # weights:  41
## initial  value 23063.709049
## iter  10 value 20052.303650
## iter  20 value 20049.840694
## final  value 20049.840245
## converged
## # weights:  9
## initial  value 22283.171597
## iter  10 value 20056.084356
## iter  20 value 20046.633927
## iter  20 value 20046.633883
## final  value 20046.633883
## converged
## # weights:  25
## initial  value 21883.922145
## iter  10 value 20059.469884
## iter  20 value 20046.672959
## final  value 20046.534681
## converged
## # weights:  41
## initial  value 22652.979590
## iter  10 value 20065.048926
## iter  20 value 20046.737281
## final  value 20046.534220
## converged
## # weights:  9
## initial  value 21847.348593
## final  value 20002.330100
## converged
## # weights:  25
## initial  value 23353.159142
## final  value 20002.330100
## converged
## # weights:  41
## initial  value 22121.201881
## final  value 20002.330100
## converged
```

```
## # weights:  9
## initial   value 23123.821741
## iter   10 value 20009.622030
## final   value 20007.839096
## converged
## # weights:  25
## initial   value 22183.288063
## iter   10 value 20007.423197
## final   value 20006.305214
## converged
## # weights:  41
## initial   value 22751.540182
## iter   10 value 20006.913314
## iter   20 value 20005.645911
## iter   20 value 20005.645837
## iter   20 value 20005.645816
## final   value 20005.645816
## converged
## # weights:  9
## initial   value 22880.044645
## iter   10 value 20013.230912
## iter   20 value 20002.455778
## iter   20 value 20002.455728
## final   value 20002.455728
## converged
## # weights:  25
## initial   value 23233.981862
## iter   10 value 20016.294104
## iter   20 value 20002.491094
## final   value 20002.342497
## converged
## # weights:  41
## initial   value 24481.076931
## iter   10 value 20010.681752
## iter   20 value 20002.426388
## final   value 20002.345264
## converged
## # weights:  9
## initial   value 23380.901434
## final   value 20020.005200
## converged
## # weights:  25
## initial   value 23205.932354
## final   value 20020.005200
## converged
## # weights:  41
## initial   value 23280.530770
## final   value 20020.005200
## converged
## # weights:  9
## initial   value 22101.104179
## iter   10 value 20025.518972
## final   value 20025.514854
## converged
```

```
## # weights:  25
## initial  value 22060.577964
## iter  10 value 20027.471268
## iter  20 value 20023.983155
## final  value 20023.980643
## converged
## # weights:  41
## initial  value 23409.221287
## iter  10 value 20025.853581
## iter  20 value 20023.321551
## final  value 20023.321181
## converged
## # weights:  9
## initial  value 21624.551331
## iter  10 value 20027.997451
## iter  20 value 20020.097344
## iter  20 value 20020.097308
## final  value 20020.097308
## converged
## # weights:  25
## initial  value 22190.613098
## iter  10 value 20032.186049
## iter  20 value 20020.145636
## final  value 20020.017659
## converged
## # weights:  41
## initial  value 22806.150030
## iter  10 value 20037.858315
## iter  20 value 20020.211032
## final  value 20020.015465
## converged
## # weights:  9
## initial  value 22653.814007
## final  value 20022.593200
## converged
## # weights:  25
## initial  value 21923.053614
## final  value 20022.593200
## converged
## # weights:  41
## initial  value 22816.602540
## final  value 20022.593200
## converged
## # weights:  9
## initial  value 22217.503373
## iter  10 value 20029.408839
## final  value 20028.102748
## converged
## # weights:  25
## initial  value 23872.956333
## iter  10 value 20028.230673
## final  value 20026.568718
## converged
## # weights:  41
```

```
## initial  value 23086.229592
## iter  10 value 20028.320268
## iter  20 value 20025.909526
## iter  20 value 20025.909336
## iter  20 value 20025.909294
## final  value 20025.909294
## converged
## # weights:  9
## initial  value 23248.701617
## iter  10 value 20032.468594
## iter  20 value 20022.707056
## iter  20 value 20022.707010
## final  value 20022.707010
## converged
## # weights:  25
## initial  value 22681.548576
## iter  10 value 20038.900260
## iter  20 value 20022.781208
## final  value 20022.604503
## converged
## # weights:  41
## initial  value 22991.944214
## iter  10 value 20045.135873
## iter  20 value 20022.853099
## final  value 20022.604517
## converged
## # weights:  9
## initial  value 22642.236584
## final  value 20028.713200
## converged
## # weights:  25
## initial  value 22123.113330
## final  value 20028.713200
## converged
## # weights:  41
## initial  value 23036.771567
## final  value 20028.713200
## converged
## # weights:  9
## initial  value 22854.651466
## iter  10 value 20036.578310
## iter  20 value 20034.222977
## iter  20 value 20034.222968
## final  value 20034.222968
## converged
## # weights:  25
## initial  value 22142.866084
## iter  10 value 20033.456870
## final  value 20032.688800
## converged
## # weights:  41
## initial  value 22549.843715
## iter  10 value 20032.344869
## final  value 20032.029341
```

```
## converged
## # weights:  9
## initial  value 23136.282455
## iter  10 value 20039.852804
## iter  20 value 20028.841631
## iter  20 value 20028.841580
## final  value 20028.841580
## converged
## # weights:  25
## initial  value 24175.121417
## iter  10 value 20038.133067
## iter  20 value 20028.821804
## final  value 20028.735859
## converged
## # weights:  41
## initial  value 22216.244914
## iter  10 value 20045.174862
## iter  20 value 20028.902990
## final  value 20028.722245
## converged
## # weights:  9
## initial  value 22541.294164
## final  value 19949.321200
## converged
## # weights:  25
## initial  value 23473.439998
## final  value 19949.321200
## converged
## # weights:  41
## initial  value 22301.210073
## final  value 19949.321200
## converged
## # weights:  9
## initial  value 23286.183243
## iter  10 value 19955.236554
## final  value 19954.829267
## converged
## # weights:  25
## initial  value 21753.401153
## iter  10 value 19954.280852
## final  value 19953.295762
## converged
## # weights:  41
## initial  value 21326.314485
## iter  10 value 19963.222990
## iter  20 value 19952.636863
## iter  20 value 19952.636674
## iter  20 value 19952.636606
## final  value 19952.636606
## converged
## # weights:  9
## initial  value 23063.698792
## iter  10 value 19960.371533
## iter  20 value 19949.448602
```

```
## iter  20 value 19949.448551
## final  value 19949.448551
## converged
## # weights:  25
## initial  value 22906.665669
## iter  10 value 19962.682964
## iter  20 value 19949.475251
## final  value 19949.332540
## converged
## # weights:  41
## initial  value 22469.563888
## iter  10 value 19968.208102
## iter  20 value 19949.538951
## final  value 19949.332640
## converged
## # weights:  9
## initial  value 22552.189231
## final  value 20028.595700
## converged
## # weights:  25
## initial  value 21907.562153
## final  value 20028.595700
## converged
## # weights:  41
## initial  value 23087.969567
## final  value 20028.595700
## converged
## # weights:  9
## initial  value 22328.844634
## iter  10 value 20036.436520
## final  value 20034.105432
## converged
## # weights:  25
## initial  value 22355.362912
## iter  10 value 20033.283575
## final  value 20032.571321
## converged
## # weights:  41
## initial  value 22856.403157
## iter  10 value 20045.924581
## iter  20 value 20031.912370
## final  value 20031.911890
## converged
## # weights:  9
## initial  value 22398.410435
## iter  10 value 20037.936765
## iter  20 value 20028.703395
## iter  20 value 20028.703352
## final  value 20028.703352
## converged
## # weights:  25
## initial  value 22644.719457
## iter  10 value 20043.629631
## iter  20 value 20028.769029
```

```
## final   value 20028.611443
## converged
## # weights:  41
## initial   value 22200.674185
## iter  10 value 20045.569219
## iter  20 value 20028.791391
## final   value 20028.606935
## converged
## # weights:  9
## initial   value 22023.359725
## final   value 20011.474000
## converged
## # weights:  25
## initial   value 21123.786717
## final   value 20011.474000
## converged
## # weights:  41
## initial   value 21576.307877
## final   value 20011.474000
## converged
## # weights:  9
## initial   value 23621.908713
## iter  10 value 20018.125884
## final   value 20016.983192
## converged
## # weights:  25
## initial   value 23559.095233
## iter  10 value 20016.433073
## final   value 20015.449271
## converged
## # weights:  41
## initial   value 23601.587208
## iter  10 value 20026.552487
## iter  20 value 20014.790330
## final   value 20014.789846
## converged
## # weights:  9
## initial   value 22699.513506
## iter  10 value 20022.142586
## iter  20 value 20011.597000
## iter  20 value 20011.596951
## final   value 20011.596951
## converged
## # weights:  25
## initial   value 22213.552891
## iter  10 value 20023.857144
## iter  20 value 20011.616768
## final   value 20011.484961
## converged
## # weights:  41
## initial   value 22883.658474
## iter  10 value 20030.057613
## iter  20 value 20011.688254
## final   value 20011.486402
```

```
## converged
## # weights:  9
## initial  value 22229.277975
## final  value 20001.233200
## converged
## # weights:  25
## initial  value 21543.553735
## final  value 20001.233200
## converged
## # weights:  41
## initial  value 21990.993433
## final  value 20001.233200
## converged
## # weights:  9
## initial  value 23449.804024
## iter  10 value 20008.718667
## final  value 20006.742157
## converged
## # weights:  25
## initial  value 22797.970386
## iter  10 value 20006.675640
## iter  20 value 20005.208329
## iter  20 value 20005.208257
## iter  20 value 20005.208250
## final  value 20005.208250
## converged
## # weights:  41
## initial  value 22804.557186
## iter  10 value 20005.416001
## final  value 20004.548911
## converged
## # weights:  9
## initial  value 23000.778455
## iter  10 value 20010.789093
## iter  20 value 20001.343372
## iter  20 value 20001.343328
## final  value 20001.343328
## converged
## # weights:  25
## initial  value 23101.405042
## iter  10 value 20016.716179
## iter  20 value 20001.411707
## final  value 20001.245247
## converged
## # weights:  41
## initial  value 24687.307399
## iter  10 value 20007.467373
## iter  20 value 20001.305075
## final  value 20001.254539
## converged
## # weights:  9
## initial  value 23527.154481
## final  value 19993.614500
## converged
```

```
## # weights:  25
## initial   value 23623.838619
## final   value 19993.614500
## converged
## # weights:  41
## initial   value 23937.091484
## final   value 19993.614500
## converged
## # weights:  9
## initial   value 21800.861868
## iter   10 value 19999.440898
## final   value 19999.123310
## converged
## # weights:  25
## initial   value 22170.545076
## iter   10 value 19998.321350
## final   value 19997.589450
## converged
## # weights:  41
## initial   value 23345.989941
## iter   10 value 19999.199826
## iter   20 value 19996.956082
## final   value 19996.930130
## converged
## # weights:  9
## initial   value 22844.377017
## iter   10 value 20004.194378
## iter   20 value 19993.736478
## iter   20 value 19993.736429
## final   value 19993.736429
## converged
## # weights:  25
## initial   value 22346.175670
## iter   10 value 20006.982322
## iter   20 value 19993.768620
## final   value 19993.626579
## converged
## # weights:  41
## initial   value 23479.415337
## iter   10 value 20010.518310
## iter   20 value 19993.809388
## final   value 19993.627007
## converged
## # weights:  9
## initial   value 22084.247061
## final   value 19957.697200
## converged
## # weights:  25
## initial   value 23984.950067
## final   value 19957.697200
## converged
## # weights:  41
## initial   value 22953.269284
## final   value 19957.697200
```

```
## converged
## # weights:  9
## initial  value 23028.871845
## iter  10 value 19964.732245
## final  value 19963.205139
## converged
## # weights:  25
## initial  value 23168.091678
## iter  10 value 19962.819089
## final  value 19961.671478
## converged
## # weights:  41
## initial  value 22243.366685
## iter  10 value 19961.313088
## final  value 19961.012253
## converged
## # weights:  9
## initial  value 21872.909120
## iter  10 value 19966.285307
## iter  20 value 19957.796214
## iter  20 value 19957.796175
## final  value 19957.796175
## converged
## # weights:  25
## initial  value 23151.046763
## iter  10 value 19971.262910
## iter  20 value 19957.853602
## final  value 19957.709189
## converged
## # weights:  41
## initial  value 20931.008258
## iter  10 value 19964.961745
## iter  20 value 19957.780955
## final  value 19957.706060
## converged
## # weights:  9
## initial  value 23252.470387
## final  value 20032.699700
## converged
## # weights:  25
## initial  value 22569.996223
## final  value 20032.699700
## converged
## # weights:  41
## initial  value 23456.268806
## final  value 20032.699700
## converged
## # weights:  9
## initial  value 23866.325444
## iter  10 value 20038.554023
## final  value 20038.209573
## converged
## # weights:  25
## initial  value 21942.704929
```

```
## iter  10 value 20037.756576
## final  value 20036.675424
## converged
## # weights:  41
## initial  value 22881.331282
## iter  10 value 20036.838699
## final  value 20036.015968
## converged
## # weights:  9
## initial  value 23108.250812
## iter  10 value 20042.432882
## iter  20 value 20032.811916
## iter  20 value 20032.811871
## final  value 20032.811871
## converged
## # weights:  25
## initial  value 22883.158382
## iter  10 value 20046.347382
## iter  20 value 20032.857047
## final  value 20032.714317
## converged
## # weights:  41
## initial  value 23608.108513
## iter  10 value 20049.205408
## iter  20 value 20032.889998
## final  value 20032.711909
## converged
## # weights:  9
## initial  value 22637.773961
## final  value 20047.488500
## converged
## # weights:  25
## initial  value 23674.729331
## final  value 20047.488500
## converged
## # weights:  41
## initial  value 22992.669369
## final  value 20047.488500
## converged
## # weights:  9
## initial  value 22925.002993
## iter  10 value 20053.171687
## final  value 20052.998975
## converged
## # weights:  25
## initial  value 21803.530972
## iter  10 value 20053.226002
## iter  20 value 20051.465010
## final  value 20051.464587
## converged
## # weights:  41
## initial  value 22372.647099
## iter  10 value 20057.569527
## iter  20 value 20050.821793
```

```
## final   value 20050.805113
## converged
## # weights:  9
## initial   value 23232.133960
## iter  10 value 20058.007258
## iter  20 value 20047.609773
## iter  20 value 20047.609725
## final   value 20047.609725
## converged
## # weights:  25
## initial   value 23416.436903
## iter  10 value 20060.473277
## iter  20 value 20047.638204
## final   value 20047.501074
## converged
## # weights:  41
## initial   value 23622.238073
## iter  10 value 20063.873013
## iter  20 value 20047.677401
## final   value 20047.501127
## converged
## # weights:  9
## initial   value 22926.733382
## final   value 20051.129200
## converged
## # weights:  25
## initial   value 23306.229452
## final   value 20051.129200
## converged
## # weights:  41
## initial   value 23373.599677
## final   value 20051.129200
## converged
## # weights:  9
## initial   value 23537.368627
## iter  10 value 20056.994511
## final   value 20056.639843
## converged
## # weights:  25
## initial   value 22699.860052
## iter  10 value 20055.872491
## final   value 20055.105427
## converged
## # weights:  41
## initial   value 23197.576206
## iter  10 value 20057.091003
## final   value 20054.445886
## converged
## # weights:  9
## initial   value 22508.054445
## iter  10 value 20062.767134
## iter  20 value 20051.263376
## iter  20 value 20051.263323
## final   value 20051.263323
```

```
## converged
## # weights:  25
## initial  value 21865.073348
## iter  10 value 20064.755915
## iter  20 value 20051.286305
## final  value 20051.141452
## converged
## # weights:  41
## initial  value 22830.232297
## iter  10 value 20073.692461
## iter  20 value 20051.389337
## final  value 20051.140983
## converged
## # weights:  9
## initial  value 21822.632159
## final  value 20008.262000
## converged
## # weights:  25
## initial  value 21940.189578
## final  value 20008.262000
## converged
## # weights:  41
## initial  value 21579.092982
## final  value 20008.262000
## converged
## # weights:  9
## initial  value 21897.454369
## iter  10 value 20014.042240
## final  value 20013.771149
## converged
## # weights:  25
## initial  value 21176.903103
## iter  10 value 20014.086128
## final  value 20012.237268
## converged
## # weights:  41
## initial  value 23061.401022
## iter  10 value 20013.590983
## final  value 20011.577826
## converged
## # weights:  9
## initial  value 21937.215709
## iter  10 value 20017.092658
## iter  20 value 20008.363811
## iter  20 value 20008.363770
## final  value 20008.363770
## converged
## # weights:  25
## initial  value 23099.710935
## iter  10 value 20020.549138
## iter  20 value 20008.403661
## final  value 20008.274912
## converged
## # weights:  41
```

```
## initial  value 22845.126457
## iter  10 value 20025.971670
## iter  20 value 20008.466179
## final  value 20008.271392
## converged
## # weights:  9
## initial  value 23055.886305
## final  value 20032.920100
## converged
## # weights:  25
## initial  value 21571.120482
## final  value 20032.920100
## converged
## # weights:  41
## initial  value 22075.696103
## final  value 20032.920100
## converged
## # weights:  9
## initial  value 22112.373759
## iter  10 value 20038.744744
## final  value 20038.429979
## converged
## # weights:  25
## initial  value 22316.663613
## iter  10 value 20037.863682
## final  value 20036.895813
## converged
## # weights:  41
## initial  value 22960.499523
## iter  10 value 20049.096467
## iter  20 value 20036.236922
## final  value 20036.236377
## converged
## # weights:  9
## initial  value 21808.583430
## iter  10 value 20040.503829
## iter  20 value 20033.007534
## iter  20 value 20033.007499
## final  value 20033.007499
## converged
## # weights:  25
## initial  value 22534.145811
## iter  10 value 20046.578371
## iter  20 value 20033.077569
## final  value 20032.932325
## converged
## # weights:  41
## initial  value 23004.142884
## iter  10 value 20052.763736
## iter  20 value 20033.148882
## final  value 20032.930745
## converged
## # weights:  9
## initial  value 22159.483389
```

```
## final   value 19990.238500
## converged
## # weights:  25
## initial   value 23428.495692
## final   value 19990.238500
## converged
## # weights:  41
## initial   value 23377.489567
## final   value 19990.238500
## converged
## # weights:  9
## initial   value 21669.369226
## iter   10 value 19996.047098
## final   value 19995.747170
## converged
## # weights:  25
## initial   value 23121.646600
## iter   10 value 19999.183647
## iter   20 value 19994.213584
## iter   20 value 19994.213393
## iter   20 value 19994.213378
## final   value 19994.213378
## converged
## # weights:  41
## initial   value 23841.879834
## iter   10 value 19994.427784
## iter   20 value 19993.554410
## iter   20 value 19993.554215
## iter   20 value 19993.554210
## final   value 19993.554210
## converged
## # weights:  9
## initial   value 23069.257819
## iter   10 value 20000.346288
## iter   20 value 19990.355035
## iter   20 value 19990.354988
## final   value 19990.354988
## converged
## # weights:  25
## initial   value 23145.009734
## iter   10 value 20004.076553
## iter   20 value 19990.398042
## final   value 19990.253456
## converged
## # weights:  41
## initial   value 23813.658458
## iter   10 value 20005.507052
## iter   20 value 19990.414534
## final   value 19990.252144
## converged
## # weights:  9
## initial   value 22702.243721
## final   value 20019.345700
## converged
```

```
## # weights:  25
## initial  value 24069.773144
## final  value 20019.345700
## converged
## # weights:  41
## initial  value 22689.352042
## final  value 20019.345700
## converged
## # weights:  9
## initial  value 22053.485700
## iter  10 value 20025.169046
## final  value 20024.855154
## converged
## # weights:  25
## initial  value 23600.274582
## iter  10 value 20024.639722
## final  value 20023.321162
## converged
## # weights:  41
## initial  value 21632.950017
## iter  10 value 20029.625109
## final  value 20022.661761
## converged
## # weights:  9
## initial  value 22746.055598
## iter  10 value 20031.206208
## iter  20 value 20019.482442
## iter  20 value 20019.482388
## final  value 20019.482388
## converged
## # weights:  25
## initial  value 22466.922459
## iter  10 value 20032.273809
## iter  20 value 20019.494751
## final  value 20019.359133
## converged
## # weights:  41
## initial  value 23957.830877
## iter  10 value 20032.010359
## iter  20 value 20019.491714
## final  value 20019.358255
## converged
## # weights:  9
## initial  value 23856.380027
## final  value 20056.041200
## converged
## # weights:  25
## initial  value 22604.124439
## final  value 20056.041200
## converged
## # weights:  41
## initial  value 24765.467073
## final  value 20056.041200
## converged
```

```
## # weights:  9
## initial   value 23213.622396
## iter  10 value 20062.165218
## final   value 20061.552284
## converged
## # weights:  25
## initial   value 23365.084092
## iter  10 value 20060.785452
## final   value 20060.017782
## converged
## # weights:  41
## initial   value 23094.099017
## iter  10 value 20060.698462
## iter  20 value 20059.358338
## iter  20 value 20059.358186
## iter  20 value 20059.358159
## final   value 20059.358159
## converged
## # weights:  9
## initial   value 22772.669984
## iter  10 value 20068.068506
## iter  20 value 20056.179865
## iter  20 value 20056.179810
## final   value 20056.179810
## converged
## # weights:  25
## initial   value 23062.472814
## iter  10 value 20069.386416
## iter  20 value 20056.195060
## final   value 20056.057363
## converged
## # weights:  41
## initial   value 23164.973442
## iter  10 value 20076.558668
## iter  20 value 20056.277750
## final   value 20056.050855
## converged
## # weights:  9
## initial   value 22504.760136
## final   value 20033.576500
## converged
## # weights:  25
## initial   value 22244.571092
## final   value 20033.576500
## converged
## # weights:  41
## initial   value 22153.205250
## final   value 20033.576500
## converged
## # weights:  9
## initial   value 22260.256513
## iter  10 value 20039.590137
## final   value 20039.086371
## converged
```

```
## # weights:  25
## initial   value 23010.138283
## iter  10 value 20038.210765
## final   value 20037.552164
## converged
## # weights:  41
## initial   value 23997.068615
## iter  10 value 20039.143279
## final   value 20036.893196
## converged
## # weights:  9
## initial   value 22195.627443
## iter  10 value 20043.475385
## iter  20 value 20033.690626
## iter  20 value 20033.690581
## final   value 20033.690581
## converged
## # weights:  25
## initial   value 21433.190577
## iter  10 value 20041.779929
## iter  20 value 20033.671079
## final   value 20033.588239
## converged
## # weights:  41
## initial   value 22827.464110
## iter  10 value 20053.519410
## iter  20 value 20033.806426
## final   value 20033.586594
## converged
## # weights:  9
## initial   value 21858.557599
## final   value 20045.781200
## converged
## # weights:  25
## initial   value 22022.940301
## final   value 20045.781200
## converged
## # weights:  41
## initial   value 22925.960503
## final   value 20045.781200
## converged
## # weights:  9
## initial   value 21950.842529
## iter  10 value 20052.827797
## final   value 20051.291570
## converged
## # weights:  25
## initial   value 21464.685014
## iter  10 value 20050.575536
## final   value 20049.757185
## converged
## # weights:  41
## initial   value 22778.802348
## iter  10 value 20054.781453
```

```
## iter  20 value 20049.098820
## final   value 20049.097698
## converged
## # weights:  9
## initial   value 23579.018250
## iter  10 value 20054.689467
## iter  20 value 20045.883905
## iter  20 value 20045.883864
## final   value 20045.883864
## converged
## # weights:  25
## initial   value 23132.015678
## iter  10 value 20061.781273
## iter  20 value 20045.965668
## final   value 20045.793671
## converged
## # weights:  41
## initial   value 24102.176243
## iter  10 value 20058.554151
## iter  20 value 20045.928462
## final   value 20045.796778
## converged
## # weights:  9
## initial   value 23446.472760
## final   value 20032.699700
## converged
## # weights:  25
## initial   value 22392.360345
## final   value 20032.699700
## converged
## # weights:  41
## initial   value 23113.616737
## final   value 20032.699700
## converged
## # weights:  9
## initial   value 23269.687259
## iter  10 value 20041.443404
## final   value 20038.209561
## converged
## # weights:  25
## initial   value 22335.820099
## iter  10 value 20036.891241
## final   value 20036.675329
## converged
## # weights:  41
## initial   value 21591.900673
## iter  10 value 20037.332167
## iter  20 value 20036.016194
## iter  20 value 20036.016022
## iter  20 value 20036.015958
## final   value 20036.015958
## converged
## # weights:  9
## initial   value 21748.858424
```

```
## iter  10 value 20040.018166
## iter  20 value 20032.784076
## iter  20 value 20032.784042
## final  value 20032.784042
## converged
## # weights:  25
## initial  value 22066.338752
## iter  10 value 20046.970183
## iter  20 value 20032.864227
## final  value 20032.710346
## converged
## # weights:  41
## initial  value 22286.708429
## iter  10 value 20051.940734
## iter  20 value 20032.921534
## final  value 20032.712195
## converged
## # weights:  9
## initial  value 23033.569808
## final  value 19977.237200
## converged
## # weights:  25
## initial  value 22059.700628
## final  value 19977.237200
## converged
## # weights:  41
## initial  value 22503.058851
## final  value 19977.237200
## converged
## # weights:  9
## initial  value 22668.605234
## iter  10 value 19982.797761
## final  value 19982.745719
## converged
## # weights:  25
## initial  value 22757.880380
## iter  10 value 19982.298762
## final  value 19981.211990
## converged
## # weights:  41
## initial  value 21472.831822
## iter  10 value 19990.115239
## iter  20 value 19980.860388
## final  value 19980.552897
## converged
## # weights:  9
## initial  value 23030.491054
## iter  10 value 19987.142115
## iter  20 value 19977.351396
## iter  20 value 19977.351350
## final  value 19977.351350
## converged
## # weights:  25
## initial  value 21668.608921
```

```
## iter   10 value 19988.355345
## iter   20 value 19977.365383
## final   value 19977.248673
## converged
## # weights:   41
## initial   value 23681.355974
## iter   10 value 19994.284480
## iter   20 value 19977.433742
## final   value 19977.248796
## converged
## # weights:   9
## initial   value 23662.318228
## final   value 19935.480100
## converged
## # weights:   25
## initial   value 20888.345139
## final   value 19935.480100
## converged
## # weights:   41
## initial   value 23389.336889
## final   value 19935.480100
## converged
## # weights:   9
## initial   value 22112.539839
## iter   10 value 19942.110270
## final   value 19940.987933
## converged
## # weights:   25
## initial   value 23279.360092
## iter   10 value 19940.182331
## final   value 19939.454482
## converged
## # weights:   41
## initial   value 21731.262287
## iter   10 value 19939.422223
## final   value 19938.795348
## converged
## # weights:   9
## initial   value 23153.293546
## iter   10 value 19944.784384
## iter   20 value 19935.587371
## iter   20 value 19935.587328
## final   value 19935.587328
## converged
## # weights:   25
## initial   value 21685.800627
## iter   10 value 19947.855948
## iter   20 value 19935.622784
## final   value 19935.492289
## converged
## # weights:   41
## initial   value 22725.117177
## iter   10 value 19954.338266
## iter   20 value 19935.697520
```

```
## final   value 19935.491464
## converged
## # weights:  9
## initial   value 22228.765614
## final   value 20037.869200
## converged
## # weights:  25
## initial   value 23896.503890
## final   value 20037.869200
## converged
## # weights:  41
## initial   value 22707.662533
## final   value 20037.869200
## converged
## # weights:  9
## initial   value 22278.002950
## iter  10 value 20048.004811
## final   value 20043.379256
## converged
## # weights:  25
## initial   value 23129.060296
## iter  10 value 20042.952568
## final   value 20041.844979
## converged
## # weights:  41
## initial   value 22870.273953
## iter  10 value 20041.889301
## final   value 20041.185537
## converged
## # weights:  9
## initial   value 22512.989808
## iter  10 value 20048.961549
## iter  20 value 20037.997086
## iter  20 value 20037.997035
## final   value 20037.997035
## converged
## # weights:  25
## initial   value 22805.119682
## iter  10 value 20052.474644
## iter  20 value 20038.037589
## final   value 20037.882297
## converged
## # weights:  41
## initial   value 23025.934830
## iter  10 value 20055.567338
## iter  20 value 20038.073246
## final   value 20037.879542
## converged
## # weights:  9
## initial   value 22475.708219
## final   value 20032.589200
## converged
## # weights:  25
## initial   value 22420.966721
```

```
## final   value 20032.589200
## converged
## # weights:  41
## initial   value 22878.168558
## final   value 20032.589200
## converged
## # weights:  9
## initial   value 21993.059015
## iter  10 value 20038.259231
## final   value 20038.099068
## converged
## # weights:  25
## initial   value 22125.938282
## iter  10 value 20037.164455
## final   value 20036.564942
## converged
## # weights:  41
## initial   value 23684.979888
## iter  10 value 20036.752418
## final   value 20035.905431
## converged
## # weights:  9
## initial   value 22716.048326
## iter  10 value 20043.903377
## iter  20 value 20032.719644
## iter  20 value 20032.719591
## final   value 20032.719591
## converged
## # weights:  25
## initial   value 21904.501745
## iter  10 value 20044.960699
## iter  20 value 20032.731834
## final   value 20032.602253
## converged
## # weights:  41
## initial   value 22118.618159
## iter  10 value 20051.479723
## iter  20 value 20032.806993
## final   value 20032.599084
## converged
## # weights:  9
## initial   value 22218.938118
## final   value 20021.696500
## converged
## # weights:  25
## initial   value 21728.781965
## final   value 20021.696500
## converged
## # weights:  41
## initial   value 22286.415741
## final   value 20021.696500
## converged
## # weights:  9
## initial   value 22266.387991
```

```
## iter  10 value 20028.650501
## final   value 20027.206012
## converged
## # weights:  25
## initial   value 22275.120994
## iter  10 value 20028.038816
## iter  20 value 20025.672283
## final   value 20025.671924
## converged
## # weights:  41
## initial   value 22452.131733
## iter  10 value 20026.040502
## final   value 20025.012503
## converged
## # weights:  9
## initial   value 21788.803199
## iter  10 value 20029.094912
## iter  20 value 20021.781798
## iter  20 value 20021.781764
## final   value 20021.781764
## converged
## # weights:  25
## initial   value 22513.958726
## iter  10 value 20036.263939
## iter  20 value 20021.864451
## final   value 20021.709648
## converged
## # weights:  41
## initial   value 23871.978635
## iter  10 value 20036.060129
## iter  20 value 20021.862101
## final   value 20021.710316
## converged
## # weights:  9
## initial   value 23881.080350
## final   value 20062.949200
## converged
## # weights:  25
## initial   value 21965.110317
## final   value 20062.949200
## converged
## # weights:  41
## initial   value 24473.605192
## final   value 20062.949200
## converged
## # weights:  9
## initial   value 22560.161246
## iter  10 value 20068.692384
## final   value 20068.461393
## converged
## # weights:  25
## initial   value 23416.251752
## iter  10 value 20079.267296
## iter  20 value 20066.937310
```

```
## final   value 20066.926441
## converged
## # weights:   41
## initial   value 23967.715402
## iter   10 value 20078.039271
## iter   20 value 20066.267982
## final   value 20066.266723
## converged
## # weights:   9
## initial   value 23508.408393
## iter   10 value 20073.446563
## iter   20 value 20063.070226
## iter   20 value 20063.070178
## final   value 20063.070178
## converged
## # weights:   25
## initial   value 21412.647730
## iter   10 value 20071.055651
## iter   20 value 20063.042661
## final   value 20062.959918
## converged
## # weights:   41
## initial   value 22190.652395
## iter   10 value 20080.471442
## iter   20 value 20063.151218
## final   value 20062.959693
## converged
## # weights:   9
## initial   value 22131.830662
## final   value 19997.722000
## converged
## # weights:   25
## initial   value 23049.096748
## final   value 19997.722000
## converged
## # weights:   41
## initial   value 21232.774944
## final   value 19997.722000
## converged
## # weights:   9
## initial   value 22084.636164
## iter   10 value 20003.438840
## final   value 20003.230893
## converged
## # weights:   25
## initial   value 23342.757436
## iter   10 value 20006.340918
## iter   20 value 20001.697449
## final   value 20001.697031
## converged
## # weights:   41
## initial   value 23406.121223
## iter   10 value 20014.106186
## iter   20 value 20001.049691
```

```
## final   value 20001.037824
## converged
## # weights:  9
## initial   value 22166.169133
## iter  10 value 20008.123232
## iter  20 value 19997.841918
## iter  20 value 19997.841870
## final   value 19997.841870
## converged
## # weights:  25
## initial   value 22585.339504
## iter  10 value 20011.585288
## iter  20 value 19997.881833
## final   value 19997.733080
## converged
## # weights:  41
## initial   value 23407.617954
## iter  10 value 20013.368666
## iter  20 value 19997.902394
## final   value 19997.736290
## converged
## # weights:  9
## initial   value 22209.435954
## final   value 20002.797200
## converged
## # weights:  25
## initial   value 21526.053795
## final   value 20002.797200
## converged
## # weights:  41
## initial   value 21619.930393
## final   value 20002.797200
## converged
## # weights:  9
## initial   value 21945.466979
## iter  10 value 20009.223969
## final   value 20008.306237
## converged
## # weights:  25
## initial   value 23528.400632
## iter  10 value 20007.739807
## final   value 20006.772314
## converged
## # weights:  41
## initial   value 23461.379192
## iter  10 value 20007.256002
## final   value 20006.113025
## converged
## # weights:  9
## initial   value 21969.950337
## iter  10 value 20012.432513
## iter  20 value 20002.908288
## iter  20 value 20002.908243
## final   value 20002.908243
```

```
## converged
## # weights:  25
## initial  value 23248.607681
## iter  10 value 20016.742939
## iter  20 value 20002.957983
## final   value 20002.811674
## converged
## # weights:  41
## initial  value 21799.098302
## iter  10 value 20017.796196
## iter  20 value 20002.970127
## final   value 20002.807152
## converged
## # weights:  9
## initial  value 23931.073648
## final   value 20054.760100
## converged
## # weights:  25
## initial  value 23929.849599
## final   value 20054.760100
## converged
## # weights:  41
## initial  value 22540.008067
## final   value 20054.760100
## converged
## # weights:  9
## initial  value 22144.664154
## iter  10 value 20061.503413
## final   value 20060.270988
## converged
## # weights:  25
## initial  value 23875.230459
## iter  10 value 20059.723460
## final   value 20058.736499
## converged
## # weights:  41
## initial  value 23197.955822
## iter  10 value 20059.186726
## final   value 20058.076875
## converged
## # weights:  9
## initial  value 22868.911132
## iter  10 value 20065.674453
## iter  20 value 20054.885934
## iter  20 value 20054.885884
## final   value 20054.885884
## converged
## # weights:  25
## initial  value 22157.175556
## iter  10 value 20067.203710
## iter  20 value 20054.903565
## final   value 20054.772845
## converged
## # weights:  41
```

```
## initial  value 23797.558179
## iter  10 value 20070.457824
## iter  20 value 20054.941082
## final  value 20054.777025
## converged
## # weights:  9
## initial  value 21754.723017
## final  value 19972.730000
## converged
## # weights:  25
## initial  value 23164.486134
## final  value 19972.730000
## converged
## # weights:  41
## initial  value 23309.391826
## final  value 19972.730000
## converged
## # weights:  9
## initial  value 22448.472102
## iter  10 value 19978.984108
## final  value 19978.238387
## converged
## # weights:  25
## initial  value 22467.948405
## iter  10 value 19977.339389
## final  value 19976.704693
## converged
## # weights:  41
## initial  value 23654.171046
## iter  10 value 19988.053919
## iter  20 value 19976.051063
## final  value 19976.045428
## converged
## # weights:  9
## initial  value 23097.800936
## iter  10 value 19983.404745
## iter  20 value 19972.853071
## iter  20 value 19972.853022
## final  value 19972.853022
## converged
## # weights:  25
## initial  value 21809.470063
## iter  10 value 19985.856100
## iter  20 value 19972.881334
## final  value 19972.741700
## converged
## # weights:  41
## initial  value 23135.285879
## iter  10 value 19991.573501
## iter  20 value 19972.947251
## final  value 19972.747468
## converged
## # weights:  9
## initial  value 23303.688496
```

```
## final  value 20020.136500
## converged
## # weights:  25
## initial  value 23436.438802
## final  value 20020.136500
## converged
## # weights:  41
## initial  value 22263.386273
## final  value 20020.136500
## converged
## # weights:  9
## initial  value 22509.666338
## iter  10 value 20031.852698
## iter  20 value 20025.647131
## final  value 20025.646057
## converged
## # weights:  25
## initial  value 22496.113078
## iter  10 value 20024.963669
## final  value 20024.111918
## converged
## # weights:  41
## initial  value 23095.151320
## iter  10 value 20031.807497
## iter  20 value 20023.452774
## iter  20 value 20023.452616
## iter  20 value 20023.452583
## final  value 20023.452583
## converged
## # weights:  9
## initial  value 22885.826394
## iter  10 value 20031.509473
## iter  20 value 20020.267621
## iter  20 value 20020.267569
## final  value 20020.267569
## converged
## # weights:  25
## initial  value 22706.277588
## iter  10 value 20036.714615
## iter  20 value 20020.327633
## final  value 20020.155741
## converged
## # weights:  41
## initial  value 23052.710265
## iter  10 value 20038.314722
## iter  20 value 20020.346081
## final  value 20020.149845
## converged
## # weights:  9
## initial  value 23089.150423
## final  value 19953.339700
## converged
## # weights:  25
## initial  value 23587.587120
```

```
## final   value 19953.339700
## converged
## # weights:  41
## initial   value 22388.807563
## final   value 19953.339700
## converged
## # weights:  9
## initial   value 22959.499243
## iter  10 value 19959.193696
## final   value 19958.847818
## converged
## # weights:  25
## initial   value 23388.794148
## iter  10 value 19960.104203
## iter  20 value 19957.314522
## iter  20 value 19957.314345
## iter  20 value 19957.314329
## final   value 19957.314329
## converged
## # weights:  41
## initial   value 22924.238815
## iter  10 value 19957.934968
## iter  20 value 19956.655230
## iter  20 value 19956.655059
## iter  20 value 19956.655030
## final   value 19956.655030
## converged
## # weights:  9
## initial   value 22935.302832
## iter  10 value 19963.040145
## iter  20 value 19953.451539
## iter  20 value 19953.451494
## final   value 19953.451494
## converged
## # weights:  25
## initial   value 21049.298711
## iter  10 value 19959.602093
## iter  20 value 19953.411900
## final   value 19953.350245
## converged
## # weights:  41
## initial   value 22963.655525
## iter  10 value 19974.896665
## iter  20 value 19953.588235
## final   value 19953.351037
## converged
## # weights:  9
## initial   value 22718.791472
## final   value 19973.110000
## converged
## # weights:  25
## initial   value 22775.317126
## final   value 19973.110000
## converged
```

```
## # weights:  41
## initial  value 22572.063437
## final  value 19973.110000
## converged
## # weights:  9
## initial  value 21685.730650
## iter  10 value 19981.322383
## final  value 19978.618399
## converged
## # weights:  25
## initial  value 21963.711714
## iter  10 value 19977.206610
## final  value 19977.084685
## converged
## # weights:  41
## initial  value 22399.991832
## iter  10 value 19978.772501
## iter  20 value 19976.429719
## final  value 19976.425464
## converged
## # weights:  9
## initial  value 23576.528016
## iter  10 value 19981.523556
## iter  20 value 19973.207002
## iter  20 value 19973.206963
## final  value 19973.206963
## converged
## # weights:  25
## initial  value 23740.989212
## iter  10 value 19985.710616
## iter  20 value 19973.255275
## final  value 19973.125862
## converged
## # weights:  41
## initial  value 21700.191718
## iter  10 value 19987.348730
## iter  20 value 19973.274161
## final  value 19973.119827
## converged
## # weights:  9
## initial  value 22902.290392
## final  value 19967.717200
## converged
## # weights:  25
## initial  value 24293.849514
## final  value 19967.717200
## converged
## # weights:  41
## initial  value 24252.236040
## final  value 19967.717200
## converged
## # weights:  9
## initial  value 23107.142138
## iter  10 value 19974.288818
```

```
## final  value 19973.225496
## converged
## # weights:  25
## initial  value 22926.672209
## iter  10 value 19972.127494
## iter  20 value 19971.691984
## iter  20 value 19971.691891
## iter  20 value 19971.691851
## final  value 19971.691851
## converged
## # weights:  41
## initial  value 22206.427681
## iter  10 value 19973.823543
## iter  20 value 19971.032824
## final  value 19971.032559
## converged
## # weights:  9
## initial  value 23446.622465
## iter  10 value 19977.434672
## iter  20 value 19967.829235
## iter  20 value 19967.829190
## final  value 19967.829190
## converged
## # weights:  25
## initial  value 23054.171897
## iter  10 value 19981.844754
## iter  20 value 19967.880080
## final  value 19967.734272
## converged
## # weights:  41
## initial  value 21554.514538
## iter  10 value 19981.506040
## iter  20 value 19967.876174
## final  value 19967.726817
## converged
## # weights:  9
## initial  value 23838.470407
## final  value 20019.080500
## converged
## # weights:  25
## initial  value 23511.352586
## final  value 20019.080500
## converged
## # weights:  41
## initial  value 23166.595070
## final  value 20019.080500
## converged
## # weights:  9
## initial  value 23705.471589
## iter  10 value 20024.929582
## final  value 20024.589938
## converged
## # weights:  25
## initial  value 21703.920157
```

```
## iter  10 value 20024.006987
## final  value 20023.055939
## converged
## # weights:  41
## initial  value 21390.603019
## iter  10 value 20032.731592
## iter  20 value 20022.397499
## final  value 20022.396466
## converged
## # weights:  9
## initial  value 22267.734400
## iter  10 value 20030.034991
## iter  20 value 20019.206797
## iter  20 value 20019.206746
## final  value 20019.206746
## converged
## # weights:  25
## initial  value 22311.828931
## iter  10 value 20031.764305
## iter  20 value 20019.226734
## final  value 20019.091445
## converged
## # weights:  41
## initial  value 22277.997867
## iter  10 value 20036.906731
## iter  20 value 20019.286022
## final  value 20019.090099
## converged
## # weights:  9
## initial  value 23252.407751
## final  value 20038.865200
## converged
## # weights:  25
## initial  value 22579.244452
## final  value 20038.865200
## converged
## # weights:  41
## initial  value 21951.960967
## final  value 20038.865200
## converged
## # weights:  9
## initial  value 22214.373678
## iter  10 value 20045.684241
## final  value 20044.375336
## converged
## # weights:  25
## initial  value 21854.263057
## iter  10 value 20043.291836
## final  value 20042.841068
## converged
## # weights:  41
## initial  value 21590.535674
## iter  10 value 20054.425428
## iter  20 value 20042.181746
```

```
## iter   20 value 20042.181631
## iter   20 value 20042.181586
## final   value 20042.181586
## converged
## # weights:  9
## initial   value 22820.060842
## iter   10 value 20050.777775
## iter   20 value 20039.002543
## iter   20 value 20039.002488
## final   value 20039.002488
## converged
## # weights:  25
## initial   value 23621.461591
## iter   10 value 20053.324830
## iter   20 value 20039.031908
## final   value 20038.881020
## converged
## # weights:  41
## initial   value 23403.389516
## iter   10 value 20056.795723
## iter   20 value 20039.071925
## final   value 20038.877447
## converged
## # weights:  9
## initial   value 23117.277871
## final   value 20028.478000
## converged
## # weights:  25
## initial   value 21409.285526
## final   value 20028.478000
## converged
## # weights:  41
## initial   value 22828.415196
## final   value 20028.478000
## converged
## # weights:  9
## initial   value 22715.502177
## iter   10 value 20054.761521
## iter   20 value 20034.107921
## final   value 20033.987726
## converged
## # weights:  25
## initial   value 22635.609922
## iter   10 value 20033.348057
## final   value 20032.453614
## converged
## # weights:  41
## initial   value 23878.345777
## iter   10 value 20033.017706
## final   value 20031.794178
## converged
## # weights:  9
## initial   value 22798.346967
## iter   10 value 20040.132446
```

```
## iter  20 value 20028.612367
## iter  20 value 20028.612313
## final  value 20028.612313
## converged
## # weights:  25
## initial  value 22988.246304
## iter  10 value 20042.557972
## iter  20 value 20028.640331
## final  value 20028.495499
## converged
## # weights:  41
## initial  value 24958.296824
## iter  10 value 20032.260881
## iter  20 value 20028.521667
## iter  30 value 20028.493047
## iter  30 value 20028.492858
## iter  30 value 20028.492809
## final  value 20028.492809
## converged
## # weights:  9
## initial  value 23411.774994
## final  value 20018.146000
## converged
## # weights:  25
## initial  value 22893.693164
## final  value 20018.146000
## converged
## # weights:  41
## initial  value 21562.586144
## final  value 20018.146000
## converged
## # weights:  9
## initial  value 21891.046215
## iter  10 value 20025.806323
## final  value 20023.655405
## converged
## # weights:  25
## initial  value 22232.637851
## iter  10 value 20023.455457
## final  value 20022.121361
## converged
## # weights:  41
## initial  value 24270.623348
## iter  10 value 20034.685853
## iter  20 value 20021.462743
## final  value 20021.462012
## converged
## # weights:  9
## initial  value 23162.542238
## iter  10 value 20029.687285
## iter  20 value 20018.279062
## iter  20 value 20018.279009
## final  value 20018.279009
## converged
```

```
## # weights:  25
## initial   value 22649.171510
## iter   10 value 20034.129461
## iter   20 value 20018.330277
## final   value 20018.158571
## converged
## # weights:  41
## initial   value 22008.348327
## iter   10 value 20035.221074
## iter   20 value 20018.342862
## final   value 20018.156678
## converged
## # weights:  9
## initial   value 22078.599388
## final   value 20021.050000
## converged
## # weights:  25
## initial   value 22552.159757
## final   value 20021.050000
## converged
## # weights:  41
## initial   value 23115.398906
## final   value 20021.050000
## converged
## # weights:  9
## initial   value 22374.795728
## iter   10 value 20027.698046
## final   value 20026.559401
## converged
## # weights:  25
## initial   value 22245.647372
## iter   10 value 20025.953640
## final   value 20025.025272
## converged
## # weights:  41
## initial   value 23481.397685
## iter   10 value 20025.852258
## iter   20 value 20024.365990
## iter   20 value 20024.365922
## iter   20 value 20024.365915
## final   value 20024.365915
## converged
## # weights:  9
## initial   value 21856.447907
## iter   10 value 20029.241712
## iter   20 value 20021.144444
## iter   20 value 20021.144406
## final   value 20021.144406
## converged
## # weights:  25
## initial   value 23128.991472
## iter   10 value 20033.446181
## iter   20 value 20021.192918
## final   value 20021.066431
```

```
## converged
## # weights:  41
## initial  value 23125.979542
## iter  10 value 20040.354036
## iter  20 value 20021.272560
## final  value 20021.065050
## converged
## # weights:  9
## initial  value 22941.274251
## final  value 19978.346000
## converged
## # weights:  25
## initial  value 21824.561194
## final  value 19978.346000
## converged
## # weights:  41
## initial  value 22653.742758
## final  value 19978.346000
## converged
## # weights:  9
## initial  value 22017.526484
## iter  10 value 19985.210979
## final  value 19983.854535
## converged
## # weights:  25
## initial  value 22288.995061
## iter  10 value 19983.131926
## final  value 19982.320802
## converged
## # weights:  41
## initial  value 23315.821578
## iter  10 value 19988.621426
## iter  20 value 19981.661944
## final  value 19981.661526
## converged
## # weights:  9
## initial  value 22253.386021
## iter  10 value 19989.523174
## iter  20 value 19978.474864
## iter  20 value 19978.474812
## final  value 19978.474812
## converged
## # weights:  25
## initial  value 22932.253280
## iter  10 value 19991.819404
## iter  20 value 19978.501338
## final  value 19978.360959
## converged
## # weights:  41
## initial  value 22294.411000
## iter  10 value 19998.956607
## iter  20 value 19978.583624
## final  value 19978.355015
## converged
```

```
## # weights:  9
## initial  value 22334.688252
## final  value 19930.229200
## converged
## # weights:  25
## initial  value 22325.218096
## final  value 19930.229200
## converged
## # weights:  41
## initial  value 22198.131523
## final  value 19930.229200
## converged
## # weights:  9
## initial  value 22330.320645
## iter  10 value 19954.948426
## final  value 19935.736853
## converged
## # weights:  25
## initial  value 21802.711836
## iter  10 value 19935.138158
## final  value 19934.203454
## converged
## # weights:  41
## initial  value 21881.812957
## iter  10 value 19935.428010
## final  value 19933.544311
## converged
## # weights:  9
## initial  value 21441.532355
## iter  10 value 19937.613693
## iter  20 value 19930.314337
## iter  20 value 19930.314303
## final  value 19930.314303
## converged
## # weights:  25
## initial  value 22586.207331
## iter  10 value 19945.501565
## iter  20 value 19930.405278
## final  value 19930.241785
## converged
## # weights:  41
## initial  value 22403.542841
## iter  10 value 19948.444485
## iter  20 value 19930.439208
## final  value 19930.241688
## converged
## # weights:  9
## initial  value 22219.593328
## final  value 19993.947700
## converged
## # weights:  25
## initial  value 23041.318996
## final  value 19993.947700
## converged
```

```
## # weights:  41
## initial   value 22692.736485
## final   value 19993.947700
## converged
## # weights:  9
## initial   value 22716.974107
## iter  10 value 20000.080311
## final   value 19999.456539
## converged
## # weights:  25
## initial   value 21817.887817
## iter  10 value 19998.487106
## final   value 19997.922667
## converged
## # weights:  41
## initial   value 21562.770772
## iter  10 value 19998.688578
## iter  20 value 19997.263480
## iter  20 value 19997.263359
## iter  20 value 19997.263336
## final   value 19997.263336
## converged
## # weights:  9
## initial   value 22675.281217
## iter  10 value 20004.037721
## iter  20 value 19994.064030
## iter  20 value 19994.063983
## final   value 19994.063983
## converged
## # weights:  25
## initial   value 23353.684810
## iter  10 value 20007.611637
## iter  20 value 19994.105234
## final   value 19993.960972
## converged
## # weights:  41
## initial   value 24158.397721
## iter  10 value 20004.302689
## iter  20 value 19994.067085
## final   value 19993.960937
## converged
## # weights:  9
## initial   value 23517.043992
## final   value 20049.701200
## converged
## # weights:  25
## initial   value 22137.528368
## final   value 20049.701200
## converged
## # weights:  41
## initial   value 23304.970861
## final   value 20049.701200
## converged
## # weights:  9
```

```
## initial  value 22119.678872
## iter  10 value 20059.052213
## final  value 20055.211764
## converged
## # weights:  25
## initial  value 23656.334032
## iter  10 value 20055.236409
## final  value 20053.677301
## converged
## # weights:  41
## initial  value 21804.885310
## iter  10 value 20056.197623
## iter  20 value 20053.018357
## final  value 20053.017795
## converged
## # weights:  9
## initial  value 23016.812061
## iter  10 value 20060.217784
## iter  20 value 20049.822448
## iter  20 value 20049.822399
## final  value 20049.822399
## converged
## # weights:  25
## initial  value 21869.901284
## iter  10 value 20061.372478
## iter  20 value 20049.835761
## final  value 20049.714163
## converged
## # weights:  41
## initial  value 21721.919203
## iter  10 value 20064.985645
## iter  20 value 20049.877418
## final  value 20049.710818
## converged
## # weights:  9
## initial  value 22349.322178
## final  value 20059.445200
## converged
## # weights:  25
## initial  value 23506.287800
## final  value 20059.445200
## converged
## # weights:  41
## initial  value 22733.057454
## final  value 20059.445200
## converged
## # weights:  9
## initial  value 22098.425969
## iter  10 value 20065.231784
## final  value 20064.956618
## converged
## # weights:  25
## initial  value 22539.614520
## iter  10 value 20063.759794
```

```
## final  value 20063.422032
## converged
## # weights:  41
## initial  value 21848.756144
## iter  10 value 20063.504791
## final  value 20062.762396
## converged
## # weights:  9
## initial  value 22467.784763
## iter  10 value 20069.535355
## iter  20 value 20059.561532
## iter  20 value 20059.561485
## final  value 20059.561485
## converged
## # weights:  25
## initial  value 21909.105994
## iter  10 value 20071.908177
## iter  20 value 20059.588888
## final  value 20059.458159
## converged
## # weights:  41
## initial  value 23281.010340
## iter  10 value 20075.608872
## iter  20 value 20059.631554
## final  value 20059.455507
## converged
## # weights:  9
## initial  value 22915.779177
## final  value 20056.253200
## converged
## # weights:  25
## initial  value 22139.873306
## final  value 20056.253200
## converged
## # weights:  41
## initial  value 23043.831064
## final  value 20056.253200
## converged
## # weights:  9
## initial  value 22515.667076
## iter  10 value 20062.403160
## final  value 20061.764265
## converged
## # weights:  25
## initial  value 23617.319565
## iter  10 value 20064.017021
## final  value 20060.229875
## converged
## # weights:  41
## initial  value 22819.958509
## iter  10 value 20061.881345
## iter  20 value 20059.570779
## final  value 20059.570169
## converged
```

```
## # weights:  9
## initial  value 23666.544998
## iter  10 value 20064.637191
## iter  20 value 20056.349861
## iter  20 value 20056.349822
## final  value 20056.349822
## converged
## # weights:  25
## initial  value 23481.367983
## iter  10 value 20071.669429
## iter  20 value 20056.430937
## final  value 20056.273807
## converged
## # weights:  41
## initial  value 22966.575247
## iter  10 value 20076.107144
## iter  20 value 20056.482100
## final  value 20056.263188
## converged
## # weights:  9
## initial  value 22784.884497
## final  value 20041.267700
## converged
## # weights:  25
## initial  value 22428.013409
## final  value 20041.267700
## converged
## # weights:  41
## initial  value 23533.240218
## final  value 20041.267700
## converged
## # weights:  9
## initial  value 22153.497831
## iter  10 value 20051.066668
## final  value 20046.777872
## converged
## # weights:  25
## initial  value 23932.512194
## iter  10 value 20047.080719
## iter  20 value 20045.243671
## iter  20 value 20045.243604
## iter  20 value 20045.243582
## final  value 20045.243582
## converged
## # weights:  41
## initial  value 21431.275194
## iter  10 value 20056.917676
## iter  20 value 20044.584265
## iter  20 value 20044.584143
## iter  20 value 20044.584102
## final  value 20044.584102
## converged
## # weights:  9
## initial  value 22241.467597
```

```
## iter   10 value 20051.944845
## iter   20 value 20041.390799
## iter   20 value 20041.390750
## final   value 20041.390750
## converged
## # weights:  25
## initial   value 21963.510016
## iter   10 value 20053.416021
## iter   20 value 20041.407761
## final   value 20041.279512
## converged
## # weights:  41
## initial   value 23624.399804
## iter   10 value 20060.135624
## iter   20 value 20041.485232
## final   value 20041.279315
## converged
## # weights:  9
## initial   value 23215.585057
## final   value 20011.041700
## converged
## # weights:  25
## initial   value 22062.278820
## final   value 20011.041700
## converged
## # weights:  41
## initial   value 23457.547469
## final   value 20011.041700
## converged
## # weights:  9
## initial   value 22129.363750
## iter   10 value 20018.537645
## final   value 20016.550907
## converged
## # weights:  25
## initial   value 21155.686713
## iter   10 value 20015.447144
## final   value 20015.016896
## converged
## # weights:  41
## initial   value 23213.564431
## iter   10 value 20016.269441
## iter   20 value 20014.357805
## iter   20 value 20014.357611
## iter   20 value 20014.357587
## final   value 20014.357587
## converged
## # weights:  9
## initial   value 22490.571864
## iter   10 value 20021.218985
## iter   20 value 20011.159036
## iter   20 value 20011.158989
## final   value 20011.158989
## converged
```

```
## # weights:  25
## initial   value 22628.982750
## iter   10 value 20027.664279
## iter   20 value 20011.233345
## final   value 20011.053686
## converged
## # weights:  41
## initial   value 22379.657378
## iter   10 value 20027.380010
## iter   20 value 20011.230068
## iter   30 value 20011.051598
## iter   30 value 20011.051598
## iter   30 value 20011.051597
## final   value 20011.051597
## converged
## # weights:  9
## initial   value 22332.927874
## final   value 20062.773200
## converged
## # weights:  25
## initial   value 21821.099273
## final   value 20062.773200
## converged
## # weights:  41
## initial   value 23544.555675
## final   value 20062.773200
## converged
## # weights:  9
## initial   value 23202.597588
## iter   10 value 20068.721708
## final   value 20068.285648
## converged
## # weights:  25
## initial   value 23347.903956
## iter   10 value 20068.048835
## final   value 20066.750722
## converged
## # weights:  41
## initial   value 22430.665354
## iter   10 value 20072.649012
## iter   20 value 20066.321546
## final   value 20066.090942
## converged
## # weights:  9
## initial   value 22848.906105
## iter   10 value 20074.026201
## iter   20 value 20062.902938
## iter   20 value 20062.902886
## final   value 20062.902886
## converged
## # weights:  25
## initial   value 23504.943663
## iter   10 value 20076.960558
## iter   20 value 20062.936769
```

```
## final   value 20062.790608
## converged
## # weights:   41
## initial  value 22403.852337
## iter  10 value 20079.034506
## iter  20 value 20062.960680
## final   value 20062.783616
## converged
## # weights:   9
## initial  value 22823.330335
## final   value 20030.566000
## converged
## # weights:   25
## initial  value 21672.789342
## final   value 20030.566000
## converged
## # weights:   41
## initial  value 22441.354881
## final   value 20030.566000
## converged
## # weights:   9
## initial  value 22174.806607
## iter  10 value 20036.249133
## final   value 20036.075791
## converged
## # weights:   25
## initial  value 22626.348157
## iter  10 value 20036.767246
## iter  20 value 20034.541838
## iter  20 value 20034.541694
## iter  20 value 20034.541666
## final   value 20034.541666
## converged
## # weights:   41
## initial  value 23406.798400
## iter  10 value 20045.825570
## iter  20 value 20034.150054
## final   value 20033.882169
## converged
## # weights:   9
## initial  value 23593.616745
## iter  10 value 20039.902524
## iter  20 value 20030.673643
## iter  20 value 20030.673600
## final   value 20030.673600
## converged
## # weights:   25
## initial  value 22129.334095
## iter  10 value 20044.516051
## iter  20 value 20030.726833
## final   value 20030.577384
## converged
## # weights:   41
## initial  value 24223.108753
```

```
## iter  10 value 20040.159949
## iter  20 value 20030.676611
## final  value 20030.580200
## converged
## # weights:  9
## initial  value 22752.418743
## final  value 20030.566000
## converged
## # weights:  25
## initial  value 21626.038492
## final  value 20030.566000
## converged
## # weights:  41
## initial  value 22820.832287
## final  value 20030.566000
## converged
## # weights:  9
## initial  value 23553.943071
## iter  10 value 20037.495259
## iter  20 value 20036.075797
## iter  20 value 20036.075790
## final  value 20036.075790
## converged
## # weights:  25
## initial  value 22996.923922
## iter  10 value 20034.663082
## final  value 20034.541594
## converged
## # weights:  41
## initial  value 22888.254578
## iter  10 value 20047.536633
## iter  20 value 20033.883703
## final  value 20033.882183
## converged
## # weights:  9
## initial  value 21733.994714
## iter  10 value 20037.915494
## iter  20 value 20030.650734
## iter  20 value 20030.650700
## final  value 20030.650700
## converged
## # weights:  25
## initial  value 21641.494275
## iter  10 value 20040.929458
## iter  20 value 20030.685483
## final  value 20030.579093
## converged
## # weights:  41
## initial  value 23935.281828
## iter  10 value 20045.604748
## iter  20 value 20030.739385
## final  value 20030.581329
## converged
## # weights:  9
```

```
## initial  value 22908.953513
## final  value 20023.480100
## converged
## # weights:  25
## initial  value 22662.977902
## final  value 20023.480100
## converged
## # weights:  41
## initial  value 21497.426031
## final  value 20023.480100
## converged
## # weights:  9
## initial  value 22503.479733
## iter  10 value 20052.731709
## iter  20 value 20028.993012
## final  value 20028.989678
## converged
## # weights:  25
## initial  value 23399.734246
## iter  10 value 20028.791220
## iter  20 value 20027.455634
## iter  20 value 20027.455566
## iter  20 value 20027.455557
## final  value 20027.455557
## converged
## # weights:  41
## initial  value 24184.939251
## iter  10 value 20028.456538
## iter  20 value 20026.796281
## iter  20 value 20026.796158
## iter  20 value 20026.796145
## final  value 20026.796145
## converged
## # weights:  9
## initial  value 22431.249038
## iter  10 value 20032.718141
## iter  20 value 20023.586607
## iter  20 value 20023.586565
## final  value 20023.586565
## converged
## # weights:  25
## initial  value 22291.727595
## iter  10 value 20039.486074
## iter  20 value 20023.664636
## final  value 20023.491773
## converged
## # weights:  41
## initial  value 22109.986196
## iter  10 value 20041.112608
## iter  20 value 20023.683389
## final  value 20023.489777
## converged
## # weights:  9
## initial  value 23131.385610
```

```
## final   value 19953.339700
## converged
## # weights:  25
## initial  value 22766.179194
## final   value 19953.339700
## converged
## # weights:  41
## initial  value 22561.757471
## final   value 19953.339700
## converged
## # weights:  9
## initial  value 22596.703387
## iter  10 value 19959.522323
## final   value 19958.847776
## converged
## # weights:  25
## initial  value 23057.355077
## iter  10 value 19964.274849
## iter  20 value 19957.316489
## final   value 19957.314212
## converged
## # weights:  41
## initial  value 22914.864499
## iter  10 value 19971.161292
## iter  20 value 19956.775930
## final   value 19956.655011
## converged
## # weights:  9
## initial  value 22516.350778
## iter  10 value 19963.505568
## iter  20 value 19953.456904
## iter  20 value 19953.456858
## final   value 19953.456858
## converged
## # weights:  25
## initial  value 23799.694529
## iter  10 value 19964.680092
## iter  20 value 19953.470446
## final   value 19953.354322
## converged
## # weights:  41
## initial  value 21646.760081
## iter  10 value 19966.748248
## iter  20 value 19953.494290
## final   value 19953.348750
## converged
## # weights:  9
## initial  value 23064.288043
## final   value 20014.030000
## converged
## # weights:  25
## initial  value 22945.983280
## final   value 20014.030000
## converged
```

```
## # weights:  41
## initial   value 21737.862171
## final   value 20014.030000
## converged
## # weights:  9
## initial   value 22298.550079
## iter   10 value 20020.716944
## final   value 20019.539302
## converged
## # weights:  25
## initial   value 23062.667781
## iter   10 value 20018.199564
## final   value 20018.005258
## converged
## # weights:  41
## initial   value 22226.922228
## iter   10 value 20017.929463
## final   value 20017.345869
## converged
## # weights:  9
## initial   value 21748.496984
## iter   10 value 20021.200785
## iter   20 value 20014.112674
## iter   20 value 20014.112640
## final   value 20014.112640
## converged
## # weights:  25
## initial   value 21987.669788
## iter   10 value 20025.945039
## iter   20 value 20014.167371
## final   value 20014.042448
## converged
## # weights:  41
## initial   value 22753.255013
## iter   10 value 20033.867843
## iter   20 value 20014.258715
## final   value 20014.040756
## converged
## # weights:  9
## initial   value 22930.411924
## final   value 19931.150000
## converged
## # weights:  25
## initial   value 22547.458154
## final   value 19931.150000
## converged
## # weights:  41
## initial   value 22736.648200
## final   value 19931.150000
## converged
## # weights:  9
## initial   value 23515.525934
## iter   10 value 19937.340880
## final   value 19936.657787
```

```
## converged
## # weights:  25
## initial  value 22348.107767
## iter  10 value 19935.826947
## final  value 19935.124469
## converged
## # weights:  41
## initial  value 21764.196370
## iter  10 value 19936.812414
## iter  20 value 19934.465297
## iter  20 value 19934.465218
## iter  20 value 19934.465195
## final  value 19934.465195
## converged
## # weights:  9
## initial  value 22618.456782
## iter  10 value 19942.333956
## iter  20 value 19931.278942
## iter  20 value 19931.278891
## final  value 19931.278891
## converged
## # weights:  25
## initial  value 22574.011175
## iter  10 value 19946.323603
## iter  20 value 19931.324940
## final  value 19931.164272
## converged
## # weights:  41
## initial  value 22034.782191
## iter  10 value 19950.814223
## iter  20 value 19931.376713
## final  value 19931.159594
## converged
## # weights:  9
## initial  value 22046.776886
## final  value 19998.689200
## converged
## # weights:  25
## initial  value 23898.053328
## final  value 19998.689200
## converged
## # weights:  41
## initial  value 22251.549497
## final  value 19998.689200
## converged
## # weights:  9
## initial  value 23381.250426
## iter  10 value 20006.303338
## final  value 20004.198150
## converged
## # weights:  25
## initial  value 23117.838305
## iter  10 value 20003.977081
## final  value 20002.664318
```

```
## converged
## # weights:  41
## initial  value 23377.803457
## iter  10 value 20008.798074
## iter  20 value 20002.005717
## final  value 20002.004980
## converged
## # weights:  9
## initial  value 22848.642138
## iter  10 value 20008.831158
## iter  20 value 19998.806129
## iter  20 value 19998.806082
## final  value 19998.806082
## converged
## # weights:  25
## initial  value 22823.147718
## iter  10 value 20016.540977
## iter  20 value 19998.895017
## final  value 19998.703490
## converged
## # weights:  41
## initial  value 23465.773590
## iter  10 value 20012.935267
## iter  20 value 19998.853446
## final  value 19998.700352
## converged
## # weights:  9
## initial  value 22772.182858
## final  value 20034.225700
## converged
## # weights:  25
## initial  value 22768.508361
## final  value 20034.225700
## converged
## # weights:  41
## initial  value 21909.925216
## final  value 20034.225700
## converged
## # weights:  9
## initial  value 23442.853281
## iter  10 value 20041.917589
## final  value 20039.735634
## converged
## # weights:  25
## initial  value 23233.200418
## iter  10 value 20039.179262
## final  value 20038.201614
## converged
## # weights:  41
## initial  value 21496.445653
## iter  10 value 20045.623049
## iter  20 value 20037.542581
## final  value 20037.541984
## converged
```

```
## # weights:  9
## initial  value 23210.802540
## iter  10 value 20043.646132
## iter  20 value 20034.334310
## iter  20 value 20034.334267
## final  value 20034.334267
## converged
## # weights:  25
## initial  value 22835.749442
## iter  10 value 20049.836003
## iter  20 value 20034.405675
## final  value 20034.238056
## converged
## # weights:  41
## initial  value 23343.414910
## iter  10 value 20054.067016
## iter  20 value 20034.454455
## final  value 20034.236713
## converged
## # weights:  9
## initial  value 22043.099310
## final  value 20062.170100
## converged
## # weights:  25
## initial  value 24175.975423
## final  value 20062.170100
## converged
## # weights:  41
## initial  value 23296.951460
## final  value 20062.170100
## converged
## # weights:  9
## initial  value 24044.728225
## iter  10 value 20068.335520
## final  value 20067.683116
## converged
## # weights:  25
## initial  value 21529.409318
## iter  10 value 20067.195868
## final  value 20066.148283
## converged
## # weights:  41
## initial  value 23341.520286
## iter  10 value 20075.957743
## iter  20 value 20065.488623
## iter  20 value 20065.488516
## iter  20 value 20065.488488
## final  value 20065.488488
## converged
## # weights:  9
## initial  value 22956.011853
## iter  10 value 20072.745015
## iter  20 value 20062.292020
## iter  20 value 20062.291972
```

```
## final   value 20062.291972
## converged
## # weights:  25
## initial  value 23764.946371
## iter  10 value 20074.342031
## iter  20 value 20062.310433
## final   value 20062.185492
## converged
## # weights:  41
## initial  value 23749.381753
## iter  10 value 20077.792884
## iter  20 value 20062.350218
## final   value 20062.184938
## converged
## # weights:  9
## initial  value 22197.034971
## final   value 20020.398500
## converged
## # weights:  25
## initial  value 21911.513758
## final   value 20020.398500
## converged
## # weights:  41
## initial  value 21893.150925
## final   value 20020.398500
## converged
## # weights:  9
## initial  value 23016.969152
## iter  10 value 20026.423309
## final   value 20025.907982
## converged
## # weights:  25
## initial  value 22277.994089
## iter  10 value 20025.365359
## final   value 20024.373879
## converged
## # weights:  41
## initial  value 23657.714905
## iter  10 value 20024.934823
## iter  20 value 20023.714596
## iter  20 value 20023.714487
## iter  20 value 20023.714477
## final   value 20023.714477
## converged
## # weights:  9
## initial  value 22234.693618
## iter  10 value 20029.599644
## iter  20 value 20020.504582
## iter  20 value 20020.504540
## final   value 20020.504540
## converged
## # weights:  25
## initial  value 23870.120111
## iter  10 value 20031.858565
```

```
## iter  20 value 20020.530626
## final   value 20020.414595
## converged
## # weights:  41
## initial   value 22591.057974
## iter  10 value 20038.867939
## iter  20 value 20020.611438
## final   value 20020.409236
## converged
## # weights:  9
## initial   value 22715.854993
## final   value 20041.918000
## converged
## # weights:  25
## initial   value 23270.712626
## final   value 20041.918000
## converged
## # weights:  41
## initial   value 23078.086325
## final   value 20041.918000
## converged
## # weights:  9
## initial   value 21593.390992
## iter  10 value 20048.507822
## final   value 20047.428222
## converged
## # weights:  25
## initial   value 23055.497043
## iter  10 value 20046.228725
## final   value 20045.893896
## converged
## # weights:  41
## initial   value 22112.219771
## iter  10 value 20052.402251
## iter  20 value 20045.240210
## final   value 20045.234418
## converged
## # weights:  9
## initial   value 23065.034586
## iter  10 value 20051.491805
## iter  20 value 20042.028378
## iter  20 value 20042.028334
## final   value 20042.028334
## converged
## # weights:  25
## initial   value 22852.589682
## iter  10 value 20057.007619
## iter  20 value 20042.091971
## final   value 20041.935730
## converged
## # weights:  41
## initial   value 22676.709788
## iter  10 value 20059.807415
## iter  20 value 20042.124251
```

```
## final   value 20041.927631
## converged
## # weights:  9
## initial   value 22463.681027
## final   value 19973.299700
## converged
## # weights:  25
## initial   value 23799.456841
## final   value 19973.299700
## converged
## # weights:  41
## initial   value 22334.282047
## final   value 19973.299700
## converged
## # weights:  9
## initial   value 23410.855740
## iter  10 value 19979.885970
## final   value 19978.808133
## converged
## # weights:  25
## initial   value 21923.569617
## iter  10 value 19977.874872
## final   value 19977.274529
## converged
## # weights:  41
## initial   value 23341.967124
## iter  10 value 19977.480908
## iter  20 value 19976.615246
## iter  20 value 19976.615173
## iter  20 value 19976.615146
## final   value 19976.615146
## converged
## # weights:  9
## initial   value 21904.799636
## iter  10 value 19982.173065
## iter  20 value 19973.402003
## iter  20 value 19973.401962
## final   value 19973.401962
## converged
## # weights:  25
## initial   value 22931.288726
## iter  10 value 19987.569040
## iter  20 value 19973.464214
## final   value 19973.313794
## converged
## # weights:  41
## initial   value 23092.566882
## iter  10 value 19992.864978
## iter  20 value 19973.525272
## final   value 19973.312032
## converged
## # weights:  9
## initial   value 22043.690716
## final   value 19969.854500
```

```
## converged
## # weights:  25
## initial  value 23061.107983
## final  value 19969.854500
## converged
## # weights:  41
## initial  value 23112.762681
## final  value 19969.854500
## converged
## # weights:  9
## initial  value 22378.380202
## iter  10 value 19976.124767
## final  value 19975.362902
## converged
## # weights:  25
## initial  value 21693.282130
## iter  10 value 19974.813306
## final  value 19973.829214
## converged
## # weights:  41
## initial  value 22883.817126
## iter  10 value 19979.768157
## iter  20 value 19973.170566
## final  value 19973.169941
## converged
## # weights:  9
## initial  value 23139.032724
## iter  10 value 19981.485396
## iter  20 value 19969.988595
## iter  20 value 19969.988541
## final  value 19969.988541
## converged
## # weights:  25
## initial  value 21919.498306
## iter  10 value 19982.240024
## iter  20 value 19969.997295
## final  value 19969.866168
## converged
## # weights:  41
## initial  value 22258.478459
## iter  10 value 19988.580455
## iter  20 value 19970.070396
## final  value 19969.863974
## converged
## # weights:  9
## initial  value 23763.508290
## final  value 20017.201700
## converged
## # weights:  25
## initial  value 23722.045000
## final  value 20017.201700
## converged
## # weights:  41
## initial  value 21758.205141
```

```
## final   value 20017.201700
## converged
## # weights:  9
## initial   value 23510.161486
## iter  10 value 20022.876964
## final   value 20022.711046
## converged
## # weights:  25
## initial   value 22231.237934
## iter  10 value 20022.264570
## final   value 20021.176983
## converged
## # weights:  41
## initial   value 23193.875851
## iter  10 value 20032.996333
## iter  20 value 20020.518118
## final   value 20020.517613
## converged
## # weights:  9
## initial   value 22340.942599
## iter  10 value 20026.378020
## iter  20 value 20017.307496
## iter  20 value 20017.307453
## final   value 20017.307453
## converged
## # weights:  25
## initial   value 23138.103607
## iter  10 value 20033.082727
## iter  20 value 20017.384796
## final   value 20017.219994
## converged
## # weights:  41
## initial   value 22293.960168
## iter  10 value 20033.000124
## iter  20 value 20017.383843
## final   value 20017.213051
## converged
## # weights:  9
## initial   value 22755.332932
## final   value 20047.646500
## converged
## # weights:  25
## initial   value 22636.353568
## final   value 20047.646500
## converged
## # weights:  41
## initial   value 22331.159988
## final   value 20047.646500
## converged
## # weights:  9
## initial   value 21858.560137
## iter  10 value 20054.697329
## final   value 20053.156983
## converged
```

```
## # weights:  25
## initial   value 21794.048059
## iter   10 value 20053.557616
## iter   20 value 20051.622967
## final   value 20051.622561
## converged
## # weights:  41
## initial   value 24090.984860
## iter   10 value 20054.838706
## iter   20 value 20050.964628
## final   value 20050.963078
## converged
## # weights:  9
## initial   value 22322.769415
## iter   10 value 20057.585842
## iter   20 value 20047.761093
## iter   20 value 20047.761047
## final   value 20047.761047
## converged
## # weights:  25
## initial   value 22092.903720
## iter   10 value 20062.146669
## iter   20 value 20047.813676
## final   value 20047.659461
## converged
## # weights:  41
## initial   value 23497.737199
## iter   10 value 20065.225925
## iter   20 value 20047.849177
## final   value 20047.659152
## converged
## # weights:  9
## initial   value 22922.459562
## final   value 20021.825200
## converged
## # weights:  25
## initial   value 24074.297978
## final   value 20021.825200
## converged
## # weights:  41
## initial   value 22508.346719
## final   value 20021.825200
## converged
## # weights:  9
## initial   value 22959.105342
## iter   10 value 20027.685027
## final   value 20027.334725
## converged
## # weights:  25
## initial   value 23415.846272
## iter   10 value 20027.336931
## iter   20 value 20025.800799
## iter   20 value 20025.800635
## iter   20 value 20025.800618
```

```
## final   value 20025.800618
## converged
## # weights:  41
## initial   value 22877.640800
## iter  10 value 20026.007775
## final   value 20025.141209
## converged
## # weights:  9
## initial   value 23761.524243
## iter  10 value 20030.783993
## iter  20 value 20021.928488
## iter  20 value 20021.928447
## final   value 20021.928447
## converged
## # weights:  25
## initial   value 22192.293268
## iter  10 value 20036.517800
## iter  20 value 20021.994594
## final   value 20021.836988
## converged
## # weights:  41
## initial   value 22758.941644
## iter  10 value 20041.899909
## iter  20 value 20022.056646
## final   value 20021.835213
## converged
## # weights:  9
## initial   value 22119.935141
## final   value 20049.182500
## converged
## # weights:  25
## initial   value 22246.749243
## final   value 20049.182500
## converged
## # weights:  41
## initial   value 23016.862330
## final   value 20049.182500
## converged
## # weights:  9
## initial   value 22260.545321
## iter  10 value 20057.462006
## final   value 20054.693043
## converged
## # weights:  25
## initial   value 23181.909665
## iter  10 value 20054.515625
## final   value 20053.158637
## converged
## # weights:  41
## initial   value 22419.238996
## iter  10 value 20053.803817
## iter  20 value 20052.499476
## iter  20 value 20052.499286
## iter  20 value 20052.499200
```

```
## final   value 20052.499200
## converged
## # weights:  9
## initial   value 23174.363660
## iter  10 value 20060.468839
## iter  20 value 20049.312623
## iter  20 value 20049.312571
## final   value 20049.312571
## converged
## # weights:  25
## initial   value 23296.727254
## iter  10 value 20063.940512
## iter  20 value 20049.352648
## final   value 20049.196260
## converged
## # weights:  41
## initial   value 21330.578867
## iter  10 value 20057.684243
## iter  20 value 20049.280518
## final   value 20049.191625
## converged
## # weights:  9
## initial   value 23242.664153
## final   value 20044.507700
## converged
## # weights:  25
## initial   value 22310.800118
## final   value 20044.507700
## converged
## # weights:  41
## initial   value 21056.937082
## final   value 20044.507700
## converged
## # weights:  9
## initial   value 23624.048880
## iter  10 value 20050.656926
## final   value 20050.018031
## converged
## # weights:  25
## initial   value 22639.663016
## iter  10 value 20050.555965
## iter  20 value 20048.492126
## final   value 20048.483665
## converged
## # weights:  41
## initial   value 21945.810270
## iter  10 value 20049.114390
## iter  20 value 20047.824479
## final   value 20047.824138
## converged
## # weights:  9
## initial   value 23498.045528
## iter  10 value 20055.054734
## iter  20 value 20044.629299
```

```
## iter  20 value 20044.629250
## final   value 20044.629250
## converged
## # weights:  25
## initial  value 22359.214208
## iter  10 value 20057.593228
## iter  20 value 20044.658566
## final   value 20044.518384
## converged
## # weights:  41
## initial  value 23765.612049
## iter  10 value 20058.849761
## iter  20 value 20044.673053
## final   value 20044.524910
## converged
## # weights:  9
## initial  value 22970.757907
## final   value 19983.067600
## converged
## # weights:  25
## initial  value 22518.601303
## final   value 19983.067600
## converged
## # weights:  41
## initial  value 22988.368286
## final   value 19983.067600
## converged
## # weights:  9
## initial  value 23568.843221
## iter  10 value 19989.111480
## final   value 19988.576202
## converged
## # weights:  25
## initial  value 21995.015287
## iter  10 value 19987.933187
## final   value 19987.042478
## converged
## # weights:  41
## initial  value 21992.940775
## iter  10 value 19987.170809
## iter  20 value 19986.383318
## iter  20 value 19986.383144
## iter  20 value 19986.383117
## final   value 19986.383117
## converged
## # weights:  9
## initial  value 23398.269246
## iter  10 value 19991.982694
## iter  20 value 19983.170384
## iter  20 value 19983.170343
## final   value 19983.170343
## converged
## # weights:  25
## initial  value 23555.150905
```

```
## iter  10 value 19993.992064
## iter  20 value 19983.193550
## final  value 19983.082383
## converged
## # weights:  41
## initial  value 21833.929823
## iter  10 value 19999.237235
## iter  20 value 19983.254023
## final  value 19983.077239
## converged
## # weights:  9
## initial  value 22513.948202
## final  value 19980.905200
## converged
## # weights:  25
## initial  value 22054.918528
## final  value 19980.905200
## converged
## # weights:  41
## initial  value 23313.005628
## final  value 19980.905200
## converged
## # weights:  9
## initial  value 23061.523430
## iter  10 value 19990.806577
## final  value 19986.413769
## converged
## # weights:  25
## initial  value 22414.064698
## iter  10 value 19985.496405
## final  value 19984.880024
## converged
## # weights:  41
## initial  value 21797.850805
## iter  10 value 19985.943058
## iter  20 value 19984.220829
## iter  20 value 19984.220749
## iter  20 value 19984.220734
## final  value 19984.220734
## converged
## # weights:  9
## initial  value 23093.939826
## iter  10 value 19992.608351
## iter  20 value 19981.040128
## iter  20 value 19981.040074
## final  value 19981.040074
## converged
## # weights:  25
## initial  value 21369.475937
## iter  10 value 19988.882168
## iter  20 value 19980.997168
## final  value 19980.916037
## converged
## # weights:  41
```

```
## initial  value 20925.729063
## iter  10 value 19987.411252
## iter  20 value 19980.980210
## final  value 19980.914256
## converged
## # weights:  9
## initial  value 22328.884048
## final  value 20004.187700
## converged
## # weights:  25
## initial  value 22717.891455
## final  value 20004.187700
## converged
## # weights:  41
## initial  value 22502.401955
## final  value 20004.187700
## converged
## # weights:  9
## initial  value 21994.476559
## iter  10 value 20010.370226
## final  value 20009.696764
## converged
## # weights:  25
## initial  value 23216.541707
## iter  10 value 20009.317149
## final  value 20008.162821
## converged
## # weights:  41
## initial  value 23713.655456
## iter  10 value 20013.855409
## iter  20 value 20007.503743
## iter  20 value 20007.503607
## iter  20 value 20007.503558
## final  value 20007.503558
## converged
## # weights:  9
## initial  value 22622.195570
## iter  10 value 20015.068421
## iter  20 value 20004.313146
## iter  20 value 20004.313096
## final  value 20004.313096
## converged
## # weights:  25
## initial  value 21434.530147
## iter  10 value 20013.533027
## iter  20 value 20004.295444
## final  value 20004.199660
## converged
## # weights:  41
## initial  value 22660.919562
## iter  10 value 20021.504147
## iter  20 value 20004.387345
## final  value 20004.199168
## converged
```

```
## # weights:  9
## initial  value 23168.030966
## final  value 20037.869200
## converged
## # weights:  25
## initial  value 23363.555154
## final  value 20037.869200
## converged
## # weights:  41
## initial  value 21950.299474
## final  value 20037.869200
## converged
## # weights:  9
## initial  value 22821.256751
## iter  10 value 20043.498107
## final  value 20043.379258
## converged
## # weights:  25
## initial  value 22181.488711
## iter  10 value 20042.669769
## final  value 20041.845028
## converged
## # weights:  41
## initial  value 22814.576078
## iter  10 value 20042.213500
## iter  20 value 20041.185628
## iter  20 value 20041.185536
## iter  20 value 20041.185529
## final  value 20041.185529
## converged
## # weights:  9
## initial  value 22201.382406
## iter  10 value 20048.958154
## iter  20 value 20037.997047
## iter  20 value 20037.996996
## final  value 20037.996996
## converged
## # weights:  25
## initial  value 22986.550779
## iter  10 value 20051.487779
## iter  20 value 20038.026212
## final  value 20037.886052
## converged
## # weights:  41
## initial  value 23442.639321
## iter  10 value 20057.527958
## iter  20 value 20038.095850
## final  value 20037.880476
## converged
## # weights:  9
## initial  value 23314.634155
## final  value 20013.185200
## converged
## # weights:  25
```

```
## initial  value 21951.154768
## final  value 20013.185200
## converged
## # weights:  41
## initial  value 22975.197435
## final  value 20013.185200
## converged
## # weights:  9
## initial  value 22681.044875
## iter  10 value 20021.151828
## final  value 20018.694465
## converged
## # weights:  25
## initial  value 22472.994629
## iter  10 value 20018.986649
## final  value 20017.160429
## converged
## # weights:  41
## initial  value 22636.251723
## iter  10 value 20021.021524
## final  value 20016.501213
## converged
## # weights:  9
## initial  value 22885.618723
## iter  10 value 20024.852598
## iter  20 value 20013.319716
## iter  20 value 20013.319662
## final  value 20013.319662
## converged
## # weights:  25
## initial  value 21890.206171
## iter  10 value 20026.584665
## iter  20 value 20013.339685
## final  value 20013.196803
## converged
## # weights:  41
## initial  value 21346.167381
## iter  10 value 20025.035536
## iter  20 value 20013.321825
## final  value 20013.194764
## converged
## # weights:  9
## initial  value 22809.925453
## final  value 19939.738000
## converged
## # weights:  25
## initial  value 22483.518344
## final  value 19939.738000
## converged
## # weights:  41
## initial  value 24193.581310
## final  value 19939.738000
## converged
## # weights:  9
```

```
## initial  value 22601.180032
## iter  10 value 19945.919347
## final  value 19945.245919
## converged
## # weights:  25
## initial  value 23752.952548
## iter  10 value 19945.144331
## final  value 19943.712571
## converged
## # weights:  41
## initial  value 22839.788655
## iter  10 value 19944.199405
## final  value 19943.053284
## converged
## # weights:  9
## initial  value 22837.158972
## iter  10 value 19950.842590
## iter  20 value 19939.866027
## iter  20 value 19939.865976
## final  value 19939.865976
## converged
## # weights:  25
## initial  value 22889.585105
## iter  10 value 19956.037184
## iter  20 value 19939.925917
## final  value 19939.750672
## converged
## # weights:  41
## initial  value 22073.600857
## iter  10 value 19956.776882
## iter  20 value 19939.934445
## final  value 19939.748463
## converged
## # weights:  9
## initial  value 23407.359918
## final  value 20002.486000
## converged
## # weights:  25
## initial  value 22911.762025
## final  value 20002.486000
## converged
## # weights:  41
## initial  value 24510.203030
## final  value 20002.486000
## converged
## # weights:  9
## initial  value 22420.038039
## iter  10 value 20011.665147
## final  value 20007.995045
## converged
## # weights:  25
## initial  value 22659.279186
## iter  10 value 20006.869229
## final  value 20006.461127
```

```
## converged
## # weights:  41
## initial  value 22428.507852
## iter  10 value 20007.221573
## iter  20 value 20005.801994
## iter  20 value 20005.801808
## iter  20 value 20005.801771
## final  value 20005.801771
## converged
## # weights:  9
## initial  value 23882.255067
## iter  10 value 20010.545078
## iter  20 value 20002.578915
## iter  20 value 20002.578878
## final  value 20002.578878
## converged
## # weights:  25
## initial  value 23215.870222
## iter  10 value 20017.921034
## iter  20 value 20002.663954
## final  value 20002.502125
## converged
## # weights:  41
## initial  value 22089.446839
## iter  10 value 20020.596143
## iter  20 value 20002.694796
## final  value 20002.495796
## converged
## # weights:  9
## initial  value 23609.630513
## final  value 20031.021200
## converged
## # weights:  25
## initial  value 23954.483991
## final  value 20031.021200
## converged
## # weights:  41
## initial  value 22828.406912
## final  value 20031.021200
## converged
## # weights:  9
## initial  value 22742.776211
## iter  10 value 20036.924683
## final  value 20036.530949
## converged
## # weights:  25
## initial  value 21843.170255
## iter  10 value 20035.406503
## final  value 20034.996807
## converged
## # weights:  41
## initial  value 21691.480511
## iter  10 value 20040.783996
## final  value 20034.337433
```

```
## converged
## # weights:  9
## initial  value 23182.818184
## iter  10 value 20041.197250
## iter  20 value 20031.138522
## iter  20 value 20031.138475
## final  value 20031.138475
## converged
## # weights:  25
## initial  value 22512.054324
## iter  10 value 20046.590783
## iter  20 value 20031.200705
## iter  30 value 20031.035331
## iter  30 value 20031.035154
## iter  30 value 20031.035153
## final  value 20031.035153
## converged
## # weights:  41
## initial  value 23581.243866
## iter  10 value 20048.785459
## iter  20 value 20031.226008
## final  value 20031.033825
## converged
## # weights:  9
## initial  value 23436.158367
## final  value 20020.136500
## converged
## # weights:  25
## initial  value 23104.465921
## final  value 20020.136500
## converged
## # weights:  41
## initial  value 24441.966075
## final  value 20020.136500
## converged
## # weights:  9
## initial  value 22839.975748
## iter  10 value 20046.170971
## iter  20 value 20025.980592
## final  value 20025.645971
## converged
## # weights:  25
## initial  value 23134.627613
## iter  10 value 20024.628823
## final  value 20024.111939
## converged
## # weights:  41
## initial  value 23684.693804
## iter  10 value 20037.854609
## iter  20 value 20023.452875
## final  value 20023.452515
## converged
## # weights:  9
## initial  value 21873.710165
```

```
## iter  10 value 20028.185121
## iter  20 value 20020.229294
## iter  20 value 20020.229257
## final   value 20020.229257
## converged
## # weights:  25
## initial   value 22373.511231
## iter  10 value 20035.326059
## iter  20 value 20020.311624
## final   value 20020.147031
## converged
## # weights:  41
## initial   value 23078.773881
## iter  10 value 20041.335890
## iter  20 value 20020.380912
## final   value 20020.147271
## converged
## # weights:  9
## initial   value 22886.200102
## final   value 19912.371700
## converged
## # weights:  25
## initial   value 21550.002547
## final   value 19912.371700
## converged
## # weights:  41
## initial   value 22784.417643
## final   value 19912.371700
## converged
## # weights:  9
## initial   value 21893.744951
## iter  10 value 19920.955411
## final   value 19917.879107
## converged
## # weights:  25
## initial   value 22396.439335
## iter  10 value 19917.254318
## final   value 19916.345775
## converged
## # weights:  41
## initial   value 22443.517865
## iter  10 value 19916.517294
## final   value 19915.686729
## converged
## # weights:  9
## initial   value 22646.893391
## iter  10 value 19922.187127
## iter  20 value 19912.484864
## iter  20 value 19912.484819
## final   value 19912.484819
## converged
## # weights:  25
## initial   value 21162.078919
## iter  10 value 19920.256201
```

```
## iter  20 value 19912.462602
## final  value 19912.382601
## converged
## # weights:  41
## initial  value 21341.128499
## iter  10 value 19925.684088
## iter  20 value 19912.525181
## final  value 19912.381550
## converged
## # weights:  9
## initial  value 22555.966519
## final  value 20024.357200
## converged
## # weights:  25
## initial  value 22514.821354
## final  value 20024.357200
## converged
## # weights:  41
## initial  value 23171.381322
## final  value 20024.357200
## converged
## # weights:  9
## initial  value 23476.989309
## iter  10 value 20031.474640
## final  value 20029.866784
## converged
## # weights:  25
## initial  value 22603.498248
## iter  10 value 20040.623754
## iter  20 value 20028.336644
## final  value 20028.332643
## converged
## # weights:  41
## initial  value 22612.343005
## iter  10 value 20041.841343
## iter  20 value 20027.679211
## final  value 20027.673256
## converged
## # weights:  9
## initial  value 22142.290572
## iter  10 value 20033.793409
## iter  20 value 20024.465992
## iter  20 value 20024.465949
## final  value 20024.465949
## converged
## # weights:  25
## initial  value 21555.072944
## iter  10 value 20033.957702
## iter  20 value 20024.467886
## final  value 20024.369311
## converged
## # weights:  41
## initial  value 22677.938512
## iter  10 value 20045.002486
```

```
## iter   20 value 20024.595224
## final   value 20024.369083
## converged
## # weights:   9
## initial   value 23054.781627
## final   value 20052.994000
## converged
## # weights:   25
## initial   value 24312.866855
## final   value 20052.994000
## converged
## # weights:   41
## initial   value 23632.630025
## final   value 20052.994000
## converged
## # weights:   9
## initial   value 23938.360675
## iter   10 value 20059.170325
## final   value 20058.504763
## converged
## # weights:   25
## initial   value 22581.459525
## iter   10 value 20060.457344
## iter   20 value 20056.970937
## final   value 20056.970265
## converged
## # weights:   41
## initial   value 23185.988734
## iter   10 value 20070.356870
## iter   20 value 20056.319555
## final   value 20056.310720
## converged
## # weights:   9
## initial   value 23819.595349
## iter   10 value 20060.911956
## iter   20 value 20053.085288
## iter   20 value 20053.085251
## final   value 20053.085251
## converged
## # weights:   25
## initial   value 22298.570436
## iter   10 value 20067.568423
## iter   20 value 20053.162032
## final   value 20053.011229
## converged
## # weights:   41
## initial   value 21291.257968
## iter   10 value 20062.684479
## iter   20 value 20053.105724
## final   value 20053.005898
## converged
## # weights:   9
## initial   value 22494.453466
## final   value 20053.560100
```

```
## converged
## # weights:  25
## initial  value 23707.768275
## final  value 20053.560100
## converged
## # weights:  41
## initial  value 23381.406408
## final  value 20053.560100
## converged
## # weights:  9
## initial  value 24139.180243
## iter  10 value 20060.473309
## final  value 20059.070974
## converged
## # weights:  25
## initial  value 21809.514170
## iter  10 value 20058.590697
## final  value 20057.536492
## converged
## # weights:  41
## initial  value 22993.151922
## iter  10 value 20073.641418
## iter  20 value 20056.877780
## final  value 20056.876898
## converged
## # weights:  9
## initial  value 22463.423268
## iter  10 value 20063.280624
## iter  20 value 20053.672170
## iter  20 value 20053.672125
## final  value 20053.672125
## converged
## # weights:  25
## initial  value 23423.828344
## iter  10 value 20068.357151
## iter  20 value 20053.730698
## final  value 20053.583705
## converged
## # weights:  41
## initial  value 23402.530551
## iter  10 value 20070.252677
## iter  20 value 20053.752552
## final  value 20053.571471
## converged
## # weights:  9
## initial  value 21881.797592
## final  value 20060.859700
## converged
## # weights:  25
## initial  value 23931.896962
## final  value 20060.859700
## converged
## # weights:  41
## initial  value 23290.376172
```

```
## final   value 20060.859700
## converged
## # weights:  9
## initial   value 23030.505506
## iter  10 value 20067.684482
## final   value 20066.371301
## converged
## # weights:  25
## initial   value 22505.613849
## iter  10 value 20069.844085
## iter  20 value 20064.844210
## final   value 20064.836665
## converged
## # weights:  41
## initial   value 23638.463744
## iter  10 value 20078.556016
## iter  20 value 20064.177252
## iter  20 value 20064.177096
## iter  20 value 20064.177017
## final   value 20064.177017
## converged
## # weights:  9
## initial   value 22282.897779
## iter  10 value 20070.192067
## iter  20 value 20060.967295
## iter  20 value 20060.967252
## final   value 20060.967252
## converged
## # weights:  25
## initial   value 23074.690820
## iter  10 value 20076.043050
## iter  20 value 20061.034752
## final   value 20060.874060
## converged
## # weights:  41
## initial   value 23032.484596
## iter  10 value 20080.544475
## iter  20 value 20061.086650
## final   value 20060.869318
## converged
## # weights:  9
## initial   value 23271.295461
## final   value 20056.305700
## converged
## # weights:  25
## initial   value 22942.431911
## final   value 20056.305700
## converged
## # weights:  41
## initial   value 24115.058877
## final   value 20056.305700
## converged
## # weights:  9
## initial   value 23416.060353
```

```
## iter  10 value 20063.919179
## final  value 20061.816725
## converged
## # weights:  25
## initial  value 23100.423117
## iter  10 value 20061.383765
## final  value 20060.282174
## converged
## # weights:  41
## initial  value 21451.249995
## iter  10 value 20072.903573
## iter  20 value 20059.623735
## final  value 20059.622617
## converged
## # weights:  9
## initial  value 23608.330829
## iter  10 value 20065.688524
## iter  20 value 20056.413877
## iter  20 value 20056.413833
## final  value 20056.413833
## converged
## # weights:  25
## initial  value 24029.310461
## iter  10 value 20066.484707
## iter  20 value 20056.423056
## final  value 20056.323138
## converged
## # weights:  41
## initial  value 24394.741423
## iter  10 value 20066.380719
## iter  20 value 20056.421857
## final  value 20056.320324
## converged
## # weights:  9
## initial  value 23237.565188
## final  value 20033.793700
## converged
## # weights:  25
## initial  value 23894.698687
## final  value 20033.793700
## converged
## # weights:  41
## initial  value 22567.776648
## final  value 20033.793700
## converged
## # weights:  9
## initial  value 22270.751367
## iter  10 value 20040.262635
## final  value 20039.303613
## converged
## # weights:  25
## initial  value 22182.886613
## iter  10 value 20039.226009
## iter  20 value 20037.769793
```

```
## final   value 20037.769401
## converged
## # weights:  41
## initial  value 22941.082466
## iter  10 value 20037.621832
## iter  20 value 20037.110272
## iter  20 value 20037.110129
## iter  20 value 20037.110112
## final   value 20037.110112
## converged
## # weights:  9
## initial  value 23354.142543
## iter  10 value 20042.794058
## iter  20 value 20033.897467
## iter  20 value 20033.897426
## final   value 20033.897426
## converged
## # weights:  25
## initial  value 23313.531677
## iter  10 value 20047.579355
## iter  20 value 20033.952638
## final   value 20033.815985
## converged
## # weights:  41
## initial  value 23224.486673
## iter  10 value 20054.312131
## iter  20 value 20034.030261
## final   value 20033.809280
## converged
## # weights:  9
## initial  value 22797.277554
## final   value 20042.376500
## converged
## # weights:  25
## initial  value 22201.108318
## final   value 20042.376500
## converged
## # weights:  41
## initial  value 22233.286134
## final   value 20042.376500
## converged
## # weights:  9
## initial  value 22621.164169
## iter  10 value 20050.494337
## final   value 20047.886761
## converged
## # weights:  25
## initial  value 21658.014859
## iter  10 value 20047.770706
## iter  20 value 20046.352818
## final   value 20046.352465
## converged
## # weights:  41
## initial  value 22858.802692
```

```
## iter  10 value 20046.099811
## final  value 20045.692949
## converged
## # weights:  9
## initial  value 23370.031227
## iter  10 value 20051.730212
## iter  20 value 20042.484341
## iter  20 value 20042.484298
## final  value 20042.484298
## converged
## # weights:  25
## initial  value 21657.396615
## iter  10 value 20052.067742
## iter  20 value 20042.488232
## final  value 20042.389281
## converged
## # weights:  41
## initial  value 21717.806861
## iter  10 value 20054.696695
## iter  20 value 20042.518542
## final  value 20042.386809
## converged
## # weights:  9
## initial  value 21829.739627
## final  value 20038.766500
## converged
## # weights:  25
## initial  value 21733.859902
## final  value 20038.766500
## converged
## # weights:  41
## initial  value 23271.102628
## final  value 20038.766500
## converged
## # weights:  9
## initial  value 22718.194669
## iter  10 value 20070.683489
## iter  20 value 20044.304403
## final  value 20044.276605
## converged
## # weights:  25
## initial  value 22663.796128
## iter  10 value 20052.152215
## iter  20 value 20042.754410
## final  value 20042.742335
## converged
## # weights:  41
## initial  value 22188.759755
## iter  10 value 20053.977615
## iter  20 value 20042.084506
## final  value 20042.082875
## converged
## # weights:  9
## initial  value 23246.169185
```

```
## iter  10 value 20049.648816
## iter  20 value 20038.891965
## iter  20 value 20038.891914
## final   value 20038.891914
## converged
## # weights:  25
## initial   value 22279.654470
## iter  10 value 20052.487450
## iter  20 value 20038.924692
## final   value 20038.783254
## converged
## # weights:  41
## initial   value 22458.927877
## iter  10 value 20056.998977
## iter  20 value 20038.976706
## final   value 20038.776227
## converged
## # weights:  9
## initial   value 21667.008148
## final   value 20053.560100
## converged
## # weights:  25
## initial   value 21587.742939
## final   value 20053.560100
## converged
## # weights:  41
## initial   value 22176.419996
## final   value 20053.560100
## converged
## # weights:  9
## initial   value 23466.227046
## iter  10 value 20059.616494
## final   value 20059.070905
## converged
## # weights:  25
## initial   value 21475.088350
## iter  10 value 20058.303371
## final   value 20057.536449
## converged
## # weights:  41
## initial   value 22802.984049
## iter  10 value 20071.280776
## iter  20 value 20056.877764
## final   value 20056.876825
## converged
## # weights:  9
## initial   value 23202.009531
## iter  10 value 20065.180481
## iter  20 value 20053.694074
## iter  20 value 20053.694020
## final   value 20053.694020
## converged
## # weights:  25
## initial   value 23056.114928
```

```
## iter   10 value 20066.052850
## iter   20 value 20053.704132
## final   value 20053.572766
## converged
## # weights:  41
## initial   value 22761.043462
## iter   10 value 20071.257588
## iter   20 value 20053.764138
## final   value 20053.570710
## converged
## # weights:  9
## initial   value 22248.632337
## final   value 20062.067600
## converged
## # weights:  25
## initial   value 21855.072699
## final   value 20062.067600
## converged
## # weights:  41
## initial   value 23218.898019
## final   value 20062.067600
## converged
## # weights:  9
## initial   value 21973.067863
## iter   10 value 20069.546774
## final   value 20067.579249
## converged
## # weights:  25
## initial   value 22629.939645
## iter   10 value 20066.333933
## final   value 20066.044493
## converged
## # weights:  41
## initial   value 23272.993866
## iter   10 value 20066.539139
## final   value 20065.384895
## converged
## # weights:  9
## initial   value 23736.766419
## iter   10 value 20070.546942
## iter   20 value 20062.165360
## iter   20 value 20062.165321
## final   value 20062.165321
## converged
## # weights:  25
## initial   value 24242.736570
## iter   10 value 20070.700500
## iter   20 value 20062.167131
## final   value 20062.086419
## converged
## # weights:  41
## initial   value 23390.219222
## iter   10 value 20082.650124
## iter   20 value 20062.304900
```

```
## final   value 20062.082558
## converged
## # weights:  9
## initial   value 22248.223468
## final   value 20003.262500
## converged
## # weights:  25
## initial   value 22888.170651
## final   value 20003.262500
## converged
## # weights:  41
## initial   value 22911.523470
## final   value 20003.262500
## converged
## # weights:  9
## initial   value 21916.922763
## iter  10 value 20009.198985
## final   value 20008.771525
## converged
## # weights:  25
## initial   value 23659.763570
## iter  10 value 20009.917658
## iter  20 value 20007.237949
## final   value 20007.237577
## converged
## # weights:  41
## initial   value 22471.749023
## iter  10 value 20008.255601
## iter  20 value 20006.578443
## iter  20 value 20006.578306
## iter  20 value 20006.578273
## final   value 20006.578273
## converged
## # weights:  9
## initial   value 23576.842190
## iter  10 value 20011.434981
## iter  20 value 20003.356722
## iter  20 value 20003.356685
## final   value 20003.356685
## converged
## # weights:  25
## initial   value 23437.022254
## iter  10 value 20015.491959
## iter  20 value 20003.403496
## final   value 20003.277154
## converged
## # weights:  41
## initial   value 22465.823431
## iter  10 value 20021.278521
## iter  20 value 20003.470211
## final   value 20003.275175
## converged
## # weights:  9
## initial   value 22632.307669
```

```
## final   value 20041.267700
## converged
## # weights:  25
## initial   value 21799.651142
## final   value 20041.267700
## converged
## # weights:  41
## initial   value 21347.941045
## final   value 20041.267700
## converged
## # weights:  9
## initial   value 22388.514505
## iter  10 value 20047.090127
## final   value 20046.777908
## converged
## # weights:  25
## initial   value 22448.489930
## iter  10 value 20048.062550
## iter  20 value 20045.243998
## final   value 20045.243611
## converged
## # weights:  41
## initial   value 23071.514363
## iter  10 value 20045.454493
## final   value 20044.584091
## converged
## # weights:  9
## initial   value 23807.430958
## iter  10 value 20048.764577
## iter  20 value 20041.354133
## iter  20 value 20041.354099
## final   value 20041.354099
## converged
## # weights:  25
## initial   value 21834.794163
## iter  10 value 20054.183588
## iter  20 value 20041.416610
## final   value 20041.280224
## converged
## # weights:  41
## initial   value 22605.823214
## iter  10 value 20061.493112
## iter  20 value 20041.500883
## final   value 20041.279018
## converged
## # weights:  9
## initial   value 22725.321086
## final   value 20047.409200
## converged
## # weights:  25
## initial   value 23364.617799
## final   value 20047.409200
## converged
## # weights:  41
```

```
## initial  value 22669.807982
## final  value 20047.409200
## converged
## # weights:  9
## initial  value 22918.486696
## iter  10 value 20073.682833
## iter  20 value 20052.923777
## final  value 20052.919737
## converged
## # weights:  25
## initial  value 23065.367069
## iter  10 value 20052.066607
## final  value 20051.385405
## converged
## # weights:  41
## initial  value 22726.090657
## iter  10 value 20052.221508
## iter  20 value 20050.725981
## iter  20 value 20050.725835
## iter  20 value 20050.725795
## final  value 20050.725795
## converged
## # weights:  9
## initial  value 23430.509555
## iter  10 value 20056.895094
## iter  20 value 20047.518565
## iter  20 value 20047.518521
## final  value 20047.518521
## converged
## # weights:  25
## initial  value 23554.816532
## iter  10 value 20061.992271
## iter  20 value 20047.577331
## final  value 20047.425256
## converged
## # weights:  41
## initial  value 24228.827195
## iter  10 value 20059.268315
## iter  20 value 20047.545926
## final  value 20047.424057
## converged
## # weights:  9
## initial  value 22478.406756
## final  value 20011.474000
## converged
## # weights:  25
## initial  value 23996.064738
## final  value 20011.474000
## converged
## # weights:  41
## initial  value 22501.573045
## final  value 20011.474000
## converged
## # weights:  9
```

```
## initial  value 23339.145902
## iter  10 value 20017.763352
## final  value 20016.983243
## converged
## # weights:  25
## initial  value 23625.424914
## iter  10 value 20019.064602
## iter  20 value 20015.450142
## final  value 20015.449279
## converged
## # weights:  41
## initial  value 22830.397926
## iter  10 value 20016.205582
## iter  20 value 20014.789929
## iter  20 value 20014.789868
## iter  20 value 20014.789857
## final  value 20014.789857
## converged
## # weights:  9
## initial  value 23139.132998
## iter  10 value 20023.487439
## iter  20 value 20011.612506
## iter  20 value 20011.612450
## final  value 20011.612450
## converged
## # weights:  25
## initial  value 23020.649909
## iter  10 value 20026.217864
## iter  20 value 20011.643985
## final  value 20011.487506
## converged
## # weights:  41
## initial  value 22032.097942
## iter  10 value 20026.143368
## iter  20 value 20011.643126
## final  value 20011.485677
## converged
## # weights:  9
## initial  value 22956.060068
## final  value 20017.201700
## converged
## # weights:  25
## initial  value 23983.173729
## final  value 20017.201700
## converged
## # weights:  41
## initial  value 22930.331824
## final  value 20017.201700
## converged
## # weights:  9
## initial  value 23464.243769
## iter  10 value 20023.407793
## final  value 20022.711052
## converged
```

```
## # weights:  25
## initial  value 22427.858120
## iter  10 value 20021.824167
## final  value 20021.177027
## converged
## # weights:  41
## initial  value 22108.715081
## iter  10 value 20026.116345
## iter  20 value 20020.520212
## final  value 20020.517726
## converged
## # weights:  9
## initial  value 22496.273766
## iter  10 value 20027.816815
## iter  20 value 20017.324084
## iter  20 value 20017.324035
## final  value 20017.324035
## converged
## # weights:  25
## initial  value 22141.747439
## iter  10 value 20029.690607
## iter  20 value 20017.345687
## final  value 20017.213158
## converged
## # weights:  41
## initial  value 22405.374379
## iter  10 value 20037.967236
## iter  20 value 20017.441110
## final  value 20017.212265
## converged
## # weights:  9
## initial  value 22197.248137
## final  value 20059.089700
## converged
## # weights:  25
## initial  value 21896.129398
## final  value 20059.089700
## converged
## # weights:  41
## initial  value 21638.907252
## final  value 20059.089700
## converged
## # weights:  9
## initial  value 22039.832435
## iter  10 value 20067.898815
## final  value 20064.600843
## converged
## # weights:  25
## initial  value 22832.675797
## iter  10 value 20063.720415
## final  value 20063.066294
## converged
## # weights:  41
## initial  value 22416.278714
```

```
## iter  10 value 20064.619401
## iter  20 value 20062.406793
## iter  20 value 20062.406652
## iter  20 value 20062.406627
## final   value 20062.406627
## converged
## # weights:  9
## initial   value 21632.888157
## iter  10 value 20066.123083
## iter  20 value 20059.170789
## iter  20 value 20059.170757
## final   value 20059.170757
## converged
## # weights:  25
## initial   value 21993.188446
## iter  10 value 20070.423909
## iter  20 value 20059.220375
## final   value 20059.103869
## converged
## # weights:  41
## initial   value 22024.365667
## iter  10 value 20073.763214
## iter  20 value 20059.258874
## final   value 20059.099974
## converged
## # weights:  9
## initial   value 23133.061382
## final   value 20051.880500
## converged
## # weights:  25
## initial   value 22579.719494
## final   value 20051.880500
## converged
## # weights:  41
## initial   value 21474.536037
## final   value 20051.880500
## converged
## # weights:  9
## initial   value 22078.661735
## iter  10 value 20058.703007
## final   value 20057.391220
## converged
## # weights:  25
## initial   value 22381.333649
## iter  10 value 20056.825061
## final   value 20055.856857
## converged
## # weights:  41
## initial   value 21801.227053
## iter  10 value 20056.874726
## final   value 20055.197307
## converged
## # weights:  9
## initial   value 21982.157933
```

```
## iter  10 value 20060.471414
## iter  20 value 20051.979546
## iter  20 value 20051.979507
## final  value 20051.979507
## converged
## # weights:  25
## initial  value 21253.157913
## iter  10 value 20059.883452
## iter  20 value 20051.972768
## final  value 20051.891770
## converged
## # weights:  41
## initial  value 22751.624019
## iter  10 value 20073.469049
## iter  20 value 20052.129399
## final  value 20051.894506
## converged
## # weights:  9
## initial  value 23640.596670
## final  value 19992.778000
## converged
## # weights:  25
## initial  value 22607.662986
## final  value 19992.778000
## converged
## # weights:  41
## initial  value 23104.766181
## final  value 19992.778000
## converged
## # weights:  9
## initial  value 22505.978602
## iter  10 value 20000.384263
## final  value 19998.286825
## converged
## # weights:  25
## initial  value 23720.523018
## iter  10 value 19998.277852
## final  value 19996.753014
## converged
## # weights:  41
## initial  value 22748.792933
## iter  10 value 20009.233748
## iter  20 value 19996.094363
## final  value 19996.093714
## converged
## # weights:  9
## initial  value 22999.126887
## iter  10 value 20003.770728
## iter  20 value 19992.904738
## iter  20 value 19992.904687
## final  value 19992.904687
## converged
## # weights:  25
## initial  value 23985.783420
```

```
## iter   10 value 20002.568452
## iter   20 value 19992.890876
## final   value 19992.796299
## converged
## # weights:  41
## initial   value 21769.864147
## iter   10 value 20007.548415
## iter   20 value 19992.948291
## final   value 19992.788018
## converged
## # weights:  9
## initial   value 23237.490509
## final   value 19941.288500
## converged
## # weights:  25
## initial   value 22881.145537
## final   value 19941.288500
## converged
## # weights:  41
## initial   value 21988.820651
## final   value 19941.288500
## converged
## # weights:  9
## initial   value 21594.614160
## iter   10 value 19947.192858
## final   value 19946.796417
## converged
## # weights:  25
## initial   value 23860.874688
## iter   10 value 19946.590158
## final   value 19945.262985
## converged
## # weights:  41
## initial   value 21588.003447
## iter   10 value 19946.524756
## iter   20 value 19944.603961
## iter   20 value 19944.603781
## iter   20 value 19944.603746
## final   value 19944.603746
## converged
## # weights:  9
## initial   value 22441.300421
## iter   10 value 19952.981207
## iter   20 value 19941.423308
## iter   20 value 19941.423254
## final   value 19941.423254
## converged
## # weights:  25
## initial   value 23376.748508
## iter   10 value 19954.809869
## iter   20 value 19941.444391
## final   value 19941.301479
## converged
## # weights:  41
```

```
## initial  value 23779.781480
## iter  10 value 19956.028587
## iter  20 value 19941.458442
## final  value 19941.302848
## converged
## # weights:  9
## initial  value 23057.226848
## final  value 20010.897200
## converged
## # weights:  25
## initial  value 22093.831205
## final  value 20010.897200
## converged
## # weights:  41
## initial  value 23241.957934
## final  value 20010.897200
## converged
## # weights:  9
## initial  value 23627.336631
## iter  10 value 20018.594708
## final  value 20016.406419
## converged
## # weights:  25
## initial  value 24083.044444
## iter  10 value 20015.309186
## final  value 20014.872510
## converged
## # weights:  41
## initial  value 22704.396223
## iter  10 value 20015.805080
## final  value 20014.213047
## converged
## # weights:  9
## initial  value 22035.357217
## iter  10 value 20020.449590
## iter  20 value 20011.007332
## iter  20 value 20011.007288
## final  value 20011.007288
## converged
## # weights:  25
## initial  value 22497.893925
## iter  10 value 20025.097207
## iter  20 value 20011.060915
## final  value 20010.912567
## converged
## # weights:  41
## initial  value 21606.741827
## iter  10 value 20023.044386
## iter  20 value 20011.037248
## final  value 20010.906964
## converged
## # weights:  9
## initial  value 23388.518603
## final  value 20048.501200
```

```
## converged
## # weights:  25
## initial  value 23483.905576
## final  value 20048.501200
## converged
## # weights:  41
## initial  value 22844.162075
## final  value 20048.501200
## converged
## # weights:  9
## initial  value 23684.467426
## iter  10 value 20055.046164
## final  value 20054.011712
## converged
## # weights:  25
## initial  value 22511.391027
## iter  10 value 20053.792426
## final  value 20052.477270
## converged
## # weights:  41
## initial  value 23111.579426
## iter  10 value 20070.871396
## iter  20 value 20051.829042
## final  value 20051.817766
## converged
## # weights:  9
## initial  value 22783.472177
## iter  10 value 20059.578751
## iter  20 value 20048.628915
## iter  20 value 20048.628864
## final  value 20048.628864
## converged
## # weights:  25
## initial  value 23424.495734
## iter  10 value 20061.407032
## iter  20 value 20048.649994
## final  value 20048.518529
## converged
## # weights:  41
## initial  value 23299.891510
## iter  10 value 20069.132228
## iter  20 value 20048.739060
## final  value 20048.513677
## converged
## # weights:  9
## initial  value 23003.305399
## final  value 20061.374500
## converged
## # weights:  25
## initial  value 22714.214901
## final  value 20061.374500
## converged
## # weights:  41
## initial  value 22694.098504
```

```
## final   value 20061.374500
## converged
## # weights:  9
## initial   value 23637.357017
## iter  10 value 20068.042833
## final   value 20066.886004
## converged
## # weights:  25
## initial   value 23855.472191
## iter  10 value 20067.209800
## iter  20 value 20065.352536
## final   value 20065.351281
## converged
## # weights:  41
## initial   value 21414.962365
## iter  10 value 20066.480090
## iter  20 value 20064.691832
## iter  20 value 20064.691694
## iter  20 value 20064.691656
## final   value 20064.691656
## converged
## # weights:  9
## initial   value 22405.177146
## iter  10 value 20071.613346
## iter  20 value 20061.492546
## iter  20 value 20061.492499
## final   value 20061.492499
## converged
## # weights:  25
## initial   value 21735.842302
## iter  10 value 20071.131794
## iter  20 value 20061.486994
## final   value 20061.386634
## converged
## # weights:  41
## initial   value 24053.176234
## iter  10 value 20074.010558
## iter  20 value 20061.520184
## final   value 20061.389561
## converged
## # weights:  9
## initial   value 23001.991659
## final   value 20040.797200
## converged
## # weights:  25
## initial   value 23464.069833
## final   value 20040.797200
## converged
## # weights:  41
## initial   value 21503.776485
## final   value 20040.797200
## converged
## # weights:  9
## initial   value 23102.808688
```

```
## iter   10 value 20048.060985
## final   value 20046.307398
## converged
## # weights:  25
## initial   value 21511.649877
## iter   10 value 20045.877970
## final   value 20044.773128
## converged
## # weights:  41
## initial   value 23039.212460
## iter   10 value 20045.441982
## final   value 20044.113639
## converged
## # weights:   9
## initial   value 23055.577442
## iter   10 value 20051.738892
## iter   20 value 20040.923349
## iter   20 value 20040.923299
## final   value 20040.923299
## converged
## # weights:  25
## initial   value 21418.659559
## iter   10 value 20048.837096
## iter   20 value 20040.889894
## final   value 20040.812646
## converged
## # weights:  41
## initial   value 21562.180030
## iter   10 value 20051.832799
## iter   20 value 20040.924432
## final   value 20040.806852
## converged
## # weights:   9
## initial   value 22584.944605
## final   value 20052.014500
## converged
## # weights:  25
## initial   value 22215.667796
## final   value 20052.014500
## converged
## # weights:  41
## initial   value 22635.293384
## final   value 20052.014500
## converged
## # weights:   9
## initial   value 21986.841977
## iter   10 value 20057.541310
## final   value 20057.525258
## converged
## # weights:  25
## initial   value 22172.740240
## iter   10 value 20056.960439
## iter   20 value 20056.014074
## final   value 20055.990788
```

```
## converged
## # weights:  41
## initial  value 22341.311617
## iter  10 value 20055.742518
## final  value 20055.331214
## converged
## # weights:  9
## initial  value 23107.096809
## iter  10 value 20061.909029
## iter  20 value 20052.128576
## iter  20 value 20052.128531
## final  value 20052.128531
## converged
## # weights:  25
## initial  value 23075.950537
## iter  10 value 20068.448209
## iter  20 value 20052.203968
## final  value 20052.033833
## converged
## # weights:  41
## initial  value 23268.503369
## iter  10 value 20070.566117
## iter  20 value 20052.228386
## final  value 20052.029028
## converged
## # weights:  9
## initial  value 22839.688656
## final  value 19987.480100
## converged
## # weights:  25
## initial  value 22557.012052
## final  value 19987.480100
## converged
## # weights:  41
## initial  value 21502.599979
## final  value 19987.480100
## converged
## # weights:  9
## initial  value 23040.543936
## iter  10 value 19993.334876
## final  value 19992.988811
## converged
## # weights:  25
## initial  value 23512.904385
## iter  10 value 19992.317945
## final  value 19991.455008
## converged
## # weights:  41
## initial  value 22178.128962
## iter  10 value 19992.518079
## final  value 19990.795795
## converged
## # weights:  9
## initial  value 23049.601787
```

```
## iter   10 value 19997.371087
## iter   20 value 19987.594135
## iter   20 value 19987.594090
## final   value 19987.594090
## converged
## # weights:  25
## initial   value 23163.018711
## iter   10 value 20002.609213
## iter   20 value 19987.654527
## final   value 19987.492051
## converged
## # weights:  41
## initial   value 23187.413665
## iter   10 value 20007.325455
## iter   20 value 19987.708901
## final   value 19987.492689
## converged
## # weights:  9
## initial   value 22017.889293
## final   value 19970.625700
## converged
## # weights:  25
## initial   value 24169.325302
## final   value 19970.625700
## converged
## # weights:  41
## initial   value 21465.299955
## final   value 19970.625700
## converged
## # weights:  9
## initial   value 22418.679245
## iter   10 value 19980.390613
## final   value 19976.134075
## converged
## # weights:  25
## initial   value 22478.099403
## iter   10 value 19975.204996
## final   value 19974.600404
## converged
## # weights:  41
## initial   value 22461.794961
## iter   10 value 19978.289389
## iter   20 value 19973.941727
## final   value 19973.941156
## converged
## # weights:  9
## initial   value 21767.987576
## iter   10 value 19979.113081
## iter   20 value 19970.723553
## iter   20 value 19970.723514
## final   value 19970.723514
## converged
## # weights:  25
## initial   value 22382.051224
```

```
## iter   10 value 19983.343972
## iter   20 value 19970.772332
## final   value 19970.640828
## converged
## # weights:  41
## initial   value 23549.277024
## iter   10 value 19988.716992
## iter   20 value 19970.834278
## final   value 19970.636323
## converged
## # weights:  9
## initial   value 22149.020401
## final   value 19971.202000
## converged
## # weights:  25
## initial   value 22597.929811
## final   value 19971.202000
## converged
## # weights:  41
## initial   value 20892.866841
## final   value 19971.202000
## converged
## # weights:  9
## initial   value 23196.368271
## iter   10 value 19977.749057
## final   value 19976.710529
## converged
## # weights:  25
## initial   value 22716.215802
## iter   10 value 19976.277955
## final   value 19975.176727
## converged
## # weights:  41
## initial   value 21389.425691
## iter   10 value 19976.933734
## iter   20 value 19974.517574
## iter   20 value 19974.517472
## iter   20 value 19974.517460
## final   value 19974.517460
## converged
## # weights:  9
## initial   value 22598.158105
## iter   10 value 19982.463976
## iter   20 value 19971.331842
## iter   20 value 19971.331790
## final   value 19971.331790
## converged
## # weights:  25
## initial   value 22908.912350
## iter   10 value 19985.714704
## iter   20 value 19971.369320
## final   value 19971.214952
## converged
## # weights:  41
```

```
## initial  value 22881.579674
## iter  10 value 19991.029995
## iter  20 value 19971.430601
## final  value 19971.212872
## converged
## # weights:  9
## initial  value 22952.930105
## final  value 20033.685200
## converged
## # weights:  25
## initial  value 22314.080085
## final  value 20033.685200
## converged
## # weights:  41
## initial  value 22694.132934
## final  value 20033.685200
## converged
## # weights:  9
## initial  value 22192.902896
## iter  10 value 20039.404397
## final  value 20039.195105
## converged
## # weights:  25
## initial  value 23308.005954
## iter  10 value 20038.234028
## final  value 20037.660893
## converged
## # weights:  41
## initial  value 22831.470757
## iter  10 value 20040.357937
## iter  20 value 20037.001944
## final  value 20037.001448
## converged
## # weights:  9
## initial  value 21610.290259
## iter  10 value 20041.320732
## iter  20 value 20033.773232
## iter  20 value 20033.773196
## final  value 20033.773196
## converged
## # weights:  25
## initial  value 22093.359095
## iter  10 value 20046.710191
## iter  20 value 20033.835368
## final  value 20033.696385
## converged
## # weights:  41
## initial  value 22536.063691
## iter  10 value 20052.894468
## iter  20 value 20033.906668
## final  value 20033.694520
## converged
## # weights:  9
## initial  value 23466.614435
```

```
## final   value 20021.050000
## converged
## # weights:  25
## initial   value 23603.693818
## final   value 20021.050000
## converged
## # weights:  41
## initial   value 23488.042686
## final   value 20021.050000
## converged
## # weights:  9
## initial   value 23786.920465
## iter  10 value 20028.287695
## final   value 20026.559499
## converged
## # weights:  25
## initial   value 22680.832519
## iter  10 value 20027.361067
## iter  20 value 20025.046095
## final   value 20025.025395
## converged
## # weights:  41
## initial   value 22974.616718
## iter  10 value 20039.482867
## iter  20 value 20024.366222
## iter  20 value 20024.366092
## iter  20 value 20024.366055
## final   value 20024.366055
## converged
## # weights:  9
## initial   value 23316.441411
## iter  10 value 20030.851719
## iter  20 value 20021.163006
## iter  20 value 20021.162961
## final   value 20021.162961
## converged
## # weights:  25
## initial   value 21457.614217
## iter  10 value 20029.809463
## iter  20 value 20021.150990
## final   value 20021.060917
## converged
## # weights:  41
## initial   value 24125.248054
## iter  10 value 20033.091394
## iter  20 value 20021.188828
## final   value 20021.062764
## converged
## # weights:  9
## initial   value 22204.865215
## final   value 20057.167600
## converged
## # weights:  25
## initial   value 21911.455753
```

```
## final  value 20057.167600
## converged
## # weights:  41
## initial  value 22204.954525
## final  value 20057.167600
## converged
## # weights:  9
## initial  value 22133.875484
## iter  10 value 20063.422252
## final  value 20062.678670
## converged
## # weights:  25
## initial  value 22707.057984
## iter  10 value 20062.574744
## final  value 20061.144143
## converged
## # weights:  41
## initial  value 23211.974559
## iter  10 value 20066.252434
## iter  20 value 20060.488448
## final  value 20060.484481
## converged
## # weights:  9
## initial  value 22651.165922
## iter  10 value 20066.831145
## iter  20 value 20057.279013
## iter  20 value 20057.278969
## final  value 20057.278969
## converged
## # weights:  25
## initial  value 23858.145170
## iter  10 value 20069.009153
## iter  20 value 20057.304124
## final  value 20057.184154
## converged
## # weights:  41
## initial  value 23045.752215
## iter  10 value 20080.788859
## iter  20 value 20057.439935
## final  value 20057.177774
## converged
## # weights:  9
## initial  value 23537.958129
## final  value 20053.560100
## converged
## # weights:  25
## initial  value 23880.846250
## final  value 20053.560100
## converged
## # weights:  41
## initial  value 23382.068926
## final  value 20053.560100
## converged
## # weights:  9
```

```
## initial  value 21856.371327
## iter  10 value 20059.420755
## final  value 20059.070958
## converged
## # weights:  25
## initial  value 22312.517878
## iter  10 value 20060.200501
## iter  20 value 20057.536500
## iter  20 value 20057.536447
## iter  20 value 20057.536441
## final  value 20057.536441
## converged
## # weights:  41
## initial  value 23093.969417
## iter  10 value 20057.930320
## final  value 20056.876885
## converged
## # weights:  9
## initial  value 22217.430435
## iter  10 value 20062.592433
## iter  20 value 20053.664236
## iter  20 value 20053.664194
## final  value 20053.664194
## converged
## # weights:  25
## initial  value 22878.934213
## iter  10 value 20068.810621
## iter  20 value 20053.735927
## final  value 20053.575073
## converged
## # weights:  41
## initial  value 23134.078243
## iter  10 value 20070.382746
## iter  20 value 20053.754052
## final  value 20053.571599
## converged
## # weights:  9
## initial  value 22384.390733
## final  value 20030.907700
## converged
## # weights:  25
## initial  value 23086.937115
## final  value 20030.907700
## converged
## # weights:  41
## initial  value 22178.656539
## final  value 20030.907700
## converged
## # weights:  9
## initial  value 21930.685988
## iter  10 value 20037.087254
## final  value 20036.417476
## converged
## # weights:  25
```

```
## initial  value 21784.272347
## iter  10 value 20035.641889
## final  value 20034.883293
## converged
## # weights:  41
## initial  value 21415.015192
## iter  10 value 20052.498780
## iter  20 value 20034.225122
## final  value 20034.223832
## converged
## # weights:  9
## initial  value 23214.693089
## iter  10 value 20040.407611
## iter  20 value 20031.017227
## iter  20 value 20031.017183
## final  value 20031.017183
## converged
## # weights:  25
## initial  value 22400.171978
## iter  10 value 20044.954761
## iter  20 value 20031.069652
## final  value 20030.920664
## converged
## # weights:  41
## initial  value 23770.118554
## iter  10 value 20045.767714
## iter  20 value 20031.079024
## final  value 20030.922716
## converged
## # weights:  9
## initial  value 22355.484810
## final  value 20016.930100
## converged
## # weights:  25
## initial  value 21651.091318
## final  value 20016.930100
## converged
## # weights:  41
## initial  value 23224.557584
## final  value 20016.930100
## converged
## # weights:  9
## initial  value 22901.571074
## iter  10 value 20023.091475
## final  value 20022.439458
## converged
## # weights:  25
## initial  value 22510.802538
## iter  10 value 20022.103879
## final  value 20020.905411
## converged
## # weights:  41
## initial  value 22074.639940
## iter  10 value 20034.604167
```

```
## iter  20 value 20020.246663
## final  value 20020.246011
## converged
## # weights:  9
## initial  value 23458.443366
## iter  10 value 20026.764608
## iter  20 value 20017.043484
## iter  20 value 20017.043439
## final  value 20017.043439
## converged
## # weights:  25
## initial  value 22145.245089
## iter  10 value 20031.072763
## iter  20 value 20017.093154
## final  value 20016.943303
## converged
## # weights:  41
## initial  value 21851.712793
## iter  10 value 20031.978768
## iter  20 value 20017.103599
## final  value 20016.939973
## converged
## # weights:  9
## initial  value 22537.142716
## final  value 20004.034000
## converged
## # weights:  25
## initial  value 22297.379901
## final  value 20004.034000
## converged
## # weights:  41
## initial  value 22397.632225
## final  value 20004.034000
## converged
## # weights:  9
## initial  value 22848.385099
## iter  10 value 20011.215210
## final  value 20009.543070
## converged
## # weights:  25
## initial  value 22440.373702
## iter  10 value 20010.310197
## iter  20 value 20008.114491
## iter  30 value 20008.009483
## final  value 20008.009162
## converged
## # weights:  41
## initial  value 22799.719987
## iter  10 value 20008.653484
## final  value 20007.349761
## converged
## # weights:  9
## initial  value 22919.244257
## iter  10 value 20015.747837
```

```
## iter  20 value 20004.169051
## iter  20 value 20004.168997
## final   value 20004.168997
## converged
## # weights:  25
## initial   value 22921.078665
## iter  10 value 20018.780814
## iter  20 value 20004.204019
## final   value 20004.047809
## converged
## # weights:  41
## initial   value 22500.403373
## iter  10 value 20025.387023
## iter  20 value 20004.280184
## final   value 20004.046767
## converged
## # weights:  9
## initial   value 21854.770345
## final   value 20043.810100
## converged
## # weights:  25
## initial   value 21662.574832
## final   value 20043.810100
## converged
## # weights:  41
## initial   value 21517.343586
## final   value 20043.810100
## converged
## # weights:  9
## initial   value 21789.442217
## iter  10 value 20050.545434
## final   value 20049.320386
## converged
## # weights:  25
## initial   value 23048.176036
## iter  10 value 20048.308849
## final   value 20047.786030
## converged
## # weights:  41
## initial   value 22149.333767
## iter  10 value 20059.349983
## iter  20 value 20047.126938
## final   value 20047.126540
## converged
## # weights:  9
## initial   value 22631.705400
## iter  10 value 20053.743308
## iter  20 value 20043.924622
## iter  20 value 20043.924576
## final   value 20043.924576
## converged
## # weights:  25
## initial   value 22318.319842
## iter  10 value 20057.978102
```

```
## iter  20 value 20043.973446
## final  value 20043.822433
## converged
## # weights:  41
## initial  value 22591.581745
## iter  10 value 20064.497665
## iter  20 value 20044.048611
## final  value 20043.820824
## converged
## # weights:  9
## initial  value 22534.150711
## final  value 19959.334000
## converged
## # weights:  25
## initial  value 22366.478813
## final  value 19959.334000
## converged
## # weights:  41
## initial  value 22828.295817
## final  value 19959.334000
## converged
## # weights:  9
## initial  value 22514.753931
## iter  10 value 19967.829519
## final  value 19964.842206
## converged
## # weights:  25
## initial  value 22266.094381
## iter  10 value 19963.983083
## final  value 19963.308621
## converged
## # weights:  41
## initial  value 23225.250482
## iter  10 value 19973.737631
## iter  20 value 19962.649613
## iter  20 value 19962.649460
## iter  20 value 19962.649445
## final  value 19962.649445
## converged
## # weights:  9
## initial  value 23054.202183
## iter  10 value 19968.989362
## iter  20 value 19959.445319
## iter  20 value 19959.445274
## final  value 19959.445274
## converged
## # weights:  25
## initial  value 22317.889824
## iter  10 value 19977.754301
## iter  20 value 19959.546372
## final  value 19959.350878
## converged
## # weights:  41
## initial  value 21824.339004
```

```
## iter   10 value 19973.486506
## iter   20 value 19959.497167
## final   value 19959.343426
## converged
## # weights:  9
## initial   value 23036.914442
## final   value 20045.864500
## converged
## # weights:  25
## initial   value 22855.803677
## final   value 20045.864500
## converged
## # weights:  41
## initial   value 23236.898796
## final   value 20045.864500
## converged
## # weights:  9
## initial   value 22334.262527
## iter   10 value 20052.180900
## final   value 20051.374878
## converged
## # weights:  25
## initial   value 23929.918103
## iter   10 value 20051.265977
## final   value 20049.840471
## converged
## # weights:  41
## initial   value 23614.329471
## iter   10 value 20051.029649
## final   value 20049.181031
## converged
## # weights:  9
## initial   value 22580.646060
## iter   10 value 20057.742939
## iter   20 value 20046.001449
## iter   20 value 20046.001394
## final   value 20046.001394
## converged
## # weights:  25
## initial   value 22193.837930
## iter   10 value 20059.938299
## iter   20 value 20046.026760
## final   value 20045.875685
## converged
## # weights:  41
## initial   value 23825.429410
## iter   10 value 20061.889722
## iter   20 value 20046.049258
## final   value 20045.876201
## converged
## # weights:  9
## initial   value 21895.034761
## final   value 20012.902000
## converged
```

```
## # weights:  25
## initial   value 23792.990867
## final   value 20012.902000
## converged
## # weights:  41
## initial   value 23288.316011
## final   value 20012.902000
## converged
## # weights:  9
## initial   value 23353.396540
## iter  10 value 20019.275896
## final   value 20018.411283
## converged
## # weights:  25
## initial   value 24006.668422
## iter  10 value 20018.582456
## iter  20 value 20016.877473
## iter  20 value 20016.877287
## iter  20 value 20016.877273
## final   value 20016.877273
## converged
## # weights:  41
## initial   value 21843.870425
## iter  10 value 20030.208804
## iter  20 value 20016.226153
## final   value 20016.217900
## converged
## # weights:  9
## initial   value 21962.988840
## iter  10 value 20021.074367
## iter  20 value 20012.996221
## iter  20 value 20012.996183
## final   value 20012.996183
## converged
## # weights:  25
## initial   value 22681.231421
## iter  10 value 20029.304460
## iter  20 value 20013.091107
## final   value 20012.914770
## converged
## # weights:  41
## initial   value 22438.081153
## iter  10 value 20032.250507
## iter  20 value 20013.125073
## final   value 20012.913813
## converged
## # weights:  9
## initial   value 21386.502704
## final   value 19915.790500
## converged
## # weights:  25
## initial   value 23190.978219
## final   value 19915.790500
## converged
```

```
## # weights:  41
## initial   value 23977.260176
## final   value 19915.790500
## converged
## # weights:  9
## initial   value 23315.659676
## iter   10 value 19922.123774
## final   value 19921.297957
## converged
## # weights:  25
## initial   value 22990.102764
## iter   10 value 19928.567302
## iter   20 value 19919.793556
## final   value 19919.764626
## converged
## # weights:  41
## initial   value 22659.282834
## iter   10 value 19932.478775
## iter   20 value 19919.111063
## final   value 19919.105476
## converged
## # weights:  9
## initial   value 22147.568647
## iter   10 value 19925.559233
## iter   20 value 19915.903126
## iter   20 value 19915.903081
## final   value 19915.903081
## converged
## # weights:  25
## initial   value 21971.541639
## iter   10 value 19928.025635
## iter   20 value 19915.931562
## final   value 19915.803785
## converged
## # weights:  41
## initial   value 22991.056736
## iter   10 value 19934.170217
## iter   20 value 19916.002404
## final   value 19915.802666
## converged
## # weights:  9
## initial   value 22848.478103
## final   value 20004.647600
## converged
## # weights:  25
## initial   value 22085.172450
## final   value 20004.647600
## converged
## # weights:  41
## initial   value 21279.462059
## final   value 20004.647600
## converged
## # weights:  9
## initial   value 22498.371128
```

```
## iter  10 value 20010.499751
## final   value 20010.156678
## converged
## # weights:  25
## initial   value 23405.770503
## iter  10 value 20010.709888
## final   value 20008.622758
## converged
## # weights:  41
## initial   value 23012.029457
## iter  10 value 20012.138238
## iter  20 value 20007.995851
## final   value 20007.963413
## converged
## # weights:  9
## initial   value 23120.886910
## iter  10 value 20016.043469
## iter  20 value 20004.778985
## iter  20 value 20004.778933
## final   value 20004.778933
## converged
## # weights:  25
## initial   value 23019.868629
## iter  10 value 20019.331423
## iter  20 value 20004.816893
## final   value 20004.664325
## converged
## # weights:  41
## initial   value 22001.296045
## iter  10 value 20018.950541
## iter  20 value 20004.812502
## final   value 20004.657148
## converged
## # weights:  9
## initial   value 23010.569377
## final   value 19992.105200
## converged
## # weights:  25
## initial   value 23061.878768
## final   value 19992.105200
## converged
## # weights:  41
## initial   value 22394.658921
## final   value 19992.105200
## converged
## # weights:  9
## initial   value 22223.458005
## iter  10 value 19997.795315
## final   value 19997.613955
## converged
## # weights:  25
## initial   value 22437.398945
## iter  10 value 19997.475006
## final   value 19996.080161
```

```
## converged
## # weights:  41
## initial  value 22460.330503
## iter  10 value 19996.498835
## iter  20 value 19995.420852
## iter  20 value 19995.420777
## iter  20 value 19995.420772
## final  value 19995.420772
## converged
## # weights:  9
## initial  value 23312.334194
## iter  10 value 20001.318685
## iter  20 value 19992.211424
## iter  20 value 19992.211382
## final  value 19992.211382
## converged
## # weights:  25
## initial  value 22841.322800
## iter  10 value 20006.511873
## iter  20 value 19992.271298
## final  value 19992.125824
## converged
## # weights:  41
## initial  value 23526.756579
## iter  10 value 20010.852674
## iter  20 value 19992.321344
## final  value 19992.118800
## converged
## # weights:  9
## initial  value 22735.004027
## final  value 20042.649200
## converged
## # weights:  25
## initial  value 21621.324465
## final  value 20042.649200
## converged
## # weights:  41
## initial  value 21560.826654
## final  value 20042.649200
## converged
## # weights:  9
## initial  value 23580.942536
## iter  10 value 20048.273111
## final  value 20048.159464
## converged
## # weights:  25
## initial  value 22729.493870
## iter  10 value 20047.165330
## final  value 20046.625142
## converged
## # weights:  41
## initial  value 23229.430969
## iter  10 value 20047.142049
## final  value 20045.965680
```

```
## converged
## # weights:  9
## initial  value 21714.705812
## iter  10 value 20050.139938
## iter  20 value 20042.735562
## iter  20 value 20042.735528
## final  value 20042.735528
## converged
## # weights:  25
## initial  value 22566.239478
## iter  10 value 20057.625276
## iter  20 value 20042.821862
## final  value 20042.663803
## converged
## # weights:  41
## initial  value 22490.808816
## iter  10 value 20060.944698
## iter  20 value 20042.860133
## final  value 20042.662101
## converged
## # weights:  9
## initial  value 22724.940714
## final  value 19993.947700
## converged
## # weights:  25
## initial  value 22842.153458
## final  value 19993.947700
## converged
## # weights:  41
## initial  value 23215.893199
## final  value 19993.947700
## converged
## # weights:  9
## initial  value 22855.484798
## iter  10 value 20004.552683
## final  value 19999.456527
## converged
## # weights:  25
## initial  value 22365.908306
## iter  10 value 19999.223216
## iter  20 value 19997.922689
## iter  20 value 19997.922657
## iter  20 value 19997.922656
## final  value 19997.922656
## converged
## # weights:  41
## initial  value 22585.243043
## iter  10 value 19997.979771
## iter  20 value 19997.263376
## iter  20 value 19997.263329
## iter  20 value 19997.263327
## final  value 19997.263327
## converged
## # weights:  9
```

```
## initial  value 22192.016315
## iter  10 value 20003.978406
## iter  20 value 19994.063346
## iter  20 value 19994.063300
## final  value 19994.063300
## converged
## # weights:  25
## initial  value 21383.126119
## iter  10 value 20002.033140
## iter  20 value 19994.040919
## final  value 19993.959803
## converged
## # weights:  41
## initial  value 23767.432094
## iter  10 value 20010.047300
## iter  20 value 19994.133316
## final  value 19993.959407
## converged
## # weights:  9
## initial  value 22214.075214
## final  value 19988.865700
## converged
## # weights:  25
## initial  value 22905.916418
## final  value 19988.865700
## converged
## # weights:  41
## initial  value 22598.137553
## final  value 19988.865700
## converged
## # weights:  9
## initial  value 22643.494761
## iter  10 value 19996.514357
## final  value 19994.374355
## converged
## # weights:  25
## initial  value 22871.985217
## iter  10 value 19994.448379
## final  value 19992.840560
## converged
## # weights:  41
## initial  value 23158.850078
## iter  10 value 19994.726506
## iter  20 value 19992.181695
## final  value 19992.181237
## converged
## # weights:  9
## initial  value 22996.307541
## iter  10 value 20000.787126
## iter  20 value 19989.003145
## iter  20 value 19989.003090
## final  value 19989.003090
## converged
## # weights:  25
```

```
## initial  value 21057.633536
## iter  10 value 19994.959844
## iter  20 value 19988.935961
## final  value 19988.875989
## converged
## # weights:  41
## initial  value 21683.995309
## iter  10 value 20003.809649
## iter  20 value 19989.037992
## final  value 19988.876454
## converged
## # weights:  9
## initial  value 22189.787157
## final  value 20022.720500
## converged
## # weights:  25
## initial  value 21829.473513
## final  value 20022.720500
## converged
## # weights:  41
## initial  value 24290.670818
## final  value 20022.720500
## converged
## # weights:  9
## initial  value 22211.907773
## iter  10 value 20030.211323
## final  value 20028.229983
## converged
## # weights:  25
## initial  value 22355.108237
## iter  10 value 20027.156404
## iter  20 value 20026.697829
## final  value 20026.695866
## converged
## # weights:  41
## initial  value 24491.298723
## iter  10 value 20034.722521
## iter  20 value 20026.036969
## final  value 20026.036498
## converged
## # weights:  9
## initial  value 23295.373136
## iter  10 value 20032.415738
## iter  20 value 20022.832278
## iter  20 value 20022.832234
## final  value 20022.832234
## converged
## # weights:  25
## initial  value 24646.374254
## iter  10 value 20028.045148
## iter  20 value 20022.781889
## final  value 20022.747149
## converged
## # weights:  41
```

```
## initial  value 21629.100507
## iter  10 value 20037.771303
## iter  20 value 20022.894024
## final  value 20022.730557
## converged
## # weights:  9
## initial  value 23062.720819
## final  value 20054.818000
## converged
## # weights:  25
## initial  value 22228.872181
## final  value 20054.818000
## converged
## # weights:  41
## initial  value 23124.182065
## final  value 20054.818000
## converged
## # weights:  9
## initial  value 23454.974155
## iter  10 value 20060.959253
## final  value 20060.328896
## converged
## # weights:  25
## initial  value 22371.402545
## iter  10 value 20064.521426
## iter  20 value 20058.795002
## final  value 20058.794377
## converged
## # weights:  41
## initial  value 21712.300747
## iter  10 value 20063.345332
## iter  20 value 20058.134947
## iter  20 value 20058.134849
## iter  20 value 20058.134804
## final  value 20058.134804
## converged
## # weights:  9
## initial  value 23018.071655
## iter  10 value 20066.157751
## iter  20 value 20054.948738
## iter  20 value 20054.948686
## final  value 20054.948686
## converged
## # weights:  25
## initial  value 23009.967658
## iter  10 value 20070.521938
## iter  20 value 20054.999054
## final  value 20054.838569
## converged
## # weights:  41
## initial  value 23562.789974
## iter  10 value 20071.597248
## iter  20 value 20055.011452
## final  value 20054.829373
```

```
## converged
## # weights:  9
## initial  value 22910.687227
## final  value 19976.494000
## converged
## # weights:  25
## initial  value 23551.711861
## final  value 19976.494000
## converged
## # weights:  41
## initial  value 23798.127807
## final  value 19976.494000
## converged
## # weights:  9
## initial  value 22409.761180
## iter  10 value 19982.537478
## final  value 19982.002447
## converged
## # weights:  25
## initial  value 23319.637133
## iter  10 value 19982.286441
## iter  20 value 19980.468819
## iter  20 value 19980.468735
## iter  20 value 19980.468717
## final  value 19980.468717
## converged
## # weights:  41
## initial  value 23960.822969
## iter  10 value 19993.759372
## iter  20 value 19979.816963
## final  value 19979.809506
## converged
## # weights:  9
## initial  value 21911.304917
## iter  10 value 19985.135743
## iter  20 value 19976.593633
## iter  20 value 19976.593593
## final  value 19976.593593
## converged
## # weights:  25
## initial  value 23152.569410
## iter  10 value 19992.630701
## iter  20 value 19976.680043
## final  value 19976.508182
## converged
## # weights:  41
## initial  value 22651.210472
## iter  10 value 19997.662928
## iter  20 value 19976.738061
## final  value 19976.503964
## converged
## # weights:  9
## initial  value 21743.095830
## final  value 19941.950000
```

```
## converged
## # weights:  25
## initial  value 23966.361345
## final  value 19941.950000
## converged
## # weights:  41
## initial  value 22176.405747
## final  value 19941.950000
## converged
## # weights:  9
## initial  value 21952.609382
## iter  10 value 19948.633554
## final  value 19947.457872
## converged
## # weights:  25
## initial  value 22273.551774
## iter  10 value 19946.891220
## final  value 19945.924359
## converged
## # weights:  41
## initial  value 22144.093616
## iter  10 value 19948.508289
## iter  20 value 19945.265620
## final  value 19945.265197
## converged
## # weights:  9
## initial  value 22517.651235
## iter  10 value 19952.963568
## iter  20 value 19942.076978
## iter  20 value 19942.076927
## final  value 19942.076927
## converged
## # weights:  25
## initial  value 22678.659438
## iter  10 value 19958.580330
## iter  20 value 19942.141735
## final  value 19941.971325
## converged
## # weights:  41
## initial  value 23088.427315
## iter  10 value 19961.058084
## iter  20 value 19942.170301
## final  value 19941.963673
## converged
## # weights:  9
## initial  value 22349.969194
## final  value 20049.627700
## converged
## # weights:  25
## initial  value 22452.506638
## final  value 20049.627700
## converged
## # weights:  41
## initial  value 22988.543074
```

```
## final   value 20049.627700
## converged
## # weights:  9
## initial  value 21793.881256
## iter  10 value 20055.349721
## final   value 20055.138321
## converged
## # weights:  25
## initial  value 23050.098682
## iter  10 value 20054.590351
## final   value 20053.603907
## converged
## # weights:  41
## initial  value 23371.291794
## iter  10 value 20054.595864
## iter  20 value 20052.944752
## final   value 20052.944332
## converged
## # weights:  9
## initial  value 23390.988573
## iter  10 value 20058.690036
## iter  20 value 20049.732182
## iter  20 value 20049.732140
## final   value 20049.732140
## converged
## # weights:  25
## initial  value 23033.288081
## iter  10 value 20063.986596
## iter  20 value 20049.793247
## final   value 20049.643440
## converged
## # weights:  41
## initial  value 24001.824644
## iter  10 value 20062.297294
## iter  20 value 20049.773770
## final   value 20049.641614
## converged
## # weights:  9
## initial  value 22216.675911
## final   value 20016.657700
## converged
## # weights:  25
## initial  value 24049.916833
## final   value 20016.657700
## converged
## # weights:  41
## initial  value 23906.310146
## final   value 20016.657700
## converged
## # weights:  9
## initial  value 23662.338476
## iter  10 value 20022.931168
## final   value 20022.167082
## converged
```

```
## # weights:  25
## initial  value 21787.900278
## iter  10 value 20021.769521
## final  value 20020.633113
## converged
## # weights:  41
## initial  value 22829.325026
## iter  10 value 20020.488623
## final  value 20019.973646
## converged
## # weights:  9
## initial  value 22152.461506
## iter  10 value 20027.299936
## iter  20 value 20016.780397
## iter  20 value 20016.780348
## final  value 20016.780348
## converged
## # weights:  25
## initial  value 22204.330311
## iter  10 value 20029.071805
## iter  20 value 20016.800825
## final  value 20016.671250
## converged
## # weights:  41
## initial  value 21596.158572
## iter  10 value 20029.736588
## iter  20 value 20016.808489
## final  value 20016.667942
## converged
## # weights:  9
## initial  value 22612.569489
## final  value 20002.641700
## converged
## # weights:  25
## initial  value 23639.106791
## final  value 20002.641700
## converged
## # weights:  41
## initial  value 22112.523917
## final  value 20002.641700
## converged
## # weights:  9
## initial  value 21755.247517
## iter  10 value 20008.894691
## final  value 20008.150725
## converged
## # weights:  25
## initial  value 23726.397587
## iter  10 value 20008.769638
## final  value 20006.616917
## converged
## # weights:  41
## initial  value 22715.496023
## iter  10 value 20006.669975
```

```
## final   value 20005.957455
## converged
## # weights:  9
## initial   value 22532.125262
## iter  10 value 20012.804163
## iter  20 value 20002.758865
## iter  20 value 20002.758818
## final   value 20002.758818
## converged
## # weights:  25
## initial   value 21778.727266
## iter  10 value 20013.508499
## iter  20 value 20002.766986
## final   value 20002.653432
## converged
## # weights:  41
## initial   value 23386.353989
## iter  10 value 20018.898567
## iter  20 value 20002.829129
## final   value 20002.651719
## converged
## # weights:  9
## initial   value 21547.635831
## final   value 19982.170100
## converged
## # weights:  25
## initial   value 22378.903966
## final   value 19982.170100
## converged
## # weights:  41
## initial   value 22893.658561
## final   value 19982.170100
## converged
## # weights:  9
## initial   value 23697.836509
## iter  10 value 19987.909242
## final   value 19987.678678
## converged
## # weights:  25
## initial   value 22497.211046
## iter  10 value 19986.941270
## final   value 19986.144883
## converged
## # weights:  41
## initial   value 23665.315274
## iter  10 value 19999.870841
## iter  20 value 19985.488542
## final   value 19985.485640
## converged
## # weights:  9
## initial   value 21289.995032
## iter  10 value 19988.449309
## iter  20 value 19982.242494
## iter  20 value 19982.242465
```

```
## final   value 19982.242465
## converged
## # weights:  25
## initial   value 22151.931353
## iter  10 value 19995.393660
## iter  20 value 19982.322557
## final   value 19982.182271
## converged
## # weights:  41
## initial   value 22902.906600
## iter  10 value 20001.929992
## iter  20 value 19982.397916
## final   value 19982.180894
## converged
## # weights:  9
## initial   value 22299.724740
## final   value 20028.360100
## converged
## # weights:  25
## initial   value 21434.629214
## final   value 20028.360100
## converged
## # weights:  41
## initial   value 22748.384055
## final   value 20028.360100
## converged
## # weights:  9
## initial   value 21637.522720
## iter  10 value 20034.554600
## final   value 20033.869791
## converged
## # weights:  25
## initial   value 23982.000073
## iter  10 value 20040.478886
## iter  20 value 20032.388400
## final   value 20032.335744
## converged
## # weights:  41
## initial   value 23045.061910
## iter  10 value 20033.847204
## final   value 20031.676308
## converged
## # weights:  9
## initial   value 23281.829157
## iter  10 value 20038.785458
## iter  20 value 20028.480296
## iter  20 value 20028.480248
## final   value 20028.480248
## converged
## # weights:  25
## initial   value 22181.087399
## iter  10 value 20042.187342
## iter  20 value 20028.519517
## final   value 20028.376516
```

```
## converged
## # weights:  41
## initial  value 24181.976760
## iter  10 value 20041.776495
## iter  20 value 20028.514781
## final  value 20028.374443
## converged
## # weights:  9
## initial  value 23059.544391
## final  value 20046.848500
## converged
## # weights:  25
## initial  value 22077.439986
## final  value 20046.848500
## converged
## # weights:  41
## initial  value 23009.412602
## final  value 20046.848500
## converged
## # weights:  9
## initial  value 22312.572201
## iter  10 value 20052.380179
## final  value 20052.358953
## converged
## # weights:  25
## initial  value 23388.005869
## iter  10 value 20052.063847
## final  value 20050.824612
## converged
## # weights:  41
## initial  value 23936.773930
## iter  10 value 20058.766185
## iter  20 value 20050.169457
## final  value 20050.165029
## converged
## # weights:  9
## initial  value 23133.535864
## iter  10 value 20057.915461
## iter  20 value 20046.976093
## iter  20 value 20046.976042
## final  value 20046.976042
## converged
## # weights:  25
## initial  value 22757.250116
## iter  10 value 20062.585335
## iter  20 value 20047.029933
## final  value 20046.864936
## converged
## # weights:  41
## initial  value 21498.736623
## iter  10 value 20058.055916
## iter  20 value 20046.977713
## final  value 20046.858420
## converged
```

```
## # weights:  9
## initial  value 21987.233804
## final  value 20044.160500
## converged
## # weights:  25
## initial  value 23749.220303
## final  value 20044.160500
## converged
## # weights:  41
## initial  value 21846.493905
## final  value 20044.160500
## converged
## # weights:  9
## initial  value 22795.193622
## iter  10 value 20050.180964
## final  value 20049.670809
## converged
## # weights:  25
## initial  value 21383.629284
## iter  10 value 20049.885101
## iter  20 value 20048.170733
## final  value 20048.136432
## converged
## # weights:  41
## initial  value 22956.824437
## iter  10 value 20051.130149
## iter  20 value 20047.477352
## final  value 20047.476918
## converged
## # weights:  9
## initial  value 23269.026177
## iter  10 value 20053.748985
## iter  20 value 20044.271048
## iter  20 value 20044.271003
## final  value 20044.271003
## converged
## # weights:  25
## initial  value 23211.188215
## iter  10 value 20059.949209
## iter  20 value 20044.342531
## final  value 20044.173145
## converged
## # weights:  41
## initial  value 22580.226418
## iter  10 value 20065.322174
## iter  20 value 20044.404477
## final  value 20044.172144
## converged
## # weights:  9
## initial  value 21756.560432
## final  value 20046.767600
## converged
## # weights:  25
## initial  value 22187.873304
```

```
## final   value 20046.767600
## converged
## # weights:  41
## initial  value 22248.461333
## final   value 20046.767600
## converged
## # weights:  9
## initial  value 23470.932850
## iter  10 value 20052.759475
## final   value 20052.278056
## converged
## # weights:  25
## initial  value 23016.710003
## iter  10 value 20051.741213
## iter  20 value 20050.750978
## final   value 20050.743679
## converged
## # weights:  41
## initial  value 22308.983614
## iter  10 value 20059.926962
## iter  20 value 20050.085736
## final   value 20050.084182
## converged
## # weights:  9
## initial  value 22143.737647
## iter  10 value 20055.395471
## iter  20 value 20046.867073
## iter  20 value 20046.867033
## final   value 20046.867033
## converged
## # weights:  25
## initial  value 23649.595545
## iter  10 value 20060.212403
## iter  20 value 20046.922608
## final   value 20046.786938
## converged
## # weights:  41
## initial  value 22186.083684
## iter  10 value 20065.724921
## iter  20 value 20046.986163
## final   value 20046.778111
## converged
## # weights:  9
## initial  value 23005.625840
## final   value 19996.584500
## converged
## # weights:  25
## initial  value 22852.382438
## final   value 19996.584500
## converged
## # weights:  41
## initial  value 20889.043477
## final   value 19996.584500
## converged
```

```
## # weights:  9
## initial   value 23295.201479
## iter  10 value 20002.555535
## final   value 20002.093253
## converged
## # weights:  25
## initial   value 23552.844873
## iter  10 value 20001.462909
## final   value 20000.559455
## converged
## # weights:  41
## initial   value 22472.405404
## iter  10 value 20001.392113
## final   value 19999.900084
## converged
## # weights:  9
## initial   value 21800.750792
## iter  10 value 20006.013384
## iter  20 value 19996.693208
## iter  20 value 19996.693164
## final   value 19996.693164
## converged
## # weights:  25
## initial   value 22140.348447
## iter  10 value 20010.107964
## iter  20 value 19996.740415
## final   value 19996.598655
## converged
## # weights:  41
## initial   value 22321.618034
## iter  10 value 20016.698814
## iter  20 value 19996.816402
## final   value 19996.594839
## converged
## # weights:  9
## initial   value 22633.094505
## final   value 20055.771700
## converged
## # weights:  25
## initial   value 22852.017329
## final   value 20055.771700
## converged
## # weights:  41
## initial   value 23639.757459
## final   value 20055.771700
## converged
## # weights:  9
## initial   value 21795.606495
## iter  10 value 20062.411782
## final   value 20061.282667
## converged
## # weights:  25
## initial   value 22929.857625
## iter  10 value 20060.119827
```

```
## final   value 20059.748098
## converged
## # weights:  41
## initial   value 21683.219185
## iter  10 value 20061.571580
## iter  20 value 20059.088695
## iter  20 value 20059.088585
## iter  20 value 20059.088556
## final   value 20059.088556
## converged
## # weights:  9
## initial   value 23740.559734
## iter  10 value 20063.991185
## iter  20 value 20055.866464
## iter  20 value 20055.866426
## final   value 20055.866426
## converged
## # weights:  25
## initial   value 24117.539518
## iter  10 value 20064.350554
## iter  20 value 20055.870607
## final   value 20055.795530
## converged
## # weights:  41
## initial   value 22009.963251
## iter  10 value 20071.305858
## iter  20 value 20055.950797
## iter  30 value 20055.781032
## iter  30 value 20055.781030
## iter  30 value 20055.781027
## final   value 20055.781027
## converged
## # weights:  9
## initial   value 22246.091905
## final   value 20009.734000
## converged
## # weights:  25
## initial   value 23034.689147
## final   value 20009.734000
## converged
## # weights:  41
## initial   value 22448.622285
## final   value 20009.734000
## converged
## # weights:  9
## initial   value 22243.349844
## iter  10 value 20015.898830
## final   value 20015.243198
## converged
## # weights:  25
## initial   value 22863.701757
## iter  10 value 20014.520375
## final   value 20013.709228
## converged
```

```
## # weights:  41
## initial   value 23897.928657
## iter   10 value 20030.639179
## iter   20 value 20013.054125
## final   value 20013.049874
## converged
## # weights:  9
## initial   value 23348.654002
## iter   10 value 20020.505440
## iter   20 value 20009.858186
## iter   20 value 20009.858137
## final   value 20009.858137
## converged
## # weights:  25
## initial   value 22706.734667
## iter   10 value 20024.691334
## iter   20 value 20009.906446
## final   value 20009.748896
## converged
## # weights:  41
## initial   value 22536.695679
## iter   10 value 20028.874068
## iter   20 value 20009.954670
## final   value 20009.744050
## converged
## # weights:  9
## initial   value 22866.667811
## final   value 20041.640500
## converged
## # weights:  25
## initial   value 23420.074490
## final   value 20041.640500
## converged
## # weights:  41
## initial   value 22975.286096
## final   value 20041.640500
## converged
## # weights:  9
## initial   value 22975.110063
## iter   10 value 20048.386311
## final   value 20047.150731
## converged
## # weights:  25
## initial   value 22519.430586
## iter   10 value 20046.679557
## final   value 20045.616424
## converged
## # weights:  41
## initial   value 23576.646793
## iter   10 value 20047.404759
## iter   20 value 20044.957062
## iter   20 value 20044.956943
## iter   20 value 20044.956926
## final   value 20044.956926
```

```
## converged
## # weights:  9
## initial  value 22135.521420
## iter  10 value 20051.976016
## iter  20 value 20041.759660
## iter  20 value 20041.759613
## final  value 20041.759613
## converged
## # weights:  25
## initial  value 22893.230241
## iter  10 value 20055.406575
## iter  20 value 20041.799212
## final  value 20041.663576
## converged
## # weights:  41
## initial  value 22499.671807
## iter  10 value 20058.331459
## iter  20 value 20041.832934
## final  value 20041.651158
## converged
## # weights:  9
## initial  value 22004.620334
## final  value 19989.553700
## converged
## # weights:  25
## initial  value 22124.202489
## final  value 19989.553700
## converged
## # weights:  41
## initial  value 21735.966923
## final  value 19989.553700
## converged
## # weights:  9
## initial  value 21896.758500
## iter  10 value 19995.707673
## final  value 19995.062455
## converged
## # weights:  25
## initial  value 22842.782620
## iter  10 value 19994.321057
## final  value 19993.528649
## converged
## # weights:  41
## initial  value 22282.144801
## iter  10 value 20004.460047
## iter  20 value 19992.869487
## iter  20 value 19992.869396
## iter  20 value 19992.869389
## final  value 19992.869389
## converged
## # weights:  9
## initial  value 22211.461489
## iter  10 value 20000.229427
## iter  20 value 19989.676783
```

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```
## iter  20 value 19989.676734
## final  value 19989.676734
## converged
## # weights:  25
## initial  value 23157.977498
## iter  10 value 20003.267874
## iter  20 value 19989.711814
## final  value 19989.569096
## converged
## # weights:  41
## initial  value 22714.260412
## iter  10 value 20008.693648
## iter  20 value 19989.774369
## final  value 19989.563386
## converged
## # weights:  9
## initial  value 22158.971214
## final  value 20018.146000
## converged
## # weights:  25
## initial  value 22387.180339
## final  value 20018.146000
## converged
## # weights:  41
## initial  value 21878.619607
## final  value 20018.146000
## converged
## # weights:  9
## initial  value 22552.624967
## iter  10 value 20024.945518
## final  value 20023.655412
## converged
## # weights:  25
## initial  value 21886.634656
## iter  10 value 20022.900928
## final  value 20022.121340
## converged
## # weights:  41
## initial  value 23709.322726
## iter  10 value 20042.459460
## iter  20 value 20021.466692
## final  value 20021.462050
## converged
## # weights:  9
## initial  value 23917.201841
## iter  10 value 20025.790782
## iter  20 value 20018.234138
## iter  20 value 20018.234103
## final  value 20018.234103
## converged
## # weights:  25
## initial  value 22784.179933
## iter  10 value 20033.144549
## iter  20 value 20018.318921
```

```
## iter  30 value 20018.159386
## final   value 20018.159006
## converged
## # weights:  41
## initial   value 23075.361523
## iter  10 value 20037.395249
## iter  20 value 20018.367929
## final   value 20018.155893
## converged
## # weights:  9
## initial   value 23649.044170
## final   value 20052.930100
## converged
## # weights:  25
## initial   value 22964.812810
## final   value 20052.930100
## converged
## # weights:  41
## initial   value 22459.221004
## final   value 20052.930100
## converged
## # weights:  9
## initial   value 22652.057984
## iter  10 value 20061.397832
## final   value 20058.440955
## converged
## # weights:  25
## initial   value 23830.927724
## iter  10 value 20057.700811
## iter  20 value 20056.907048
## final   value 20056.906468
## converged
## # weights:  41
## initial   value 24094.481722
## iter  10 value 20058.013406
## iter  20 value 20056.247112
## iter  20 value 20056.246960
## iter  20 value 20056.246946
## final   value 20056.246946
## converged
## # weights:  9
## initial   value 23280.513298
## iter  10 value 20063.427662
## iter  20 value 20053.051129
## iter  20 value 20053.051080
## final   value 20053.051080
## converged
## # weights:  25
## initial   value 23801.800121
## iter  10 value 20065.461655
## iter  20 value 20053.074579
## final   value 20052.944860
## converged
## # weights:  41
```

```
## initial  value 22442.285970
## iter  10 value 20068.954962
## iter  20 value 20053.114854
## final  value 20052.940714
## converged
## # weights:  9
## initial  value 22043.791518
## final  value 20004.341200
## converged
## # weights:  25
## initial  value 22669.995720
## final  value 20004.341200
## converged
## # weights:  41
## initial  value 21706.999789
## final  value 20004.341200
## converged
## # weights:  9
## initial  value 22714.977520
## iter  10 value 20010.492807
## final  value 20009.850250
## converged
## # weights:  25
## initial  value 21960.481019
## iter  10 value 20009.443210
## final  value 20008.316330
## converged
## # weights:  41
## initial  value 23785.586900
## iter  10 value 20010.928904
## iter  20 value 20007.657093
## iter  20 value 20007.656977
## iter  20 value 20007.656970
## final  value 20007.656970
## converged
## # weights:  9
## initial  value 23278.658042
## iter  10 value 20013.930590
## iter  20 value 20004.451758
## iter  20 value 20004.451714
## final  value 20004.451714
## converged
## # weights:  25
## initial  value 23984.346991
## iter  10 value 20013.747415
## iter  20 value 20004.449646
## final  value 20004.365926
## converged
## # weights:  41
## initial  value 23325.135646
## iter  10 value 20020.035263
## iter  20 value 20004.522140
## final  value 20004.356654
## converged
```

```
## # weights:  9
## initial   value 22227.478835
## final   value 20057.069200
## converged
## # weights:  25
## initial   value 23049.714773
## final   value 20057.069200
## converged
## # weights:  41
## initial   value 23640.677168
## final   value 20057.069200
## converged
## # weights:  9
## initial   value 23396.537485
## iter   10 value 20062.797946
## final   value 20062.580204
## converged
## # weights:  25
## initial   value 22376.749370
## iter   10 value 20061.836714
## final   value 20061.045728
## converged
## # weights:  41
## initial   value 21864.360643
## iter   10 value 20061.740764
## iter   20 value 20060.386081
## iter   20 value 20060.386008
## iter   20 value 20060.386001
## final   value 20060.386001
## converged
## # weights:  9
## initial   value 22651.594262
## iter   10 value 20067.447241
## iter   20 value 20057.188851
## iter   20 value 20057.188803
## final   value 20057.188803
## converged
## # weights:  25
## initial   value 22913.108060
## iter   10 value 20071.527690
## iter   20 value 20057.235895
## final   value 20057.081037
## converged
## # weights:  41
## initial   value 23198.151479
## iter   10 value 20074.896433
## iter   20 value 20057.274734
## final   value 20057.080822
## converged
## # weights:  9
## initial   value 23487.670382
## final   value 20046.195700
## converged
## # weights:  25
```

```
## initial  value 24181.479267
## final  value 20046.195700
## converged
## # weights:  41
## initial  value 23597.953761
## final  value 20046.195700
## converged
## # weights:  9
## initial  value 22227.948672
## iter  10 value 20052.676195
## final  value 20051.706088
## converged
## # weights:  25
## initial  value 22773.588096
## iter  10 value 20052.820818
## iter  20 value 20050.171944
## iter  20 value 20050.171806
## iter  20 value 20050.171742
## final  value 20050.171742
## converged
## # weights:  41
## initial  value 21803.131309
## iter  10 value 20050.596771
## iter  20 value 20049.512196
## iter  20 value 20049.512162
## iter  20 value 20049.512157
## final  value 20049.512157
## converged
## # weights:  9
## initial  value 22113.406455
## iter  10 value 20055.004485
## iter  20 value 20046.297258
## iter  20 value 20046.297218
## final  value 20046.297218
## converged
## # weights:  25
## initial  value 22881.117580
## iter  10 value 20063.737063
## iter  20 value 20046.397938
## final  value 20046.215094
## converged
## # weights:  41
## initial  value 23036.574002
## iter  10 value 20063.650572
## iter  20 value 20046.396941
## final  value 20046.205419
## converged
## # weights:  9
## initial  value 23956.204750
## final  value 20018.681200
## converged
## # weights:  25
## initial  value 22506.668831
## final  value 20018.681200
```

```
## converged
## # weights:  41
## initial  value 21536.160499
## final  value 20018.681200
## converged
## # weights:  9
## initial  value 22528.216766
## iter  10 value 20037.170385
## iter  20 value 20024.190663
## iter  20 value 20024.190630
## final  value 20024.190630
## converged
## # weights:  25
## initial  value 21970.836459
## iter  10 value 20023.524523
## final  value 20022.656552
## converged
## # weights:  41
## initial  value 21547.592925
## iter  10 value 20034.061314
## final  value 20021.997241
## converged
## # weights:  9
## initial  value 22551.755265
## iter  10 value 20029.267272
## iter  20 value 20018.803249
## iter  20 value 20018.803200
## final  value 20018.803200
## converged
## # weights:  25
## initial  value 24013.815129
## iter  10 value 20028.429360
## iter  20 value 20018.793589
## final  value 20018.698756
## converged
## # weights:  41
## initial  value 21858.841920
## iter  10 value 20033.712918
## iter  20 value 20018.854504
## final  value 20018.690649
## converged
## # weights:  9
## initial  value 21793.254863
## final  value 20040.986000
## converged
## # weights:  25
## initial  value 22712.516076
## final  value 20040.986000
## converged
## # weights:  41
## initial  value 22560.637289
## final  value 20040.986000
## converged
## # weights:  9
```

```
## initial  value 21783.853828
## iter  10 value 20046.886295
## final  value 20046.496190
## converged
## # weights:  25
## initial  value 22428.835167
## iter  10 value 20046.581839
## final  value 20044.961913
## converged
## # weights:  41
## initial  value 23432.044428
## iter  10 value 20047.838108
## final  value 20044.302423
## converged
## # weights:  9
## initial  value 23449.068868
## iter  10 value 20050.706816
## iter  20 value 20041.098073
## iter  20 value 20041.098029
## final  value 20041.098029
## converged
## # weights:  25
## initial  value 23057.378586
## iter  10 value 20055.975049
## iter  20 value 20041.158812
## final  value 20041.000449
## converged
## # weights:  41
## initial  value 22661.564209
## iter  10 value 20060.808858
## iter  20 value 20041.214542
## final  value 20040.997625
## converged
## # weights:  9
## initial  value 22272.882215
## final  value 20034.333200
## converged
## # weights:  25
## initial  value 22907.382976
## final  value 20034.333200
## converged
## # weights:  41
## initial  value 21729.319872
## final  value 20034.333200
## converged
## # weights:  9
## initial  value 23734.053075
## iter  10 value 20040.457398
## final  value 20039.843117
## converged
## # weights:  25
## initial  value 21513.662813
## iter  10 value 20041.149703
## iter  20 value 20038.344023
```

```
## final   value 20038.308916
## converged
## # weights:  41
## initial   value 22239.336218
## iter  10 value 20049.484307
## iter  20 value 20037.652842
## final   value 20037.649471
## converged
## # weights:  9
## initial   value 21786.590461
## iter  10 value 20041.522666
## iter  20 value 20034.416089
## iter  20 value 20034.416056
## final   value 20034.416056
## converged
## # weights:  25
## initial   value 23072.432604
## iter  10 value 20048.726493
## iter  20 value 20034.499143
## final   value 20034.345506
## converged
## # weights:  41
## initial   value 22713.409348
## iter  10 value 20053.258464
## iter  20 value 20034.551393
## final   value 20034.342764
## converged
## # weights:  9
## initial   value 22690.890095
## final   value 20017.337200
## converged
## # weights:  25
## initial   value 23086.098820
## final   value 20017.337200
## converged
## # weights:  41
## initial   value 22761.369972
## final   value 20017.337200
## converged
## # weights:  9
## initial   value 22969.970901
## iter  10 value 20023.780700
## final   value 20022.846599
## converged
## # weights:  25
## initial   value 24311.852780
## iter  10 value 20026.665067
## iter  20 value 20021.314244
## final   value 20021.312571
## converged
## # weights:  41
## initial   value 22460.961470
## iter  10 value 20021.279129
## final   value 20020.653149
```

```
## converged
## # weights:  9
## initial  value 22603.338780
## iter  10 value 20027.801281
## iter  20 value 20017.457843
## iter  20 value 20017.457794
## final  value 20017.457794
## converged
## # weights:  25
## initial  value 22710.945053
## iter  10 value 20032.035168
## iter  20 value 20017.506656
## final  value 20017.348724
## converged
## # weights:  41
## initial  value 22399.415623
## iter  10 value 20036.802276
## iter  20 value 20017.561617
## final  value 20017.346602
## converged
## # weights:  9
## initial  value 22413.399842
## final  value 20027.767600
## converged
## # weights:  25
## initial  value 24049.557228
## final  value 20027.767600
## converged
## # weights:  41
## initial  value 22496.254577
## final  value 20027.767600
## converged
## # weights:  9
## initial  value 23829.510325
## iter  10 value 20042.743017
## iter  20 value 20033.277331
## iter  20 value 20033.277291
## final  value 20033.277291
## converged
## # weights:  25
## initial  value 22849.860899
## iter  10 value 20034.152731
## iter  20 value 20031.743160
## iter  20 value 20031.743097
## iter  20 value 20031.743095
## final  value 20031.743095
## converged
## # weights:  41
## initial  value 23347.250333
## iter  10 value 20032.031409
## final  value 20031.083730
## converged
## # weights:  9
## initial  value 22404.327423
```

```
## iter  10 value 20037.556140
## iter  20 value 20027.880454
## iter  20 value 20027.880409
## final   value 20027.880409
## converged
## # weights:  25
## initial   value 22488.008924
## iter  10 value 20043.004929
## iter  20 value 20027.943274
## final   value 20027.779735
## converged
## # weights:  41
## initial   value 21654.008539
## iter  10 value 20039.999184
## iter  20 value 20027.908621
## final   value 20027.777201
## converged
## # weights:  9
## initial   value 22710.645160
## final   value 20044.594000
## converged
## # weights:  25
## initial   value 22241.705558
## final   value 20044.594000
## converged
## # weights:  41
## initial   value 21755.601522
## final   value 20044.594000
## converged
## # weights:  9
## initial   value 21941.775296
## iter  10 value 20050.203942
## final   value 20050.104329
## converged
## # weights:  25
## initial   value 22335.558388
## iter  10 value 20049.468245
## final   value 20048.569988
## converged
## # weights:  41
## initial   value 21779.005675
## iter  10 value 20059.547908
## iter  20 value 20047.916409
## final   value 20047.910487
## converged
## # weights:  9
## initial   value 22777.897683
## iter  10 value 20055.603043
## iter  20 value 20044.720926
## iter  20 value 20044.720875
## final   value 20044.720875
## converged
## # weights:  25
## initial   value 22073.846118
```

```
## iter   10 value 20057.548296
## iter   20 value 20044.743353
## final   value 20044.608404
## converged
## # weights:   41
## initial  value 23574.378938
## iter   10 value 20059.519667
## iter   20 value 20044.766081
## final   value 20044.607811
## converged
## # weights:   9
## initial  value 21682.919402
## final   value 19997.560100
## converged
## # weights:   25
## initial  value 22713.577850
## final   value 19997.560100
## converged
## # weights:   41
## initial  value 23112.980122
## final   value 19997.560100
## converged
## # weights:   9
## initial  value 21393.223052
## iter   10 value 20006.572684
## iter   20 value 20003.102096
## final   value 20003.069001
## converged
## # weights:   25
## initial  value 22290.934881
## iter   10 value 20003.953922
## iter   20 value 20001.558430
## final   value 20001.535108
## converged
## # weights:   41
## initial  value 24063.193424
## iter   10 value 20012.925808
## iter   20 value 20000.876319
## final   value 20000.875827
## converged
## # weights:   9
## initial  value 22587.183998
## iter   10 value 20007.084668
## iter   20 value 19997.669911
## iter   20 value 19997.669867
## final   value 19997.669867
## converged
## # weights:   25
## initial  value 21907.876623
## iter   10 value 20009.370766
## iter   20 value 19997.696268
## final   value 19997.572414
## converged
## # weights:   41
```

```
## initial   value 22977.338468
## iter   10 value 20015.909286
## iter   20 value 19997.771652
## final   value 19997.571693
## converged
## # weights:  9
## initial   value 22679.897528
## final   value 20039.841200
## converged
## # weights:  25
## initial   value 23432.010876
## final   value 20039.841200
## converged
## # weights:  41
## initial   value 22431.532184
## final   value 20039.841200
## converged
## # weights:  9
## initial   value 22309.771485
## iter   10 value 20104.527332
## iter   20 value 20045.660367
## final   value 20045.351314
## converged
## # weights:  25
## initial   value 21932.696500
## iter   10 value 20045.849694
## final   value 20043.817033
## converged
## # weights:  41
## initial   value 22195.859983
## iter   10 value 20044.806537
## iter   20 value 20043.157942
## final   value 20043.157534
## converged
## # weights:  9
## initial   value 22142.180335
## iter   10 value 20049.888751
## iter   20 value 20039.957040
## iter   20 value 20039.956994
## final   value 20039.956994
## converged
## # weights:  25
## initial   value 21655.217073
## iter   10 value 20050.115098
## iter   20 value 20039.959650
## final   value 20039.852993
## converged
## # weights:  41
## initial   value 22745.713689
## iter   10 value 20058.914268
## iter   20 value 20040.061098
## final   value 20039.851675
## converged
## # weights:  9
```

```
## initial  value 21660.125959
## final  value 20032.589200
## converged
## # weights:  25
## initial  value 21722.689049
## final  value 20032.589200
## converged
## # weights:  41
## initial  value 22360.792888
## final  value 20032.589200
## converged
## # weights:  9
## initial  value 22830.950262
## iter  10 value 20114.451044
## iter  20 value 20040.460630
## final  value 20038.099055
## converged
## # weights:  25
## initial  value 23292.284912
## iter  10 value 20072.996521
## iter  20 value 20036.582922
## iter  30 value 20036.565024
## iter  30 value 20036.564900
## iter  30 value 20036.564854
## final  value 20036.564854
## converged
## # weights:  41
## initial  value 23405.413302
## iter  10 value 20037.075833
## final  value 20035.905450
## converged
## # weights:  9
## initial  value 23099.152900
## iter  10 value 20042.883734
## iter  20 value 20032.707888
## iter  20 value 20032.707840
## final  value 20032.707840
## converged
## # weights:  25
## initial  value 21895.029375
## iter  10 value 20046.791354
## iter  20 value 20032.752940
## final  value 20032.601923
## converged
## # weights:  41
## initial  value 23771.864480
## iter  10 value 20047.709171
## iter  20 value 20032.763521
## final  value 20032.604852
## converged
## # weights:  9
## initial  value 22397.969855
## final  value 20047.090000
## converged
```

```
## # weights:  25
## initial  value 22260.796751
## final  value 20047.090000
## converged
## # weights:  41
## initial  value 24167.168274
## final  value 20047.090000
## converged
## # weights:  9
## initial  value 23134.475735
## iter  10 value 20052.617495
## final  value 20052.600488
## converged
## # weights:  25
## initial  value 22818.374367
## iter  10 value 20052.800840
## iter  20 value 20051.066154
## iter  20 value 20051.066092
## iter  20 value 20051.066080
## final  value 20051.066080
## converged
## # weights:  41
## initial  value 22763.850202
## iter  10 value 20052.102765
## final  value 20050.406603
## converged
## # weights:  9
## initial  value 22676.578924
## iter  10 value 20058.592400
## iter  20 value 20047.222614
## iter  20 value 20047.222561
## final  value 20047.222561
## converged
## # weights:  25
## initial  value 23186.417004
## iter  10 value 20061.396491
## iter  20 value 20047.254943
## final  value 20047.102624
## converged
## # weights:  41
## initial  value 23667.223912
## iter  10 value 20064.404602
## iter  20 value 20047.289624
## final  value 20047.103791
## converged
## # weights:  9
## initial  value 23540.899759
## final  value 19942.390000
## converged
## # weights:  25
## initial  value 23514.866870
## final  value 19942.390000
## converged
## # weights:  41
```

```
## initial  value 22750.026101
## final  value 19942.390000
## converged
## # weights:  9
## initial  value 22797.579680
## iter  10 value 19949.230562
## final  value 19947.897900
## converged
## # weights:  25
## initial  value 22760.450312
## iter  10 value 19947.201111
## final  value 19946.364483
## converged
## # weights:  41
## initial  value 24068.758687
## iter  10 value 19958.389672
## iter  20 value 19945.714505
## final  value 19945.705214
## converged
## # weights:  9
## initial  value 22242.824657
## iter  10 value 19951.911844
## iter  20 value 19942.499779
## iter  20 value 19942.499735
## final  value 19942.499735
## converged
## # weights:  25
## initial  value 22572.271024
## iter  10 value 19955.133532
## iter  20 value 19942.536923
## final  value 19942.404421
## converged
## # weights:  41
## initial  value 23056.733021
## iter  10 value 19964.429984
## iter  20 value 19942.644104
## final  value 19942.401387
## converged
## # weights:  9
## initial  value 22746.755689
## final  value 20050.567600
## converged
## # weights:  25
## initial  value 24244.969187
## final  value 20050.567600
## converged
## # weights:  41
## initial  value 21997.812697
## final  value 20050.567600
## converged
## # weights:  9
## initial  value 22778.687611
## iter  10 value 20057.558411
## final  value 20056.078249
```

```
## converged
## # weights:  25
## initial  value 22436.527478
## iter  10 value 20058.538021
## iter  20 value 20054.544303
## final  value 20054.543826
## converged
## # weights:  41
## initial  value 22953.053763
## iter  10 value 20067.555179
## iter  20 value 20053.884509
## iter  20 value 20053.884352
## iter  20 value 20053.884346
## final  value 20053.884346
## converged
## # weights:  9
## initial  value 22405.572376
## iter  10 value 20060.602171
## iter  20 value 20050.683291
## iter  20 value 20050.683244
## final  value 20050.683244
## converged
## # weights:  25
## initial  value 22331.571423
## iter  10 value 20063.629342
## iter  20 value 20050.718192
## final  value 20050.581357
## converged
## # weights:  41
## initial  value 23978.077461
## iter  10 value 20064.563093
## iter  20 value 20050.728957
## final  value 20050.579987
## converged
## # weights:  9
## initial  value 22539.543935
## final  value 19919.649700
## converged
## # weights:  25
## initial  value 23190.863583
## final  value 19919.649700
## converged
## # weights:  41
## initial  value 22307.016653
## final  value 19919.649700
## converged
## # weights:  9
## initial  value 22361.276284
## iter  10 value 19925.996908
## final  value 19925.157281
## converged
## # weights:  25
## initial  value 21405.531647
## iter  10 value 19926.109383
```

```
## final  value 19923.624004
## converged
## # weights:  41
## initial  value 21927.325251
## iter  10 value 19933.756954
## iter  20 value 19922.976432
## final  value 19922.964848
## converged
## # weights:  9
## initial  value 22530.733752
## iter  10 value 19931.094306
## iter  20 value 19919.781647
## iter  20 value 19919.781595
## final  value 19919.781595
## converged
## # weights:  25
## initial  value 22561.779453
## iter  10 value 19935.196006
## iter  20 value 19919.828937
## final  value 19919.660951
## converged
## # weights:  41
## initial  value 22319.510262
## iter  10 value 19937.051470
## iter  20 value 19919.850329
## final  value 19919.662390
## converged
## # weights:  9
## initial  value 22731.261866
## final  value 19981.448500
## converged
## # weights:  25
## initial  value 22621.289518
## final  value 19981.448500
## converged
## # weights:  41
## initial  value 21607.588424
## final  value 19981.448500
## converged
## # weights:  9
## initial  value 22820.658527
## iter  10 value 19987.450692
## final  value 19986.957098
## converged
## # weights:  25
## initial  value 21494.260567
## iter  10 value 19987.452788
## final  value 19985.423409
## converged
## # weights:  41
## initial  value 22553.573186
## iter  10 value 20001.546603
## iter  20 value 19984.764282
## iter  20 value 19984.764160
```

```
## iter  20 value 19984.764109
## final   value 19984.764109
## converged
## # weights:  9
## initial   value 22949.155097
## iter  10 value 19991.931525
## iter  20 value 19981.569361
## iter  20 value 19981.569313
## final   value 19981.569313
## converged
## # weights:  25
## initial   value 23760.417177
## iter  10 value 19992.880558
## iter  20 value 19981.580303
## final   value 19981.464204
## converged
## # weights:  41
## initial   value 22509.335200
## iter  10 value 19998.050527
## iter  20 value 19981.639908
## final   value 19981.458827
## converged
## # weights:  9
## initial   value 23199.417423
## final   value 20024.481700
## converged
## # weights:  25
## initial   value 22470.613969
## final   value 20024.481700
## converged
## # weights:  41
## initial   value 21478.020291
## final   value 20024.481700
## converged
## # weights:  9
## initial   value 22390.086981
## iter  10 value 20047.384933
## iter  20 value 20029.992010
## final   value 20029.991322
## converged
## # weights:  25
## initial   value 22845.226725
## iter  10 value 20029.185611
## final   value 20028.457183
## converged
## # weights:  41
## initial   value 21249.040227
## iter  10 value 20028.999142
## final   value 20027.797808
## converged
## # weights:  9
## initial   value 22116.212030
## iter  10 value 20033.588542
## iter  20 value 20024.586695
```

```
## iter  20 value 20024.586653
## final  value 20024.586653
## converged
## # weights:  25
## initial  value 23116.313174
## iter  10 value 20037.724370
## iter  20 value 20024.634378
## final  value 20024.493813
## converged
## # weights:  41
## initial  value 23172.921474
## iter  10 value 20043.765472
## iter  20 value 20024.704027
## final  value 20024.492356
## converged
## # weights:  9
## initial  value 23169.615442
## final  value 20031.021200
## converged
## # weights:  25
## initial  value 23933.433686
## final  value 20031.021200
## converged
## # weights:  41
## initial  value 21744.566770
## final  value 20031.021200
## converged
## # weights:  9
## initial  value 23213.814530
## iter  10 value 20036.905388
## final  value 20036.531007
## converged
## # weights:  25
## initial  value 22069.899178
## iter  10 value 20036.195393
## final  value 20034.996865
## converged
## # weights:  41
## initial  value 22296.617218
## iter  10 value 20051.477506
## iter  20 value 20034.338387
## final  value 20034.337374
## converged
## # weights:  9
## initial  value 22626.579863
## iter  10 value 20042.157789
## iter  20 value 20031.149596
## iter  20 value 20031.149545
## final  value 20031.149545
## converged
## # weights:  25
## initial  value 22398.745660
## iter  10 value 20045.037231
## iter  20 value 20031.182794
```

```
## final   value 20031.033899
## converged
## # weights:  41
## initial   value 23598.133543
## iter  10 value 20047.992357
## iter  20 value 20031.216864
## final   value 20031.033214
## converged
## # weights:  9
## initial   value 22548.256756
## final   value 20028.005200
## converged
## # weights:  25
## initial   value 23530.619459
## final   value 20028.005200
## converged
## # weights:  41
## initial   value 21908.087638
## final   value 20028.005200
## converged
## # weights:  9
## initial   value 23121.741689
## iter  10 value 20037.227953
## final   value 20033.514910
## converged
## # weights:  25
## initial   value 21358.029958
## iter  10 value 20032.757519
## final   value 20031.980789
## converged
## # weights:  41
## initial   value 22634.739115
## iter  10 value 20050.710083
## iter  20 value 20031.322557
## final   value 20031.321344
## converged
## # weights:  9
## initial   value 21672.157819
## iter  10 value 20035.775984
## iter  20 value 20028.094791
## iter  20 value 20028.094755
## final   value 20028.094755
## converged
## # weights:  25
## initial   value 23692.560317
## iter  10 value 20041.403285
## iter  20 value 20028.159669
## final   value 20028.018669
## converged
## # weights:  41
## initial   value 21218.802583
## iter  10 value 20037.229944
## iter  20 value 20028.111554
## final   value 20028.014560
```

```
## converged
## # weights:  9
## initial  value 23154.067161
## final  value 20016.930100
## converged
## # weights:  25
## initial  value 21777.730531
## final  value 20016.930100
## converged
## # weights:  41
## initial  value 23614.273787
## final  value 20016.930100
## converged
## # weights:  9
## initial  value 23514.232094
## iter  10 value 20022.896804
## final  value 20022.439487
## converged
## # weights:  25
## initial  value 24061.733526
## iter  10 value 20023.903188
## iter  20 value 20020.905527
## iter  20 value 20020.905446
## iter  20 value 20020.905439
## final  value 20020.905439
## converged
## # weights:  41
## initial  value 22787.259392
## iter  10 value 20035.337910
## iter  20 value 20020.248799
## final  value 20020.246067
## converged
## # weights:  9
## initial  value 23603.603954
## iter  10 value 20025.945637
## iter  20 value 20017.034042
## iter  20 value 20017.034000
## final  value 20017.034000
## converged
## # weights:  25
## initial  value 23093.637554
## iter  10 value 20033.644641
## iter  20 value 20017.122806
## final  value 20016.944432
## converged
## # weights:  41
## initial  value 23503.634112
## iter  10 value 20034.830089
## iter  20 value 20017.136473
## final  value 20016.940753
## converged
## # weights:  9
## initial  value 22064.281570
## final  value 20024.481700
```

```
## converged
## # weights:  25
## initial  value 23316.541136
## final  value 20024.481700
## converged
## # weights:  41
## initial  value 22767.294544
## final  value 20024.481700
## converged
## # weights:  9
## initial  value 22473.556799
## iter  10 value 20036.108397
## iter  20 value 20029.992486
## final  value 20029.991353
## converged
## # weights:  25
## initial  value 22716.304455
## iter  10 value 20028.929757
## final  value 20028.457172
## converged
## # weights:  41
## initial  value 23702.385055
## iter  10 value 20028.983917
## final  value 20027.797792
## converged
## # weights:  9
## initial  value 21897.529336
## iter  10 value 20032.452859
## iter  20 value 20024.573601
## iter  20 value 20024.573564
## final  value 20024.573564
## converged
## # weights:  25
## initial  value 23600.120242
## iter  10 value 20036.699626
## iter  20 value 20024.622563
## final  value 20024.498089
## converged
## # weights:  41
## initial  value 22813.814145
## iter  10 value 20042.792147
## iter  20 value 20024.692805
## final  value 20024.491555
## converged
## # weights:  9
## initial  value 23563.146699
## final  value 20057.313700
## converged
## # weights:  25
## initial  value 23712.653990
## final  value 20057.313700
## converged
## # weights:  41
## initial  value 21996.417678
```

```
## final   value 20057.313700
## converged
## # weights:  9
## initial   value 22344.355500
## iter  10 value 20064.955255
## final   value 20062.824846
## converged
## # weights:  25
## initial   value 23386.947797
## iter  10 value 20068.980474
## iter  20 value 20061.291255
## final   value 20061.290267
## converged
## # weights:  41
## initial   value 22390.217406
## iter  10 value 20061.086805
## final   value 20060.630722
## converged
## # weights:  9
## initial   value 22641.342831
## iter  10 value 20068.224352
## iter  20 value 20057.439491
## iter  20 value 20057.439441
## final   value 20057.439441
## converged
## # weights:  25
## initial   value 21926.732599
## iter  10 value 20071.239017
## iter  20 value 20057.474248
## final   value 20057.327898
## converged
## # weights:  41
## initial   value 23610.782608
## iter  10 value 20072.539336
## iter  20 value 20057.489240
## final   value 20057.325976
## converged
## # weights:  9
## initial   value 23198.566173
## final   value 20059.710500
## converged
## # weights:  25
## initial   value 23892.016699
## final   value 20059.710500
## converged
## # weights:  41
## initial   value 23464.214654
## final   value 20059.710500
## converged
## # weights:  9
## initial   value 22987.341900
## iter  10 value 20065.609336
## final   value 20065.221850
## converged
```

```
## # weights:  25
## initial   value 22133.027023
## iter  10 value 20078.590781
## iter  20 value 20063.691208
## final   value 20063.687126
## converged
## # weights:  41
## initial   value 22657.335513
## iter  10 value 20064.706360
## iter  20 value 20063.027738
## iter  20 value 20063.027550
## iter  20 value 20063.027537
## final   value 20063.027537
## converged
## # weights:  9
## initial   value 23584.155583
## iter  10 value 20068.917221
## iter  20 value 20059.816646
## iter  20 value 20059.816604
## final   value 20059.816604
## converged
## # weights:  25
## initial   value 23083.826716
## iter  10 value 20075.103589
## iter  20 value 20059.887970
## final   value 20059.725264
## converged
## # weights:  41
## initial   value 22817.606628
## iter  10 value 20079.101589
## iter  20 value 20059.934064
## final   value 20059.722327
## converged
## # weights:  9
## initial   value 22678.751259
## final   value 19959.334000
## converged
## # weights:  25
## initial   value 22936.345623
## final   value 19959.334000
## converged
## # weights:  41
## initial   value 22689.454864
## final   value 19959.334000
## converged
## # weights:  9
## initial   value 22039.141460
## iter  10 value 19965.475191
## final   value 19964.842162
## converged
## # weights:  25
## initial   value 22294.232559
## iter  10 value 19963.757301
## final   value 19963.308699
```

```
## converged
## # weights:  41
## initial  value 21451.422323
## iter  10 value 19966.261351
## iter  20 value 19962.649799
## final  value 19962.649347
## converged
## # weights:  9
## initial  value 23422.015101
## iter  10 value 19969.713703
## iter  20 value 19959.453670
## iter  20 value 19959.453622
## final  value 19959.453622
## converged
## # weights:  25
## initial  value 22800.958657
## iter  10 value 19976.109355
## iter  20 value 19959.527407
## final  value 19959.346586
## converged
## # weights:  41
## initial  value 23154.272685
## iter  10 value 19979.036475
## iter  20 value 19959.561154
## final  value 19959.343898
## converged
## # weights:  9
## initial  value 22323.189447
## final  value 20017.742500
## converged
## # weights:  25
## initial  value 23815.639717
## final  value 20017.742500
## converged
## # weights:  41
## initial  value 22026.782030
## final  value 20017.742500
## converged
## # weights:  9
## initial  value 23058.160697
## iter  10 value 20023.463234
## final  value 20023.251827
## converged
## # weights:  25
## initial  value 22230.882886
## iter  10 value 20022.564188
## final  value 20021.717804
## converged
## # weights:  41
## initial  value 23181.989984
## iter  10 value 20031.832041
## iter  20 value 20021.059749
## final  value 20021.058393
## converged
```

```
## # weights:  9
## initial   value 22940.472562
## iter  10 value 20027.973280
## iter  20 value 20017.860453
## iter  20 value 20017.860406
## final   value 20017.860406
## converged
## # weights:  25
## initial   value 22413.081956
## iter  10 value 20032.383792
## iter  20 value 20017.911303
## final   value 20017.757727
## converged
## # weights:  41
## initial   value 22474.247601
## iter  10 value 20037.621050
## iter  20 value 20017.971684
## final   value 20017.752415
## converged
## # weights:  9
## initial   value 22238.515901
## final   value 20044.160500
## converged
## # weights:  25
## initial   value 23887.037725
## final   value 20044.160500
## converged
## # weights:  41
## initial   value 22787.625856
## final   value 20044.160500
## converged
## # weights:  9
## initial   value 23394.336955
## iter  10 value 20049.903206
## final   value 20049.670835
## converged
## # weights:  25
## initial   value 23037.273987
## iter  10 value 20048.946501
## final   value 20048.137026
## converged
## # weights:  41
## initial   value 23877.406965
## iter  10 value 20058.387638
## iter  20 value 20047.482554
## final   value 20047.477032
## converged
## # weights:  9
## initial   value 23417.812056
## iter  10 value 20054.469180
## iter  20 value 20044.279351
## iter  20 value 20044.279303
## final   value 20044.279303
## converged
```

```
## # weights:  25
## initial   value 23614.701316
## iter  10 value 20058.090725
## iter  20 value 20044.321105
## final   value 20044.181180
## converged
## # weights:  41
## initial   value 22838.055495
## iter  10 value 20063.396602
## iter  20 value 20044.382277
## final   value 20044.171539
## converged
## # weights:  9
## initial   value 22406.549834
## final   value 20027.529200
## converged
## # weights:  25
## initial   value 22509.580820
## final   value 20027.529200
## converged
## # weights:  41
## initial   value 23346.971697
## final   value 20027.529200
## converged
## # weights:  9
## initial   value 23753.634828
## iter  10 value 20033.564472
## final   value 20033.038894
## converged
## # weights:  25
## initial   value 22517.353332
## iter  10 value 20037.912617
## iter  20 value 20031.505531
## final   value 20031.504731
## converged
## # weights:  41
## initial   value 23209.251492
## iter  10 value 20038.057451
## iter  20 value 20030.845411
## iter  20 value 20030.845329
## iter  20 value 20030.845318
## final   value 20030.845318
## converged
## # weights:  9
## initial   value 23758.125965
## iter  10 value 20036.697342
## iter  20 value 20027.634901
## iter  20 value 20027.634859
## final   value 20027.634859
## converged
## # weights:  25
## initial   value 22421.117874
## iter  10 value 20040.804729
## iter  20 value 20027.682256
```

```
## final   value 20027.541600
## converged
## # weights:  41
## initial   value 21943.680911
## iter  10 value 20044.196536
## iter  20 value 20027.721361
## final   value 20027.539572
## converged
## # weights:  9
## initial   value 22327.832515
## final   value 20019.610100
## converged
## # weights:  25
## initial   value 22257.185448
## final   value 20019.610100
## converged
## # weights:  41
## initial   value 21128.256945
## final   value 20019.610100
## converged
## # weights:  9
## initial   value 21954.165888
## iter  10 value 20026.561814
## final   value 20025.119559
## converged
## # weights:  25
## initial   value 22795.326484
## iter  10 value 20024.818306
## final   value 20023.585631
## converged
## # weights:  41
## initial   value 21643.314156
## iter  10 value 20029.987851
## iter  20 value 20022.926302
## iter  20 value 20022.926169
## iter  20 value 20022.926156
## final   value 20022.926156
## converged
## # weights:  9
## initial   value 21518.606652
## iter  10 value 20026.825943
## iter  20 value 20019.693293
## iter  20 value 20019.693260
## final   value 20019.693260
## converged
## # weights:  25
## initial   value 22837.455296
## iter  10 value 20036.848412
## iter  20 value 20019.808844
## final   value 20019.622970
## converged
## # weights:  41
## initial   value 23468.441330
## iter  10 value 20036.008823
```

```
## iter   20 value 20019.799164
## final   value 20019.620955
## converged
## # weights:  9
## initial   value 23740.747153
## final   value 20020.529200
## converged
## # weights:  25
## initial   value 22304.984341
## final   value 20020.529200
## converged
## # weights:  41
## initial   value 22297.567241
## final   value 20020.529200
## converged
## # weights:  9
## initial   value 22757.287808
## iter   10 value 20027.657816
## final   value 20026.038690
## converged
## # weights:  25
## initial   value 22190.797083
## iter   10 value 20024.927213
## final   value 20024.504653
## converged
## # weights:  41
## initial   value 23463.384774
## iter   10 value 20027.733880
## iter   20 value 20023.846047
## final   value 20023.845259
## converged
## # weights:  9
## initial   value 22885.138696
## iter   10 value 20032.448963
## iter   20 value 20020.666626
## iter   20 value 20020.666571
## final   value 20020.666571
## converged
## # weights:  25
## initial   value 21184.944831
## iter   10 value 20027.283730
## iter   20 value 20020.607074
## final   value 20020.539870
## converged
## # weights:  41
## initial   value 22246.628772
## iter   10 value 20037.003546
## iter   20 value 20020.719136
## final   value 20020.541095
## converged
## # weights:  9
## initial   value 22737.368709
## final   value 20028.595700
## converged
```

```
## # weights:  25
## initial  value 22522.328723
## final  value 20028.595700
## converged
## # weights:  41
## initial  value 21058.599525
## final  value 20028.595700
## converged
## # weights:  9
## initial  value 22867.785240
## iter  10 value 20034.567539
## final  value 20034.105412
## converged
## # weights:  25
## initial  value 23072.037478
## iter  10 value 20036.213017
## iter  20 value 20032.571531
## final  value 20032.571209
## converged
## # weights:  41
## initial  value 21498.853075
## iter  10 value 20043.027347
## iter  20 value 20031.917558
## final  value 20031.911764
## converged
## # weights:  9
## initial  value 23173.536621
## iter  10 value 20038.959875
## iter  20 value 20028.715191
## iter  20 value 20028.715143
## final  value 20028.715143
## converged
## # weights:  25
## initial  value 22604.945349
## iter  10 value 20042.725398
## iter  20 value 20028.758604
## final  value 20028.611762
## converged
## # weights:  41
## initial  value 22561.196917
## iter  10 value 20046.040247
## iter  20 value 20028.796822
## final  value 20028.606553
## converged
## # weights:  9
## initial  value 22520.561031
## final  value 20027.409700
## converged
## # weights:  25
## initial  value 22853.211806
## final  value 20027.409700
## converged
## # weights:  41
## initial  value 22596.409617
```

```
## final   value 20027.409700
## converged
## # weights:  9
## initial   value 22120.414107
## iter  10 value 20034.525217
## final   value 20032.919387
## converged
## # weights:  25
## initial   value 21789.035114
## iter  10 value 20032.336134
## final   value 20031.385224
## converged
## # weights:  41
## initial   value 21371.885345
## iter  10 value 20032.672736
## final   value 20030.725900
## converged
## # weights:  9
## initial   value 21970.790398
## iter  10 value 20036.995547
## iter  20 value 20027.520217
## iter  20 value 20027.520173
## final   value 20027.520173
## converged
## # weights:  25
## initial   value 22857.910859
## iter  10 value 20043.480327
## iter  20 value 20027.594982
## final   value 20027.424093
## converged
## # weights:  41
## initial   value 21185.794997
## iter  10 value 20035.771719
## iter  20 value 20027.506108
## final   value 20027.419054
## converged
## # weights:  9
## initial   value 21506.578696
## final   value 20003.107600
## converged
## # weights:  25
## initial   value 23208.048632
## final   value 20003.107600
## converged
## # weights:  41
## initial   value 22091.061829
## final   value 20003.107600
## converged
## # weights:  9
## initial   value 23588.589163
## iter  10 value 20008.887419
## final   value 20008.616616
## converged
## # weights:  25
```

```
## initial  value 22712.091112
## iter  10 value 20008.003711
## final  value 20007.082690
## converged
## # weights:  41
## initial  value 22204.777003
## iter  10 value 20007.406586
## final  value 20006.423362
## converged
## # weights:  9
## initial  value 22094.527081
## iter  10 value 20012.293032
## iter  20 value 20003.213501
## iter  20 value 20003.213458
## final  value 20003.213458
## converged
## # weights:  25
## initial  value 21991.362196
## iter  10 value 20014.660631
## iter  20 value 20003.240797
## final  value 20003.119263
## converged
## # weights:  41
## initial  value 22118.962116
## iter  10 value 20020.755768
## iter  20 value 20003.311070
## final  value 20003.118509
## converged
## # weights:  9
## initial  value 22516.470457
## final  value 19991.090000
## converged
## # weights:  25
## initial  value 23828.298252
## final  value 19991.090000
## converged
## # weights:  41
## initial  value 23203.231241
## final  value 19991.090000
## converged
## # weights:  9
## initial  value 22962.730795
## iter  10 value 19996.655294
## final  value 19996.598794
## converged
## # weights:  25
## initial  value 21980.600923
## iter  10 value 19996.610531
## iter  20 value 19995.065327
## iter  20 value 19995.065159
## iter  20 value 19995.065092
## final  value 19995.065092
## converged
## # weights:  41
```

```
## initial  value 22461.244675
## iter  10 value 19994.942315
## iter  20 value 19994.407689
## final  value 19994.405641
## converged
## # weights:  9
## initial  value 22292.873780
## iter  10 value 20000.750388
## iter  20 value 19991.201377
## iter  20 value 19991.201332
## final  value 19991.201332
## converged
## # weights:  25
## initial  value 23186.314423
## iter  10 value 20006.086712
## iter  20 value 19991.262900
## final  value 19991.106660
## converged
## # weights:  41
## initial  value 22534.405121
## iter  10 value 20009.615399
## iter  20 value 19991.303583
## final  value 19991.100800
## converged
## # weights:  9
## initial  value 22492.243541
## final  value 20031.360500
## converged
## # weights:  25
## initial  value 22343.428206
## final  value 20031.360500
## converged
## # weights:  41
## initial  value 22413.475227
## final  value 20031.360500
## converged
## # weights:  9
## initial  value 22085.846747
## iter  10 value 20038.882880
## final  value 20036.870295
## converged
## # weights:  25
## initial  value 23466.649573
## iter  10 value 20036.100013
## final  value 20035.336104
## converged
## # weights:  41
## initial  value 23134.269092
## iter  10 value 20036.383684
## iter  20 value 20034.676980
## final  value 20034.676660
## converged
## # weights:  9
## initial  value 21880.991773
```

```
## iter   10 value 20039.879281
## iter   20 value 20031.458715
## iter   20 value 20031.458676
## final   value 20031.458676
## converged
## # weights:  25
## initial   value 22760.810925
## iter   10 value 20045.773277
## iter   20 value 20031.526668
## final   value 20031.375459
## converged
## # weights:  41
## initial   value 22650.140836
## iter   10 value 20051.438596
## iter   20 value 20031.591985
## final   value 20031.372508
## converged
## # weights:  9
## initial   value 22109.632919
## final   value 19946.097700
## converged
## # weights:  25
## initial   value 22048.478080
## final   value 19946.097700
## converged
## # weights:  41
## initial   value 22796.121191
## final   value 19946.097700
## converged
## # weights:  9
## initial   value 22647.649424
## iter   10 value 19951.837191
## final   value 19951.605675
## converged
## # weights:  25
## initial   value 23263.895601
## iter   10 value 19950.945843
## final   value 19950.072188
## converged
## # weights:  41
## initial   value 22501.848733
## iter   10 value 19963.089911
## iter   20 value 19949.413366
## iter   20 value 19949.413171
## iter   20 value 19949.413066
## final   value 19949.413066
## converged
## # weights:  9
## initial   value 23269.404251
## iter   10 value 19956.786459
## iter   20 value 19946.220933
## iter   20 value 19946.220884
## final   value 19946.220884
## converged
```

```
## # weights:  25
## initial   value 22118.684460
## iter   10 value 19959.938156
## iter   20 value 19946.257270
## final   value 19946.113713
## converged
## # weights:  41
## initial   value 21686.876262
## iter   10 value 19961.224285
## iter   20 value 19946.272098
## final   value 19946.107722
## converged
## # weights:  9
## initial   value 21869.435200
## final   value 19957.491700
## converged
## # weights:  25
## initial   value 21744.709239
## final   value 19957.491700
## converged
## # weights:  41
## initial   value 21739.628477
## final   value 19957.491700
## converged
## # weights:  9
## initial   value 21941.763326
## iter   10 value 19964.872119
## final   value 19962.999821
## converged
## # weights:  25
## initial   value 22863.606789
## iter   10 value 19962.265369
## final   value 19961.466272
## converged
## # weights:  41
## initial   value 23266.174156
## iter   10 value 19961.745067
## iter   20 value 19960.807068
## iter   20 value 19960.806985
## iter   20 value 19960.806980
## final   value 19960.806980
## converged
## # weights:  9
## initial   value 22398.352527
## iter   10 value 19967.742734
## iter   20 value 19957.609886
## iter   20 value 19957.609839
## final   value 19957.609839
## converged
## # weights:  25
## initial   value 22684.867949
## iter   10 value 19971.403664
## iter   20 value 19957.652094
## final   value 19957.504149
```

```
## converged
## # weights:  41
## initial  value 22947.075370
## iter  10 value 19976.661034
## iter  20 value 19957.712707
## final  value 19957.501935
## converged
## # weights:  9
## initial  value 21461.899987
## final  value 19927.214500
## converged
## # weights:  25
## initial  value 22239.812727
## final  value 19927.214500
## converged
## # weights:  41
## initial  value 23594.893945
## final  value 19927.214500
## converged
## # weights:  9
## initial  value 23831.385905
## iter  10 value 19934.777750
## final  value 19932.722092
## converged
## # weights:  25
## initial  value 23139.399034
## iter  10 value 19943.079031
## iter  20 value 19931.282281
## final  value 19931.188682
## converged
## # weights:  41
## initial  value 23008.994095
## iter  10 value 19935.748934
## iter  20 value 19930.529628
## iter  20 value 19930.529557
## iter  20 value 19930.529532
## final  value 19930.529532
## converged
## # weights:  9
## initial  value 22936.129061
## iter  10 value 19938.709381
## iter  20 value 19927.347027
## iter  20 value 19927.346974
## final  value 19927.346974
## converged
## # weights:  25
## initial  value 21974.096064
## iter  10 value 19938.491546
## iter  20 value 19927.344515
## final  value 19927.226266
## converged
## # weights:  41
## initial  value 21442.993659
## iter  10 value 19939.940378
```

```
## iter   20 value 19927.361219
## final   value 19927.223699
## converged
## # weights:  9
## initial   value 22135.355886
## final   value 20052.866000
## converged
## # weights:  25
## initial   value 23672.436453
## final   value 20052.866000
## converged
## # weights:  41
## initial   value 21723.051891
## final   value 20052.866000
## converged
## # weights:  9
## initial   value 23258.416001
## iter   10 value 20059.874291
## final   value 20058.376801
## converged
## # weights:  25
## initial   value 23038.007810
## iter   10 value 20066.044894
## iter   20 value 20056.842638
## iter   20 value 20056.842461
## iter   20 value 20056.842450
## final   value 20056.842450
## converged
## # weights:  41
## initial   value 23413.290873
## iter   10 value 20067.432130
## iter   20 value 20056.183686
## final   value 20056.182784
## converged
## # weights:  9
## initial   value 23213.374297
## iter   10 value 20063.909150
## iter   20 value 20052.993319
## iter   20 value 20052.993268
## final   value 20052.993268
## converged
## # weights:  25
## initial   value 22898.523601
## iter   10 value 20068.743676
## iter   20 value 20053.049057
## final   value 20052.877746
## converged
## # weights:  41
## initial   value 22256.682417
## iter   10 value 20070.733279
## iter   20 value 20053.071996
## final   value 20052.875883
## converged
## # weights:  9
```

```
## initial  value 22961.682176
## final  value 20011.186000
## converged
## # weights:  25
## initial  value 22928.160121
## final  value 20011.186000
## converged
## # weights:  41
## initial  value 23052.699195
## final  value 20011.186000
## converged
## # weights:  9
## initial  value 23317.929850
## iter  10 value 20017.019970
## final  value 20016.695224
## converged
## # weights:  25
## initial  value 22516.248590
## iter  10 value 20019.118064
## final  value 20015.161290
## converged
## # weights:  41
## initial  value 22060.194465
## iter  10 value 20015.689983
## final  value 20014.502002
## converged
## # weights:  9
## initial  value 23029.480622
## iter  10 value 20021.776536
## iter  20 value 20011.308101
## iter  20 value 20011.308052
## final  value 20011.308052
## converged
## # weights:  25
## initial  value 22782.943923
## iter  10 value 20025.883670
## iter  20 value 20011.355453
## final  value 20011.199791
## converged
## # weights:  41
## initial  value 23564.242470
## iter  10 value 20027.720787
## iter  20 value 20011.376633
## final  value 20011.198043
## converged
## # weights:  9
## initial  value 22054.908670
## final  value 20058.885200
## converged
## # weights:  25
## initial  value 24106.340609
## final  value 20058.885200
## converged
## # weights:  41
```

```
## initial  value 22054.842861
## final  value 20058.885200
## converged
## # weights:  9
## initial  value 22690.343386
## iter  10 value 20064.452750
## final  value 20064.396306
## converged
## # weights:  25
## initial  value 24162.192749
## iter  10 value 20065.721909
## iter  20 value 20062.862829
## final  value 20062.861629
## converged
## # weights:  41
## initial  value 24371.459802
## iter  10 value 20071.529642
## iter  20 value 20062.204280
## final  value 20062.202088
## converged
## # weights:  9
## initial  value 22549.286651
## iter  10 value 20070.132333
## iter  20 value 20059.014871
## iter  20 value 20059.014819
## final  value 20059.014819
## converged
## # weights:  25
## initial  value 22705.637559
## iter  10 value 20074.415230
## iter  20 value 20059.064249
## final  value 20058.900381
## converged
## # weights:  41
## initial  value 21908.932678
## iter  10 value 20072.585071
## iter  20 value 20059.043149
## final  value 20058.894194
## converged
## # weights:  9
## initial  value 21906.815701
## final  value 19963.569700
## converged
## # weights:  25
## initial  value 23215.444126
## final  value 19963.569700
## converged
## # weights:  41
## initial  value 22783.108075
## final  value 19963.569700
## converged
## # weights:  9
## initial  value 22979.132746
## iter  10 value 19969.843357
```

```
## final   value 19969.077726
## converged
## # weights:  25
## initial   value 22179.454517
## iter   10 value 19972.397046
## final   value 19967.544103
## converged
## # weights:  41
## initial   value 22286.669291
## iter   10 value 19980.841841
## iter   20 value 19966.890289
## final   value 19966.884823
## converged
## # weights:   9
## initial   value 22575.632234
## iter   10 value 19974.738256
## iter   20 value 19963.698465
## iter   20 value 19963.698413
## final   value 19963.698413
## converged
## # weights:  25
## initial   value 22913.846385
## iter   10 value 19977.874832
## iter   20 value 19963.734627
## final   value 19963.582191
## converged
## # weights:  41
## initial   value 22402.707048
## iter   10 value 19980.191587
## iter   20 value 19963.761337
## final   value 19963.579912
## converged
## # weights:   9
## initial   value 23643.392808
## final   value 19992.610100
## converged
## # weights:  25
## initial   value 22341.749074
## final   value 19992.610100
## converged
## # weights:  41
## initial   value 22343.835783
## final   value 19992.610100
## converged
## # weights:   9
## initial   value 22163.057909
## iter   10 value 19999.812949
## final   value 19998.118917
## converged
## # weights:  25
## initial   value 23699.909516
## iter   10 value 19997.326691
## final   value 19996.585124
## converged
```

```
## # weights:  41
## initial   value 22679.829072
## iter   10 value 19996.477479
## final   value 19995.925779
## converged
## # weights:  9
## initial   value 22791.778628
## iter   10 value 20003.926217
## iter   20 value 19992.740566
## iter   20 value 19992.740514
## final   value 19992.740514
## converged
## # weights:  25
## initial   value 21909.998628
## iter   10 value 20006.641932
## iter   20 value 19992.771876
## final   value 19992.622192
## converged
## # weights:  41
## initial   value 21658.510039
## iter   10 value 20006.719183
## iter   20 value 19992.772767
## final   value 19992.620108
## converged
## # weights:  9
## initial   value 23263.703396
## final   value 20005.865200
## converged
## # weights:  25
## initial   value 23409.533085
## final   value 20005.865200
## converged
## # weights:  41
## initial   value 23921.309922
## final   value 20005.865200
## converged
## # weights:  9
## initial   value 22524.802482
## iter   10 value 20011.927085
## final   value 20011.374308
## converged
## # weights:  25
## initial   value 21013.307756
## iter   10 value 20011.902549
## iter   20 value 20009.840536
## iter   20 value 20009.840434
## iter   20 value 20009.840407
## final   value 20009.840407
## converged
## # weights:  41
## initial   value 23910.159497
## iter   10 value 20012.909448
## iter   20 value 20009.181106
## iter   20 value 20009.181039
```

```
## iter  20 value 20009.181033
## final   value 20009.181033
## converged
## # weights:  9
## initial  value 22765.915089
## iter  10 value 20016.225903
## iter  20 value 20005.984651
## iter  20 value 20005.984603
## final   value 20005.984603
## converged
## # weights:  25
## initial  value 22199.271262
## iter  10 value 20019.419201
## iter  20 value 20006.021467
## final   value 20005.879512
## converged
## # weights:  41
## initial  value 21404.391435
## iter  10 value 20018.734862
## iter  20 value 20006.013577
## final   value 20005.874741
## converged
## # weights:  9
## initial  value 23555.053751
## final   value 20022.082000
## converged
## # weights:  25
## initial  value 22350.791356
## final   value 20022.082000
## converged
## # weights:  41
## initial  value 23392.134930
## final   value 20022.082000
## converged
## # weights:  9
## initial  value 23097.576169
## iter  10 value 20028.374351
## final   value 20027.591525
## converged
## # weights:  25
## initial  value 22403.893954
## iter  10 value 20027.167968
## final   value 20026.057413
## converged
## # weights:  41
## initial  value 22866.274276
## iter  10 value 20026.529059
## final   value 20025.398132
## converged
## # weights:  9
## initial  value 22046.906579
## iter  10 value 20031.196306
## iter  20 value 20022.187081
## iter  20 value 20022.187039
```

```
## final   value 20022.187039
## converged
## # weights:  25
## initial   value 24188.347086
## iter  10 value 20030.941140
## iter  20 value 20022.184139
## final   value 20022.103787
## converged
## # weights:  41
## initial   value 23472.083502
## iter  10 value 20039.662385
## iter  20 value 20022.284688
## final   value 20022.094308
## converged
## # weights:  9
## initial   value 22875.551575
## final   value 20044.851700
## converged
## # weights:  25
## initial   value 23272.207431
## final   value 20044.851700
## converged
## # weights:  41
## initial   value 22371.683977
## final   value 20044.851700
## converged
## # weights:  9
## initial   value 23340.128500
## iter  10 value 20053.359694
## iter  20 value 20050.362104
## iter  20 value 20050.362084
## final   value 20050.362084
## converged
## # weights:  25
## initial   value 23054.177171
## iter  10 value 20049.260085
## iter  20 value 20048.827779
## iter  20 value 20048.827694
## iter  20 value 20048.827663
## final   value 20048.827663
## converged
## # weights:  41
## initial   value 23640.270184
## iter  10 value 20063.117751
## iter  20 value 20048.168749
## final   value 20048.168197
## converged
## # weights:  9
## initial   value 23054.575563
## iter  10 value 20055.221752
## iter  20 value 20044.971259
## iter  20 value 20044.971211
## final   value 20044.971211
## converged
```

```
## # weights:  25
## initial   value 22923.140686
## iter   10 value 20061.151620
## iter   20 value 20045.039625
## final   value 20044.872224
## converged
## # weights:  41
## initial   value 22929.304155
## iter   10 value 20064.767177
## iter   20 value 20045.081310
## final   value 20044.862965
## converged
## # weights:  9
## initial   value 22406.965682
## final   value 19981.990000
## converged
## # weights:  25
## initial   value 22756.113799
## final   value 19981.990000
## converged
## # weights:  41
## initial   value 21451.742275
## final   value 19981.990000
## converged
## # weights:  9
## initial   value 23199.885467
## iter   10 value 19987.999016
## final   value 19987.498612
## converged
## # weights:  25
## initial   value 21765.915680
## iter   10 value 19987.636907
## iter   20 value 19985.965159
## final   value 19985.964854
## converged
## # weights:  41
## initial   value 21808.942297
## iter   10 value 19986.515286
## iter   20 value 19985.305913
## final   value 19985.305587
## converged
## # weights:  9
## initial   value 22056.300401
## iter   10 value 19992.702568
## iter   20 value 19982.113507
## iter   20 value 19982.113458
## final   value 19982.113458
## converged
## # weights:  25
## initial   value 21898.146219
## iter   10 value 19996.666462
## iter   20 value 19982.159208
## final   value 19982.003667
## converged
```

```
## # weights:  41
## initial   value 23354.301415
## iter  10 value 20004.249105
## iter  20 value 19982.246630
## final   value 19982.004595
## converged
## # weights:  9
## initial   value 22663.918557
## final   value 19943.705200
## converged
## # weights:  25
## initial   value 22143.351361
## final   value 19943.705200
## converged
## # weights:  41
## initial   value 21608.346534
## final   value 19943.705200
## converged
## # weights:  9
## initial   value 22702.408689
## iter  10 value 19950.008465
## final   value 19949.213101
## converged
## # weights:  25
## initial   value 22287.208374
## iter  10 value 19953.880428
## iter  20 value 19947.681666
## final   value 19947.679582
## converged
## # weights:  41
## initial   value 22744.670566
## iter  10 value 19959.936435
## iter  20 value 19947.020692
## final   value 19947.020396
## converged
## # weights:  9
## initial   value 21953.725134
## iter  10 value 19953.128128
## iter  20 value 19943.813839
## iter  20 value 19943.813796
## final   value 19943.813796
## converged
## # weights:  25
## initial   value 23045.245772
## iter  10 value 19958.263279
## iter  20 value 19943.873043
## final   value 19943.721772
## converged
## # weights:  41
## initial   value 23128.359501
## iter  10 value 19962.208799
## iter  20 value 19943.918532
## final   value 19943.715981
## converged
```

```
## # weights:  9
## initial   value 22016.924019
## final   value 20013.749200
## converged
## # weights:  25
## initial   value 22637.645743
## final   value 20013.749200
## converged
## # weights:  41
## initial   value 22111.254490
## final   value 20013.749200
## converged
## # weights:  9
## initial   value 23470.490959
## iter   10 value 20020.570739
## final   value 20019.258497
## converged
## # weights:  25
## initial   value 22437.414228
## iter   10 value 20018.502392
## final   value 20017.724505
## converged
## # weights:  41
## initial   value 23459.133791
## iter   10 value 20020.734810
## iter   20 value 20017.065351
## final   value 20017.065073
## converged
## # weights:  9
## initial   value 22436.604042
## iter   10 value 20025.530854
## iter   20 value 20013.885033
## iter   20 value 20013.884979
## final   value 20013.884979
## converged
## # weights:  25
## initial   value 23582.730008
## iter   10 value 20027.575030
## iter   20 value 20013.908601
## final   value 20013.767035
## converged
## # weights:  41
## initial   value 24039.076138
## iter   10 value 20026.124719
## iter   20 value 20013.891880
## final   value 20013.761189
## converged
## # weights:  9
## initial   value 22451.376050
## final   value 20048.881700
## converged
## # weights:  25
## initial   value 22953.126916
## final   value 20048.881700
```

```
## converged
## # weights:  41
## initial  value 21636.808947
## final  value 20048.881700
## converged
## # weights:  9
## initial  value 22634.326396
## iter  10 value 20054.636299
## final  value 20054.392272
## converged
## # weights:  25
## initial  value 21904.951794
## iter  10 value 20055.304636
## final  value 20052.857943
## converged
## # weights:  41
## initial  value 22998.087651
## iter  10 value 20056.634280
## iter  20 value 20052.198748
## final  value 20052.198332
## converged
## # weights:  9
## initial  value 22727.942851
## iter  10 value 20060.030365
## iter  20 value 20049.010235
## iter  20 value 20049.010184
## final  value 20049.010184
## converged
## # weights:  25
## initial  value 22880.757213
## iter  10 value 20063.312833
## iter  20 value 20049.048080
## final  value 20048.894855
## converged
## # weights:  41
## initial  value 23476.149128
## iter  10 value 20066.928363
## iter  20 value 20049.089764
## final  value 20048.892008
## converged
## # weights:  9
## initial  value 23265.990026
## final  value 20039.160100
## converged
## # weights:  25
## initial  value 22282.619832
## final  value 20039.160100
## converged
## # weights:  41
## initial  value 22743.456083
## final  value 20039.160100
## converged
## # weights:  9
## initial  value 23700.991109
```

```
## iter   10 value 20045.057508
## final   value 20044.670216
## converged
## # weights:  25
## initial   value 23547.485098
## iter   10 value 20044.575980
## iter   20 value 20043.136244
## final   value 20043.135926
## converged
## # weights:  41
## initial   value 22814.096087
## iter   10 value 20054.818344
## iter   20 value 20042.478257
## final   value 20042.476443
## converged
## # weights:  9
## initial   value 23080.098937
## iter   10 value 20050.972068
## iter   20 value 20039.296283
## iter   20 value 20039.296228
## final   value 20039.296228
## converged
## # weights:  25
## initial   value 24047.273579
## iter   10 value 20048.977011
## iter   20 value 20039.273281
## final   value 20039.181822
## converged
## # weights:  41
## initial   value 23203.116606
## iter   10 value 20061.154556
## iter   20 value 20039.413679
## final   value 20039.171441
## converged
## # weights:  9
## initial   value 22777.254449
## final   value 19995.272500
## converged
## # weights:  25
## initial   value 21902.598075
## final   value 19995.272500
## converged
## # weights:  41
## initial   value 22992.691126
## final   value 19995.272500
## converged
## # weights:  9
## initial   value 23887.879196
## iter   10 value 20001.336599
## final   value 20000.781368
## converged
## # weights:  25
## initial   value 22205.247347
## iter   10 value 20001.953022
```

```
## iter  20 value 19999.247553
## iter  20 value 19999.247491
## iter  20 value 19999.247488
## final   value 19999.247488
## converged
## # weights:  41
## initial  value 22433.983037
## iter  10 value 20015.552715
## iter  20 value 19998.751828
## iter  30 value 19998.588429
## iter  30 value 19998.588298
## iter  30 value 19998.588261
## final   value 19998.588261
## converged
## # weights:  9
## initial  value 22593.174303
## iter  10 value 20005.098981
## iter  20 value 19995.385792
## iter  20 value 19995.385746
## final   value 19995.385746
## converged
## # weights:  25
## initial  value 22283.889160
## iter  10 value 20008.685980
## iter  20 value 19995.427147
## final   value 19995.284346
## converged
## # weights:  41
## initial  value 21591.604509
## iter  10 value 20008.190050
## iter  20 value 19995.421429
## final   value 19995.282629
## converged
## # weights:  9
## initial  value 22833.065181
## final   value 19959.537700
## converged
## # weights:  25
## initial  value 22560.851418
## final   value 19959.537700
## converged
## # weights:  41
## initial  value 21981.479876
## final   value 19959.537700
## converged
## # weights:  9
## initial  value 21833.650799
## iter  10 value 19965.290857
## final   value 19965.045923
## converged
## # weights:  25
## initial  value 23510.903911
## iter  10 value 19966.493685
## iter  20 value 19963.514863
```

```
## final   value 19963.512306
## converged
## # weights:  41
## initial   value 22967.882477
## iter  10 value 19966.497601
## final   value 19962.853206
## converged
## # weights:  9
## initial   value 23615.405817
## iter  10 value 19968.852193
## iter  20 value 19959.645089
## iter  20 value 19959.645046
## final   value 19959.645046
## converged
## # weights:  25
## initial   value 22868.549441
## iter  10 value 19974.029054
## iter  20 value 19959.704774
## final   value 19959.550633
## converged
## # weights:  41
## initial   value 22927.180265
## iter  10 value 19977.415052
## iter  20 value 19959.743812
## final   value 19959.549201
## converged
## # weights:  9
## initial   value 21879.329856
## final   value 19990.409200
## converged
## # weights:  25
## initial   value 22543.358588
## final   value 19990.409200
## converged
## # weights:  41
## initial   value 22742.310334
## final   value 19990.409200
## converged
## # weights:  9
## initial   value 22526.128117
## iter  10 value 20011.734177
## iter  20 value 19995.920886
## final   value 19995.917929
## converged
## # weights:  25
## initial   value 22407.376017
## iter  10 value 19997.718479
## iter  20 value 19994.384338
## iter  20 value 19994.384152
## iter  20 value 19994.384099
## final   value 19994.384099
## converged
## # weights:  41
## initial   value 22949.673058
```

```
## iter  10 value 19995.051406
## iter  20 value 19993.725943
## final   value 19993.724892
## converged
## # weights:  9
## initial   value 22301.772168
## iter  10 value 19999.991691
## iter  20 value 19990.519679
## iter  20 value 19990.519634
## final   value 19990.519634
## converged
## # weights:  25
## initial   value 22608.829959
## iter  10 value 20003.657694
## iter  20 value 19990.561945
## final   value 19990.424314
## converged
## # weights:  41
## initial   value 23666.849725
## iter  10 value 20006.608095
## iter  20 value 19990.595961
## final   value 19990.423161
## converged
## # weights:  9
## initial   value 22416.738526
## final   value 20036.647600
## converged
## # weights:  25
## initial   value 21756.094300
## final   value 20036.647600
## converged
## # weights:  41
## initial   value 23228.578586
## final   value 20036.647600
## converged
## # weights:  9
## initial   value 23120.653748
## iter  10 value 20042.302108
## final   value 20042.157616
## converged
## # weights:  25
## initial   value 21732.830557
## iter  10 value 20057.756749
## iter  20 value 20040.624531
## final   value 20040.623843
## converged
## # weights:  41
## initial   value 22248.332509
## iter  10 value 20040.980303
## final   value 20039.963988
## converged
## # weights:  9
## initial   value 22727.313909
## iter  10 value 20047.351648
```

```
## iter  20 value 20036.771009
## iter  20 value 20036.770960
## final  value 20036.770960
## converged
## # weights:  25
## initial  value 23639.510029
## iter  10 value 20049.785632
## iter  20 value 20036.799071
## final  value 20036.663018
## converged
## # weights:  41
## initial  value 23144.922636
## iter  10 value 20054.496989
## iter  20 value 20036.853389
## final  value 20036.658363
## converged
## # weights:  9
## initial  value 22751.235778
## final  value 20029.530100
## converged
## # weights:  25
## initial  value 21592.543259
## final  value 20029.530100
## converged
## # weights:  41
## initial  value 24308.378957
## final  value 20029.530100
## converged
## # weights:  9
## initial  value 21883.021297
## iter  10 value 20035.176577
## final  value 20035.039864
## converged
## # weights:  25
## initial  value 22013.281263
## iter  10 value 20034.111495
## iter  20 value 20033.506479
## final  value 20033.505679
## converged
## # weights:  41
## initial  value 22311.717329
## iter  10 value 20045.939190
## iter  20 value 20032.850085
## final  value 20032.846286
## converged
## # weights:  9
## initial  value 22727.130131
## iter  10 value 20039.148470
## iter  20 value 20029.640992
## iter  20 value 20029.640948
## final  value 20029.640948
## converged
## # weights:  25
## initial  value 22197.490916
```

```
## iter   10 value 20044.790450
## iter   20 value 20029.706040
## final   value 20029.544294
## converged
## # weights:  41
## initial  value 24201.570553
## iter   10 value 20043.034586
## iter   20 value 20029.685796
## final   value 20029.543724
## converged
## # weights:  9
## initial  value 23559.991385
## final   value 19993.781200
## converged
## # weights:  25
## initial  value 22821.487021
## final   value 19993.781200
## converged
## # weights:  41
## initial  value 23778.070973
## final   value 19993.781200
## converged
## # weights:  9
## initial  value 22338.421652
## iter   10 value 19999.579690
## final   value 19999.290023
## converged
## # weights:  25
## initial  value 22395.079946
## iter   10 value 20000.789264
## iter   20 value 19997.761847
## final   value 19997.756158
## converged
## # weights:  41
## initial  value 23158.391301
## iter   10 value 19998.587378
## iter   20 value 19997.097083
## iter   20 value 19997.096905
## iter   20 value 19997.096864
## final   value 19997.096864
## converged
## # weights:  9
## initial  value 23475.056416
## iter   10 value 20003.265932
## iter   20 value 19993.890552
## iter   20 value 19993.890508
## final   value 19993.890508
## converged
## # weights:  25
## initial  value 22593.431877
## iter   10 value 20009.822776
## iter   20 value 19993.966147
## final   value 19993.795527
## converged
```

```
## # weights:  41
## initial   value 22715.748927
## iter   10 value 20011.165019
## iter   20 value 19993.981622
## final   value 19993.794157
## converged
## # weights:  9
## initial   value 23931.807255
## final   value 20018.011700
## converged
## # weights:  25
## initial   value 23832.356212
## final   value 20018.011700
## converged
## # weights:  41
## initial   value 22757.069798
## final   value 20018.011700
## converged
## # weights:  9
## initial   value 21764.037034
## iter   10 value 20024.142710
## final   value 20023.521091
## converged
## # weights:  25
## initial   value 22204.074710
## iter   10 value 20022.445249
## final   value 20021.987027
## converged
## # weights:  41
## initial   value 23934.865831
## iter   10 value 20029.847382
## iter   20 value 20021.327821
## iter   20 value 20021.327726
## iter   20 value 20021.327681
## final   value 20021.327681
## converged
## # weights:  9
## initial   value 23209.639109
## iter   10 value 20028.450876
## iter   20 value 20018.132056
## iter   20 value 20018.132007
## final   value 20018.132007
## converged
## # weights:  25
## initial   value 23552.705604
## iter   10 value 20030.656678
## iter   20 value 20018.157487
## final   value 20018.026075
## converged
## # weights:  41
## initial   value 22667.728457
## iter   10 value 20037.052368
## iter   20 value 20018.231224
## final   value 20018.025077
```

```
## converged
## # weights:  9
## initial  value 23892.635516
## final  value 20034.118000
## converged
## # weights:  25
## initial  value 22510.274436
## final  value 20034.118000
## converged
## # weights:  41
## initial  value 22857.152728
## final  value 20034.118000
## converged
## # weights:  9
## initial  value 22372.977407
## iter  10 value 20054.735134
## iter  20 value 20039.629785
## final  value 20039.627999
## converged
## # weights:  25
## initial  value 23224.936554
## iter  10 value 20039.081964
## final  value 20038.093693
## converged
## # weights:  41
## initial  value 23848.066438
## iter  10 value 20051.773717
## iter  20 value 20037.437229
## final  value 20037.434236
## converged
## # weights:  9
## initial  value 22264.739741
## iter  10 value 20044.866489
## iter  20 value 20034.241922
## iter  20 value 20034.241872
## final  value 20034.241872
## converged
## # weights:  25
## initial  value 23365.531043
## iter  10 value 20047.589684
## iter  20 value 20034.273318
## final  value 20034.131831
## converged
## # weights:  41
## initial  value 23482.648148
## iter  10 value 20052.540984
## iter  20 value 20034.330403
## final  value 20034.130465
## converged
## # weights:  9
## initial  value 23274.352297
## final  value 19849.133200
## converged
## # weights:  25
```

```
## initial  value 22002.151986
## final  value 19849.133200
## converged
## # weights:  41
## initial  value 23336.715936
## final  value 19849.133200
## converged
## # weights:  9
## initial  value 22366.099296
## iter  10 value 19856.264820
## final  value 19854.639910
## converged
## # weights:  25
## initial  value 21708.997370
## iter  10 value 19854.718545
## iter  20 value 19853.107066
## iter  20 value 19853.106957
## iter  20 value 19853.106916
## final  value 19853.106916
## converged
## # weights:  41
## initial  value 23177.646678
## iter  10 value 19856.580233
## iter  20 value 19852.448211
## final  value 19852.447860
## converged
## # weights:  9
## initial  value 21680.402613
## iter  10 value 19858.209778
## iter  20 value 19849.237846
## iter  20 value 19849.237804
## final  value 19849.237804
## converged
## # weights:  25
## initial  value 22029.308436
## iter  10 value 19863.710228
## iter  20 value 19849.301262
## final  value 19849.148421
## converged
## # weights:  41
## initial  value 22569.097428
## iter  10 value 19870.224528
## iter  20 value 19849.376366
## final  value 19849.142935
## converged
## # weights:  9
## initial  value 22398.294120
## final  value 20033.902000
## converged
## # weights:  25
## initial  value 23430.376771
## final  value 20033.902000
## converged
## # weights:  41
```

```
## initial  value 21853.190240
## final  value 20033.902000
## converged
## # weights:  9
## initial  value 23298.036363
## iter  10 value 20039.473364
## final  value 20039.411879
## converged
## # weights:  25
## initial  value 23047.515431
## iter  10 value 20038.220367
## final  value 20037.877669
## converged
## # weights:  41
## initial  value 23472.055569
## iter  10 value 20043.657976
## iter  20 value 20037.218843
## final  value 20037.218182
## converged
## # weights:  9
## initial  value 22829.960104
## iter  10 value 20045.425328
## iter  20 value 20034.034855
## iter  20 value 20034.034802
## final  value 20034.034802
## converged
## # weights:  25
## initial  value 23228.193382
## iter  10 value 20048.147248
## iter  20 value 20034.066237
## final  value 20033.921432
## converged
## # weights:  41
## initial  value 21354.144152
## iter  10 value 20044.219517
## iter  20 value 20034.020953
## final  value 20033.911627
## converged
## # weights:  9
## initial  value 21740.806599
## final  value 19980.723700
## converged
## # weights:  25
## initial  value 22883.790768
## final  value 19980.723700
## converged
## # weights:  41
## initial  value 21736.034525
## final  value 19980.723700
## converged
## # weights:  9
## initial  value 21840.338698
## iter  10 value 19986.616436
## final  value 19986.232235
```

```
## converged
## # weights:  25
## initial  value 22716.741921
## iter  10 value 19985.192230
## final  value 19984.698497
## converged
## # weights:  41
## initial  value 22756.438634
## iter  10 value 20003.422303
## iter  20 value 19984.142077
## final  value 19984.039205
## converged
## # weights:  9
## initial  value 22311.937168
## iter  10 value 19992.225859
## iter  20 value 19980.856311
## iter  20 value 19980.856258
## final  value 19980.856258
## converged
## # weights:  25
## initial  value 21577.510076
## iter  10 value 19989.506390
## iter  20 value 19980.824958
## final  value 19980.735081
## converged
## # weights:  41
## initial  value 22139.318196
## iter  10 value 19998.966324
## iter  20 value 19980.934023
## final  value 19980.732448
## converged
## # weights:  9
## initial  value 21605.308218
## final  value 20027.529200
## converged
## # weights:  25
## initial  value 23060.905924
## final  value 20027.529200
## converged
## # weights:  41
## initial  value 22272.685659
## final  value 20027.529200
## converged
## # weights:  9
## initial  value 23916.467824
## iter  10 value 20033.207052
## final  value 20033.038891
## converged
## # weights:  25
## initial  value 21930.151397
## iter  10 value 20039.860878
## iter  20 value 20031.504819
## iter  20 value 20031.504755
## iter  20 value 20031.504748
```

```
## final  value 20031.504748
## converged
## # weights:  41
## initial  value 22854.618337
## iter  10 value 20031.503017
## final  value 20030.845278
## converged
## # weights:  9
## initial  value 22058.022782
## iter  10 value 20036.655520
## iter  20 value 20027.634419
## iter  20 value 20027.634377
## final  value 20027.634377
## converged
## # weights:  25
## initial  value 21873.862578
## iter  10 value 20040.471655
## iter  20 value 20027.678416
## final  value 20027.540318
## converged
## # weights:  41
## initial  value 23873.798985
## iter  10 value 20042.096575
## iter  20 value 20027.697150
## final  value 20027.547257
## converged
## # weights:  9
## initial  value 22634.128040
## final  value 20039.550500
## converged
## # weights:  25
## initial  value 23026.820933
## final  value 20039.550500
## converged
## # weights:  41
## initial  value 22622.830628
## final  value 20039.550500
## converged
## # weights:  9
## initial  value 22920.159011
## iter  10 value 20061.476747
## iter  20 value 20045.139394
## final  value 20045.060623
## converged
## # weights:  25
## initial  value 21923.079026
## iter  10 value 20046.269376
## iter  20 value 20043.527508
## final  value 20043.526339
## converged
## # weights:  41
## initial  value 24468.425270
## iter  10 value 20046.626960
## iter  20 value 20042.867231
```

```
## final   value 20042.866889
## converged
## # weights:  9
## initial   value 23015.215729
## iter  10 value 20050.745652
## iter  20 value 20039.679571
## iter  20 value 20039.679520
## final   value 20039.679520
## converged
## # weights:  25
## initial   value 24104.119917
## iter  10 value 20049.493012
## iter  20 value 20039.665129
## final   value 20039.569334
## converged
## # weights:  41
## initial   value 23274.618729
## iter  10 value 20057.020885
## iter  20 value 20039.751920
## final   value 20039.564233
## converged
## # weights:  9
## initial   value 22261.921144
## final   value 20020.659700
## converged
## # weights:  25
## initial   value 23129.863803
## final   value 20020.659700
## converged
## # weights:  41
## initial   value 22717.003386
## final   value 20020.659700
## converged
## # weights:  9
## initial   value 22944.940934
## iter  10 value 20027.899908
## final   value 20026.169186
## converged
## # weights:  25
## initial   value 23076.883968
## iter  10 value 20025.525689
## final   value 20024.635084
## converged
## # weights:  41
## initial   value 22897.911629
## iter  10 value 20037.242643
## iter  20 value 20023.976134
## final   value 20023.975721
## converged
## # weights:  9
## initial   value 22443.001504
## iter  10 value 20030.856927
## iter  20 value 20020.777266
## iter  20 value 20020.777219
```

```
## final   value 20020.777219
## converged
## # weights:  25
## initial   value 23358.349801
## iter  10 value 20035.415677
## iter  20 value 20020.829825
## final   value 20020.673113
## converged
## # weights:  41
## initial   value 22277.637731
## iter  10 value 20039.183086
## iter  20 value 20020.873260
## final   value 20020.670779
## converged
## # weights:  9
## initial   value 23141.090526
## final   value 19996.584500
## converged
## # weights:  25
## initial   value 21967.737753
## final   value 19996.584500
## converged
## # weights:  41
## initial   value 22064.502143
## final   value 19996.584500
## converged
## # weights:  9
## initial   value 22732.432968
## iter  10 value 20003.114672
## final   value 20002.093314
## converged
## # weights:  25
## initial   value 22186.833655
## iter  10 value 20003.435116
## final   value 20000.559499
## converged
## # weights:  41
## initial   value 22971.657879
## iter  10 value 20013.599554
## iter  20 value 19999.903261
## final   value 19999.900103
## converged
## # weights:  9
## initial   value 22935.288389
## iter  10 value 20006.460530
## iter  20 value 19996.698363
## iter  20 value 19996.698317
## final   value 19996.698317
## converged
## # weights:  25
## initial   value 22335.013137
## iter  10 value 20009.990039
## iter  20 value 19996.739055
## final   value 19996.595498
```

```
## converged
## # weights:  41
## initial  value 23747.735565
## iter  10 value 20013.223666
## iter  20 value 19996.776337
## final  value 19996.596909
## converged
## # weights:  9
## initial  value 23702.121612
## final  value 19975.560500
## converged
## # weights:  25
## initial  value 23249.924295
## final  value 19975.560500
## converged
## # weights:  41
## initial  value 23401.107402
## final  value 19975.560500
## converged
## # weights:  9
## initial  value 23239.943797
## iter  10 value 19983.677078
## final  value 19981.068997
## converged
## # weights:  25
## initial  value 22577.606645
## iter  10 value 19980.227954
## final  value 19979.535377
## converged
## # weights:  41
## initial  value 22741.432160
## iter  10 value 19979.645136
## final  value 19978.875992
## converged
## # weights:  9
## initial  value 21898.894017
## iter  10 value 19984.971748
## iter  20 value 19975.669004
## iter  20 value 19975.668961
## final  value 19975.668961
## converged
## # weights:  25
## initial  value 23567.924510
## iter  10 value 19986.948160
## iter  20 value 19975.691791
## final  value 19975.574371
## converged
## # weights:  41
## initial  value 22646.211913
## iter  10 value 19992.396818
## iter  20 value 19975.754610
## final  value 19975.574910
## converged
## # weights:  9
```

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```
## initial   value 22154.062406
## final   value 20060.414500
## converged
## # weights:  25
## initial   value 23599.458462
## final   value 20060.414500
## converged
## # weights:  41
## initial   value 21747.039667
## final   value 20060.414500
## converged
## # weights:  9
## initial   value 22001.991600
## iter  10 value 20066.025215
## final   value 20065.925954
## converged
## # weights:  25
## initial   value 22469.083176
## iter  10 value 20065.962759
## iter  20 value 20064.404409
## final   value 20064.391276
## converged
## # weights:  41
## initial   value 23505.222464
## iter  10 value 20064.837118
## final   value 20063.731671
## converged
## # weights:  9
## initial   value 22545.785553
## iter  10 value 20071.455340
## iter  20 value 20060.541792
## iter  20 value 20060.541741
## final   value 20060.541741
## converged
## # weights:  25
## initial   value 21618.155178
## iter  10 value 20070.942927
## iter  20 value 20060.535884
## final   value 20060.426614
## converged
## # weights:  41
## initial   value 22475.448566
## iter  10 value 20081.281214
## iter  20 value 20060.655077
## final   value 20060.423900
## converged
## # weights:  9
## initial   value 23076.321206
## final   value 19948.680100
## converged
## # weights:  25
## initial   value 24093.558496
## final   value 19948.680100
## converged
```

```
## # weights:  41
## initial  value 22912.684751
## final  value 19948.680100
## converged
## # weights:  9
## initial  value 22748.790985
## iter  10 value 19956.251900
## final  value 19954.188108
## converged
## # weights:  25
## initial  value 23425.917905
## iter  10 value 19953.868908
## iter  20 value 19952.654649
## iter  20 value 19952.654571
## iter  20 value 19952.654567
## final  value 19952.654567
## converged
## # weights:  41
## initial  value 23893.628507
## iter  10 value 19955.788084
## iter  20 value 19951.995519
## iter  20 value 19951.995407
## iter  20 value 19951.995407
## final  value 19951.995407
## converged
## # weights:  9
## initial  value 23634.354905
## iter  10 value 19956.608733
## iter  20 value 19948.771511
## iter  20 value 19948.771474
## final  value 19948.771474
## converged
## # weights:  25
## initial  value 21929.206728
## iter  10 value 19961.226550
## iter  20 value 19948.824751
## final  value 19948.692792
## converged
## # weights:  41
## initial  value 22281.429863
## iter  10 value 19965.203678
## iter  20 value 19948.870604
## final  value 19948.693181
## converged
## # weights:  9
## initial  value 21801.042690
## final  value 20049.554000
## converged
## # weights:  25
## initial  value 24117.529036
## final  value 20049.554000
## converged
## # weights:  41
## initial  value 21533.621745
```

```
## final   value 20049.554000
## converged
## # weights:  9
## initial   value 22191.794765
## iter  10 value 20055.376776
## final   value 20055.064609
## converged
## # weights:  25
## initial   value 22337.634918
## iter  10 value 20054.245777
## final   value 20053.530206
## converged
## # weights:  41
## initial   value 22524.100808
## iter  10 value 20057.228729
## iter  20 value 20052.947909
## iter  30 value 20052.871070
## final   value 20052.870649
## converged
## # weights:  9
## initial   value 23321.059354
## iter  10 value 20060.658140
## iter  20 value 20049.682022
## iter  20 value 20049.681971
## final   value 20049.681971
## converged
## # weights:  25
## initial   value 23025.856332
## iter  10 value 20064.178522
## iter  20 value 20049.722609
## final   value 20049.569943
## converged
## # weights:  41
## initial   value 24413.356891
## iter  10 value 20059.255837
## iter  20 value 20049.665855
## final   value 20049.569370
## converged
## # weights:  9
## initial   value 22207.003024
## final   value 20035.817200
## converged
## # weights:  25
## initial   value 22587.990424
## final   value 20035.817200
## converged
## # weights:  41
## initial   value 23205.403957
## final   value 20035.817200
## converged
## # weights:  9
## initial   value 22205.703039
## iter  10 value 20041.455041
## final   value 20041.327166
```

```
## converged
## # weights:  25
## initial  value 23461.546393
## iter  10 value 20040.310058
## iter  20 value 20039.793364
## final  value 20039.793007
## converged
## # weights:  41
## initial  value 23292.240727
## iter  10 value 20040.703102
## iter  20 value 20039.133477
## iter  20 value 20039.133439
## iter  20 value 20039.133427
## final  value 20039.133427
## converged
## # weights:  9
## initial  value 23365.180228
## iter  10 value 20045.849341
## iter  20 value 20035.932863
## iter  20 value 20035.932816
## final  value 20035.932816
## converged
## # weights:  25
## initial  value 23223.525167
## iter  10 value 20047.488355
## iter  20 value 20035.951759
## final  value 20035.830505
## converged
## # weights:  41
## initial  value 22139.752194
## iter  10 value 20050.882680
## iter  20 value 20035.990893
## final  value 20035.826791
## converged
## # weights:  9
## initial  value 21778.580421
## final  value 20058.547600
## converged
## # weights:  25
## initial  value 23083.937619
## final  value 20058.547600
## converged
## # weights:  41
## initial  value 22855.684038
## final  value 20058.547600
## converged
## # weights:  9
## initial  value 22309.287245
## iter  10 value 20065.349424
## final  value 20064.058751
## converged
## # weights:  25
## initial  value 22627.506980
## iter  10 value 20064.275646
```

```
## iter   20 value 20062.524453
## iter   20 value 20062.524278
## iter   20 value 20062.524201
## final   value 20062.524201
## converged
## # weights:  41
## initial   value 23773.177985
## iter   10 value 20066.948508
## iter   20 value 20061.996088
## iter   30 value 20061.864629
## iter   30 value 20061.864521
## iter   30 value 20061.864500
## final   value 20061.864500
## converged
## # weights:  9
## initial   value 22482.300598
## iter   10 value 20069.211402
## iter   20 value 20058.670545
## iter   20 value 20058.670496
## final   value 20058.670496
## converged
## # weights:  25
## initial   value 21729.341911
## iter   10 value 20069.817669
## iter   20 value 20058.677535
## final   value 20058.560505
## converged
## # weights:  41
## initial   value 22881.726097
## iter   10 value 20076.985845
## iter   20 value 20058.760178
## final   value 20058.559914
## converged
## # weights:  9
## initial   value 21828.872906
## final   value 19957.697200
## converged
## # weights:  25
## initial   value 23872.240979
## final   value 19957.697200
## converged
## # weights:  41
## initial   value 22853.896492
## final   value 19957.697200
## converged
## # weights:  9
## initial   value 23755.355374
## iter   10 value 19964.149087
## final   value 19963.205370
## converged
## # weights:  25
## initial   value 21477.216874
## iter   10 value 19961.975155
## final   value 19961.671770
```

```
## converged
## # weights:  41
## initial  value 22797.403398
## iter  10 value 19968.645219
## iter  20 value 19961.013500
## final  value 19961.012558
## converged
## # weights:  9
## initial  value 23600.024869
## iter  10 value 19967.647723
## iter  20 value 19957.811922
## iter  20 value 19957.811876
## final  value 19957.811876
## converged
## # weights:  25
## initial  value 22253.535819
## iter  10 value 19973.489123
## iter  20 value 19957.879268
## final  value 19957.708780
## converged
## # weights:  41
## initial  value 23200.651401
## iter  10 value 19975.744799
## iter  20 value 19957.905275
## final  value 19957.710064
## converged
## # weights:  9
## initial  value 23184.114708
## final  value 20047.250000
## converged
## # weights:  25
## initial  value 22207.544905
## final  value 20047.250000
## converged
## # weights:  41
## initial  value 21656.456269
## final  value 20047.250000
## converged
## # weights:  9
## initial  value 22014.628491
## iter  10 value 20053.388963
## final  value 20052.760431
## converged
## # weights:  25
## initial  value 22355.926702
## iter  10 value 20051.988028
## final  value 20051.226048
## converged
## # weights:  41
## initial  value 21792.271284
## iter  10 value 20051.302167
## final  value 20050.566562
## converged
## # weights:  9
```

```
## initial  value 22384.723667
## iter  10 value 20058.811994
## iter  20 value 20047.383301
## iter  20 value 20047.383247
## final  value 20047.383247
## converged
## # weights:  25
## initial  value 21853.993156
## iter  10 value 20058.672988
## iter  20 value 20047.381698
## final  value 20047.264315
## converged
## # weights:  41
## initial  value 23245.140217
## iter  10 value 20063.543988
## iter  20 value 20047.437857
## final  value 20047.261709
## converged
## # weights:  9
## initial  value 23333.700466
## final  value 19980.360100
## converged
## # weights:  25
## initial  value 23526.454065
## final  value 19980.360100
## converged
## # weights:  41
## initial  value 23008.275149
## final  value 19980.360100
## converged
## # weights:  9
## initial  value 22273.456692
## iter  10 value 19986.472535
## final  value 19985.868654
## converged
## # weights:  25
## initial  value 21288.661719
## iter  10 value 19986.188287
## final  value 19984.334949
## converged
## # weights:  41
## initial  value 22071.708198
## iter  10 value 19995.241526
## iter  20 value 19983.677148
## final  value 19983.675620
## converged
## # weights:  9
## initial  value 21912.601257
## iter  10 value 19989.448837
## iter  20 value 19980.464886
## iter  20 value 19980.464844
## final  value 19980.464844
## converged
## # weights:  25
```

```
## initial  value 21961.196147
## iter  10 value 19991.597244
## iter  20 value 19980.489655
## final  value 19980.374066
## converged
## # weights:  41
## initial  value 24213.972277
## iter  10 value 19989.287859
## iter  20 value 19980.463030
## final  value 19980.374108
## converged
## # weights:  9
## initial  value 23638.705804
## final  value 20040.702500
## converged
## # weights:  25
## initial  value 22850.352688
## final  value 20040.702500
## converged
## # weights:  41
## initial  value 22205.370810
## final  value 20040.702500
## converged
## # weights:  9
## initial  value 23836.413127
## iter  10 value 20046.766289
## final  value 20046.212608
## converged
## # weights:  25
## initial  value 22960.203261
## iter  10 value 20046.051387
## iter  20 value 20044.678396
## iter  20 value 20044.678319
## iter  20 value 20044.678316
## final  value 20044.678316
## converged
## # weights:  41
## initial  value 22864.842432
## iter  10 value 20045.362006
## iter  20 value 20044.018977
## iter  20 value 20044.018810
## iter  20 value 20044.018798
## final  value 20044.018798
## converged
## # weights:  9
## initial  value 21689.530868
## iter  10 value 20048.553855
## iter  20 value 20040.793020
## iter  20 value 20040.792984
## final  value 20040.792984
## converged
## # weights:  25
## initial  value 22633.006193
## iter  10 value 20055.490601
```

```
## iter  20 value 20040.872995
## final  value 20040.714755
## converged
## # weights:  41
## initial  value 21868.775938
## iter  10 value 20054.757380
## iter  20 value 20040.864542
## final  value 20040.712743
## converged
## # weights:  9
## initial  value 23868.620295
## final  value 20039.453200
## converged
## # weights:  25
## initial  value 22709.913961
## final  value 20039.453200
## converged
## # weights:  41
## initial  value 23875.315307
## final  value 20039.453200
## converged
## # weights:  9
## initial  value 21750.973559
## iter  10 value 20045.151070
## final  value 20044.963324
## converged
## # weights:  25
## initial  value 23572.668568
## iter  10 value 20044.131861
## final  value 20043.429054
## converged
## # weights:  41
## initial  value 21709.651940
## iter  10 value 20054.834719
## iter  20 value 20042.769805
## iter  20 value 20042.769663
## iter  20 value 20042.769655
## final  value 20042.769655
## converged
## # weights:  9
## initial  value 22068.959603
## iter  10 value 20049.554378
## iter  20 value 20039.569659
## iter  20 value 20039.569612
## final  value 20039.569612
## converged
## # weights:  25
## initial  value 21325.032687
## iter  10 value 20047.463322
## iter  20 value 20039.545550
## final  value 20039.464488
## converged
## # weights:  41
## initial  value 22559.274881
```

```
## iter  10 value 20059.650778
## iter  20 value 20039.686062
## final  value 20039.462853
## converged
## # weights:  9
## initial  value 23436.751497
## final  value 20019.213200
## converged
## # weights:  25
## initial  value 22433.239429
## final  value 20019.213200
## converged
## # weights:  41
## initial  value 22727.698633
## final  value 20019.213200
## converged
## # weights:  9
## initial  value 22746.233616
## iter  10 value 20026.757940
## final  value 20024.722609
## converged
## # weights:  25
## initial  value 23538.303970
## iter  10 value 20024.435330
## iter  20 value 20023.189702
## final  value 20023.188524
## converged
## # weights:  41
## initial  value 23778.132411
## iter  10 value 20025.533227
## final  value 20022.529310
## converged
## # weights:  9
## initial  value 23003.025572
## iter  10 value 20030.576313
## iter  20 value 20019.344208
## iter  20 value 20019.344155
## final  value 20019.344155
## converged
## # weights:  25
## initial  value 23077.682340
## iter  10 value 20031.093175
## iter  20 value 20019.350167
## final  value 20019.226249
## converged
## # weights:  41
## initial  value 22726.458395
## iter  10 value 20037.840091
## iter  20 value 20019.427953
## final  value 20019.224496
## converged
## # weights:  9
## initial  value 22513.066698
## final  value 20036.337700
```

```
## converged
## # weights:  25
## initial   value 21502.726758
## final   value 20036.337700
## converged
## # weights:  41
## initial   value 22521.232478
## final   value 20036.337700
## converged
## # weights:  9
## initial   value 23815.016610
## iter   10 value 20042.341868
## final   value 20041.847686
## converged
## # weights:  25
## initial   value 23210.824042
## iter   10 value 20041.269983
## final   value 20040.313484
## converged
## # weights:  41
## initial   value 23785.257839
## iter   10 value 20051.777803
## iter   20 value 20039.654240
## iter   20 value 20039.654077
## iter   20 value 20039.654040
## final   value 20039.654040
## converged
## # weights:  9
## initial   value 23729.755196
## iter   10 value 20045.839710
## iter   20 value 20036.447251
## iter   20 value 20036.447207
## final   value 20036.447207
## converged
## # weights:  25
## initial   value 22154.846752
## iter   10 value 20050.380209
## iter   20 value 20036.499599
## final   value 20036.350193
## converged
## # weights:  41
## initial   value 22207.650306
## iter   10 value 20053.630806
## iter   20 value 20036.537076
## final   value 20036.348009
## converged
## # weights:  9
## initial   value 21850.304858
## final   value 20045.781200
## converged
## # weights:  25
## initial   value 23414.174885
## final   value 20045.781200
## converged
```

```
## # weights:  41
## initial   value 23427.541733
## final   value 20045.781200
## converged
## # weights:  9
## initial   value 23149.224849
## iter   10 value 20054.149394
## final   value 20051.291658
## converged
## # weights:  25
## initial   value 23121.329736
## iter   10 value 20052.392036
## iter   20 value 20049.766654
## final   value 20049.757212
## converged
## # weights:  41
## initial   value 21517.635059
## iter   10 value 20050.739098
## iter   20 value 20049.097951
## iter   20 value 20049.097778
## iter   20 value 20049.097734
## final   value 20049.097734
## converged
## # weights:  9
## initial   value 23119.147194
## iter   10 value 20055.265917
## iter   20 value 20045.890551
## iter   20 value 20045.890508
## final   value 20045.890508
## converged
## # weights:  25
## initial   value 22942.148417
## iter   10 value 20059.803886
## iter   20 value 20045.942871
## final   value 20045.795978
## converged
## # weights:  41
## initial   value 21334.500630
## iter   10 value 20055.481522
## iter   20 value 20045.893037
## final   value 20045.790588
## converged
## # weights:  9
## initial   value 22972.624299
## final   value 20005.258000
## converged
## # weights:  25
## initial   value 23710.190246
## final   value 20005.258000
## converged
## # weights:  41
## initial   value 21621.861819
## final   value 20005.258000
## converged
```

```
## # weights:  9
## initial  value 22506.886581
## iter  10 value 20011.327103
## final  value 20010.767026
## converged
## # weights:  25
## initial  value 22077.451801
## iter  10 value 20009.418072
## final  value 20009.233056
## converged
## # weights:  41
## initial  value 22959.856314
## iter  10 value 20010.539194
## iter  20 value 20008.574307
## final  value 20008.573712
## converged
## # weights:  9
## initial  value 22407.772388
## iter  10 value 20015.687890
## iter  20 value 20005.378248
## iter  20 value 20005.378200
## final  value 20005.378200
## converged
## # weights:  25
## initial  value 22863.430325
## iter  10 value 20020.133803
## iter  20 value 20005.429506
## final  value 20005.270872
## converged
## # weights:  41
## initial  value 23321.242985
## iter  10 value 20020.920133
## iter  20 value 20005.438572
## final  value 20005.268828
## converged
## # weights:  9
## initial  value 22428.027473
## final  value 20038.469200
## converged
## # weights:  25
## initial  value 22646.152513
## final  value 20038.469200
## converged
## # weights:  41
## initial  value 22619.351699
## final  value 20038.469200
## converged
## # weights:  9
## initial  value 21933.110824
## iter  10 value 20044.354101
## final  value 20043.979271
## converged
## # weights:  25
## initial  value 23189.946186
```

```
## iter   10 value 20043.844739
## iter   20 value 20042.445188
## iter   20 value 20042.445042
## iter   20 value 20042.445025
## final   value 20042.445025
## converged
## # weights:  41
## initial  value 22210.508388
## iter   10 value 20050.896281
## iter   20 value 20041.786291
## final   value 20041.785542
## converged
## # weights:  9
## initial  value 22879.927182
## iter   10 value 20048.292310
## iter   20 value 20038.582453
## iter   20 value 20038.582407
## final   value 20038.582407
## converged
## # weights:  25
## initial  value 23503.267563
## iter   10 value 20051.649463
## iter   20 value 20038.621158
## final   value 20038.482843
## converged
## # weights:  41
## initial  value 23317.181830
## iter   10 value 20054.866852
## iter   20 value 20038.658252
## final   value 20038.480977
## converged
## # weights:  9
## initial  value 22836.766815
## final   value 19952.078500
## converged
## # weights:  25
## initial  value 22623.074037
## final   value 19952.078500
## converged
## # weights:  41
## initial  value 22782.063486
## final   value 19952.078500
## converged
## # weights:  9
## initial  value 22784.225979
## iter   10 value 19959.668587
## final   value 19957.586431
## converged
## # weights:  25
## initial  value 23696.953358
## iter   10 value 19957.046534
## final   value 19956.052882
## converged
## # weights:  41
```

```
## initial  value 22263.465374
## iter  10 value 19969.033988
## iter  20 value 19955.405564
## final  value 19955.393659
## converged
## # weights:  9
## initial  value 21869.975578
## iter  10 value 19961.736210
## iter  20 value 19952.189846
## iter  20 value 19952.189801
## final  value 19952.189801
## converged
## # weights:  25
## initial  value 22221.673111
## iter  10 value 19968.890758
## iter  20 value 19952.272332
## final  value 19952.095244
## converged
## # weights:  41
## initial  value 23051.774052
## iter  10 value 19970.560906
## iter  20 value 19952.291588
## final  value 19952.089346
## converged
## # weights:  9
## initial  value 23965.796126
## final  value 20020.920100
## converged
## # weights:  25
## initial  value 22768.004266
## final  value 20020.920100
## converged
## # weights:  41
## initial  value 22462.782958
## final  value 20020.920100
## converged
## # weights:  9
## initial  value 22639.976825
## iter  10 value 20027.418370
## final  value 20026.429598
## converged
## # weights:  25
## initial  value 22668.932365
## iter  10 value 20031.737660
## iter  20 value 20024.895936
## final  value 20024.895540
## converged
## # weights:  41
## initial  value 23745.787469
## iter  10 value 20025.729520
## final  value 20024.236161
## converged
## # weights:  9
## initial  value 23503.095461
```

```
## iter  10 value 20030.986774
## iter  20 value 20021.036161
## iter  20 value 20021.036114
## final  value 20021.036114
## converged
## # weights:  25
## initial  value 21523.408613
## iter  10 value 20030.114453
## iter  20 value 20021.026104
## final  value 20020.930979
## converged
## # weights:  41
## initial  value 21468.013532
## iter  10 value 20033.665320
## iter  20 value 20021.067042
## final  value 20020.929570
## converged
## # weights:  9
## initial  value 22678.495887
## final  value 20022.465700
## converged
## # weights:  25
## initial  value 23664.704683
## final  value 20022.465700
## converged
## # weights:  41
## initial  value 21503.889362
## final  value 20022.465700
## converged
## # weights:  9
## initial  value 22088.588039
## iter  10 value 20028.325902
## final  value 20027.975241
## converged
## # weights:  25
## initial  value 23062.284588
## iter  10 value 20027.275798
## final  value 20026.441158
## converged
## # weights:  41
## initial  value 21841.258813
## iter  10 value 20036.831299
## iter  20 value 20025.782328
## final  value 20025.781745
## converged
## # weights:  9
## initial  value 23201.575794
## iter  10 value 20033.085471
## iter  20 value 20022.588138
## iter  20 value 20022.588089
## final  value 20022.588089
## converged
## # weights:  25
## initial  value 22275.121114
```

```
## iter  10 value 20035.422367
## iter  20 value 20022.615080
## final  value 20022.478258
## converged
## # weights:  41
## initial  value 22800.363549
## iter  10 value 20043.315405
## iter  20 value 20022.706081
## final  value 20022.475317
## converged
## # weights:  9
## initial  value 21767.597801
## final  value 20016.794000
## converged
## # weights:  25
## initial  value 23977.789341
## final  value 20016.794000
## converged
## # weights:  41
## initial  value 22325.001135
## final  value 20016.794000
## converged
## # weights:  9
## initial  value 23274.540500
## iter  10 value 20022.813700
## final  value 20022.303383
## converged
## # weights:  25
## initial  value 23011.852139
## iter  10 value 20021.713445
## final  value 20020.769328
## converged
## # weights:  41
## initial  value 24404.513181
## iter  10 value 20031.215734
## iter  20 value 20020.115795
## final  value 20020.110007
## converged
## # weights:  9
## initial  value 22625.447806
## iter  10 value 20026.573982
## iter  20 value 20016.906756
## iter  20 value 20016.906710
## final  value 20016.906710
## converged
## # weights:  25
## initial  value 22615.059878
## iter  10 value 20030.390944
## iter  20 value 20016.950762
## final  value 20016.805901
## converged
## # weights:  41
## initial  value 22506.972281
## iter  10 value 20033.151101
```

```
## iter  20 value 20016.982585
## final  value 20016.803126
## converged
## # weights:  9
## initial  value 22177.525197
## final  value 20038.270000
## converged
## # weights:  25
## initial  value 22236.634099
## final  value 20038.270000
## converged
## # weights:  41
## initial  value 23151.049731
## final  value 20038.270000
## converged
## # weights:  9
## initial  value 23128.178154
## iter  10 value 20044.427872
## final  value 20043.780038
## converged
## # weights:  25
## initial  value 22885.854468
## iter  10 value 20044.144191
## final  value 20042.245802
## converged
## # weights:  41
## initial  value 23135.331091
## iter  10 value 20047.864923
## iter  20 value 20041.586502
## iter  20 value 20041.586319
## iter  20 value 20041.586310
## final  value 20041.586310
## converged
## # weights:  9
## initial  value 21696.305620
## iter  10 value 20045.581801
## iter  20 value 20038.354299
## iter  20 value 20038.354266
## final  value 20038.354266
## converged
## # weights:  25
## initial  value 22985.073464
## iter  10 value 20056.944521
## iter  20 value 20038.485303
## final  value 20038.284486
## converged
## # weights:  41
## initial  value 21300.817437
## iter  10 value 20047.732539
## iter  20 value 20038.379096
## final  value 20038.279502
## converged
## # weights:  9
## initial  value 22790.835982
```

```
## final   value 20007.965200
## converged
## # weights:  25
## initial  value 21964.451307
## final   value 20007.965200
## converged
## # weights:  41
## initial  value 22494.589624
## final   value 20007.965200
## converged
## # weights:  9
## initial  value 21800.869606
## iter  10 value 20013.697935
## final   value 20013.474298
## converged
## # weights:  25
## initial  value 21473.058716
## iter  10 value 20012.449003
## final   value 20011.940289
## converged
## # weights:  41
## initial  value 22035.795365
## iter  10 value 20011.925380
## final   value 20011.281036
## converged
## # weights:  9
## initial  value 21876.811017
## iter  10 value 20015.772706
## iter  20 value 20008.055214
## iter  20 value 20008.055178
## final   value 20008.055178
## converged
## # weights:  25
## initial  value 22381.186610
## iter  10 value 20020.819305
## iter  20 value 20008.113398
## final   value 20007.979367
## converged
## # weights:  41
## initial  value 22650.428712
## iter  10 value 20028.479129
## iter  20 value 20008.201709
## final   value 20007.978276
## converged
## # weights:  9
## initial  value 23882.332679
## final   value 20048.654000
## converged
## # weights:  25
## initial  value 22392.320570
## final   value 20048.654000
## converged
## # weights:  41
## initial  value 22839.169937
```

```
## final   value 20048.654000
## converged
## # weights:  9
## initial   value 23492.506960
## iter  10 value 20054.405090
## final   value 20054.164586
## converged
## # weights:  25
## initial   value 21924.677208
## iter  10 value 20053.366610
## final   value 20052.630195
## converged
## # weights:  41
## initial   value 21851.375562
## iter  10 value 20053.568223
## iter  20 value 20051.970818
## iter  20 value 20051.970683
## iter  20 value 20051.970648
## final   value 20051.970648
## converged
## # weights:  9
## initial   value 21853.009476
## iter  10 value 20056.250030
## iter  20 value 20048.741576
## iter  20 value 20048.741541
## final   value 20048.741541
## converged
## # weights:  25
## initial   value 22236.795768
## iter  10 value 20062.356235
## iter  20 value 20048.811976
## final   value 20048.667060
## converged
## # weights:  41
## initial   value 23202.240497
## iter  10 value 20068.195481
## iter  20 value 20048.879298
## final   value 20048.663866
## converged
## # weights:  9
## initial   value 23364.478968
## final   value 19999.649200
## converged
## # weights:  25
## initial   value 22007.992944
## final   value 19999.649200
## converged
## # weights:  41
## initial   value 22018.900414
## final   value 19999.649200
## converged
## # weights:  9
## initial   value 22627.421602
## iter  10 value 20005.266269
```

```
## final   value 20005.158152
## converged
## # weights:  25
## initial   value 21000.837395
## iter  10 value 20004.375703
## final   value 20003.624251
## converged
## # weights:  41
## initial   value 22336.344804
## iter  10 value 20005.923406
## iter  20 value 20002.964983
## iter  20 value 20002.964932
## iter  20 value 20002.964911
## final   value 20002.964911
## converged
## # weights:  9
## initial   value 22894.805717
## iter  10 value 20010.112336
## iter  20 value 19999.769832
## iter  20 value 19999.769783
## final   value 19999.769783
## converged
## # weights:  25
## initial   value 22520.845994
## iter  10 value 20013.642896
## iter  20 value 19999.810536
## final   value 19999.666434
## converged
## # weights:  41
## initial   value 22983.542487
## iter  10 value 20017.839373
## iter  20 value 19999.858918
## final   value 19999.662444
## converged
## # weights:  9
## initial   value 22380.946175
## final   value 20028.595700
## converged
## # weights:  25
## initial   value 21981.626617
## final   value 20028.595700
## converged
## # weights:  41
## initial   value 22642.851064
## final   value 20028.595700
## converged
## # weights:  9
## initial   value 22592.569761
## iter  10 value 20036.753157
## final   value 20034.105430
## converged
## # weights:  25
## initial   value 23046.089882
## iter  10 value 20035.605097
```

```
## final  value 20032.571281
## converged
## # weights:  41
## initial  value 22958.809211
## iter  10 value 20042.745895
## iter  20 value 20031.967639
## final  value 20031.911837
## converged
## # weights:  9
## initial  value 22566.275741
## iter  10 value 20038.510310
## iter  20 value 20028.710008
## iter  20 value 20028.709962
## final  value 20028.709962
## converged
## # weights:  25
## initial  value 21978.452371
## iter  10 value 20041.483224
## iter  20 value 20028.744283
## final  value 20028.608374
## converged
## # weights:  41
## initial  value 22751.471738
## iter  10 value 20046.832427
## iter  20 value 20028.805955
## final  value 20028.607927
## converged
## # weights:  9
## initial  value 22505.993119
## final  value 19929.305200
## converged
## # weights:  25
## initial  value 23414.662562
## final  value 19929.305200
## converged
## # weights:  41
## initial  value 21956.630546
## final  value 19929.305200
## converged
## # weights:  9
## initial  value 23402.621395
## iter  10 value 19938.264725
## final  value 19934.812952
## converged
## # weights:  25
## initial  value 22401.949998
## iter  10 value 19933.949357
## final  value 19933.279563
## converged
## # weights:  41
## initial  value 22512.951892
## iter  10 value 19934.238763
## iter  20 value 19932.620511
## iter  20 value 19932.620354
```

```
## iter   20 value 19932.620333
## final   value 19932.620333
## converged
## # weights:   9
## initial   value 21641.923753
## iter   10 value 19937.223294
## iter   20 value 19929.396489
## iter   20 value 19929.396453
## final   value 19929.396453
## converged
## # weights:   25
## initial   value 24131.553218
## iter   10 value 19937.576578
## iter   20 value 19929.400562
## final   value 19929.324322
## converged
## # weights:   41
## initial   value 21963.912775
## iter   10 value 19944.726977
## iter   20 value 19929.483001
## final   value 19929.314790
## converged
## # weights:   9
## initial   value 23524.777906
## final   value 19993.947700
## converged
## # weights:   25
## initial   value 23072.929083
## final   value 19993.947700
## converged
## # weights:   41
## initial   value 21411.300532
## final   value 19993.947700
## converged
## # weights:   9
## initial   value 21995.664742
## iter   10 value 19999.746480
## final   value 19999.456546
## converged
## # weights:   25
## initial   value 22313.650651
## iter   10 value 20021.162565
## iter   20 value 19997.956465
## final   value 19997.922768
## converged
## # weights:   41
## initial   value 22987.172153
## iter   10 value 20011.259627
## iter   20 value 19997.264522
## final   value 19997.263383
## converged
## # weights:   9
## initial   value 22774.746831
## iter   10 value 20003.970005
```

```
## iter  20 value 19994.063249
## iter  20 value 19994.063203
## final   value 19994.063203
## converged
## # weights:  25
## initial   value 23405.410215
## iter  10 value 20008.347441
## iter  20 value 19994.113718
## final   value 19993.965863
## converged
## # weights:  41
## initial   value 21922.762018
## iter  10 value 20010.402863
## iter  20 value 19994.137415
## final   value 19993.957798
## converged
## # weights:  9
## initial   value 22319.003131
## final   value 20004.800500
## converged
## # weights:  25
## initial   value 22657.278840
## final   value 20004.800500
## converged
## # weights:  41
## initial   value 23273.604366
## final   value 20004.800500
## converged
## # weights:  9
## initial   value 22825.151416
## iter  10 value 20011.248577
## final   value 20010.309578
## converged
## # weights:  25
## initial   value 21278.311094
## iter  10 value 20010.047271
## iter  20 value 20008.775794
## iter  20 value 20008.775680
## iter  20 value 20008.775649
## final   value 20008.775649
## converged
## # weights:  41
## initial   value 21661.686509
## iter  10 value 20009.657696
## iter  20 value 20008.116445
## iter  20 value 20008.116310
## iter  20 value 20008.116292
## final   value 20008.116292
## converged
## # weights:  9
## initial   value 22637.440854
## iter  10 value 20016.618589
## iter  20 value 20004.936753
## iter  20 value 20004.936699
```

```
## final   value 20004.936699
## converged
## # weights:  25
## initial   value 22947.018458
## iter  10 value 20019.594666
## iter  20 value 20004.971065
## final   value 20004.812097
## converged
## # weights:  41
## initial   value 22137.614394
## iter  10 value 20021.924795
## iter  20 value 20004.997930
## final   value 20004.810292
## converged
## # weights:  9
## initial   value 22780.973440
## final   value 19974.056500
## converged
## # weights:  25
## initial   value 21973.854249
## final   value 19974.056500
## converged
## # weights:  41
## initial   value 21406.784607
## final   value 19974.056500
## converged
## # weights:  9
## initial   value 23282.343979
## iter  10 value 19981.569074
## iter  20 value 19979.565580
## final   value 19979.564975
## converged
## # weights:  25
## initial   value 22325.226404
## iter  10 value 19979.607553
## final   value 19978.031304
## converged
## # weights:  41
## initial   value 22481.212841
## iter  10 value 19993.978232
## iter  20 value 19977.375541
## final   value 19977.372031
## converged
## # weights:  9
## initial   value 23612.273095
## iter  10 value 19982.157019
## iter  20 value 19974.149893
## iter  20 value 19974.149855
## final   value 19974.149855
## converged
## # weights:  25
## initial   value 22422.226814
## iter  10 value 19989.789319
## iter  20 value 19974.237887
```

```
## final   value 19974.074796
## converged
## # weights:  41
## initial   value 23061.500340
## iter  10 value 19995.696703
## iter  20 value 19974.305995
## final   value 19974.066670
## converged
## # weights:  9
## initial   value 22421.692893
## final   value 19908.416500
## converged
## # weights:  25
## initial   value 22619.782318
## final   value 19908.416500
## converged
## # weights:  41
## initial   value 22239.842352
## final   value 19908.416500
## converged
## # weights:  9
## initial   value 21903.710286
## iter  10 value 19915.054209
## final   value 19913.923805
## converged
## # weights:  25
## initial   value 21611.802160
## iter  10 value 19914.772520
## iter  20 value 19912.390592
## iter  20 value 19912.390533
## iter  20 value 19912.390527
## final   value 19912.390527
## converged
## # weights:  41
## initial   value 23030.380071
## iter  10 value 19916.746616
## iter  20 value 19911.731530
## iter  20 value 19911.731380
## iter  20 value 19911.731355
## final   value 19911.731355
## converged
## # weights:  9
## initial   value 21890.797194
## iter  10 value 19918.472403
## iter  20 value 19908.532437
## iter  20 value 19908.532390
## final   value 19908.532390
## converged
## # weights:  25
## initial   value 22766.940615
## iter  10 value 19925.535395
## iter  20 value 19908.613867
## final   value 19908.428821
## converged
```

```
## # weights:  41
## initial   value 22432.889884
## iter   10 value 19925.584937
## iter   20 value 19908.614439
## final   value 19908.427864
## converged
## # weights:  9
## initial   value 22854.058622
## final   value 19991.767600
## converged
## # weights:  25
## initial   value 22719.075506
## final   value 19991.767600
## converged
## # weights:  41
## initial   value 22139.583645
## final   value 19991.767600
## converged
## # weights:  9
## initial   value 23132.016252
## iter   10 value 19997.447487
## final   value 19997.276404
## converged
## # weights:  25
## initial   value 22399.735365
## iter   10 value 19996.090349
## final   value 19995.742600
## converged
## # weights:  41
## initial   value 22312.716987
## iter   10 value 19998.488164
## iter   20 value 19995.084689
## final   value 19995.083282
## converged
## # weights:  9
## initial   value 22692.769460
## iter   10 value 20001.333277
## iter   20 value 19991.877885
## iter   20 value 19991.877841
## final   value 19991.877841
## converged
## # weights:  25
## initial   value 23883.648502
## iter   10 value 20003.816279
## iter   20 value 19991.906512
## final   value 19991.783328
## converged
## # weights:  41
## initial   value 23594.372036
## iter   10 value 20009.447734
## iter   20 value 19991.971438
## final   value 19991.781061
## converged
## # weights:  9
```

```
## initial  value 22242.192190
## final  value 20044.680100
## converged
## # weights:  25
## initial  value 23456.112180
## final  value 20044.680100
## converged
## # weights:  41
## initial  value 21825.904828
## final  value 20044.680100
## converged
## # weights:  9
## initial  value 22894.153721
## iter  10 value 20052.287919
## final  value 20050.190466
## converged
## # weights:  25
## initial  value 22669.259702
## iter  10 value 20066.516498
## iter  20 value 20048.657511
## final  value 20048.656220
## converged
## # weights:  41
## initial  value 23416.898985
## iter  10 value 20059.917957
## iter  20 value 20047.998427
## final  value 20047.996690
## converged
## # weights:  9
## initial  value 22177.702497
## iter  10 value 20053.803073
## iter  20 value 20044.785281
## iter  20 value 20044.785239
## final  value 20044.785239
## converged
## # weights:  25
## initial  value 22480.484812
## iter  10 value 20060.628666
## iter  20 value 20044.863974
## final  value 20044.692201
## converged
## # weights:  41
## initial  value 22981.596448
## iter  10 value 20062.462096
## iter  20 value 20044.885112
## final  value 20044.690642
## converged
## # weights:  9
## initial  value 22363.554133
## final  value 20026.929700
## converged
## # weights:  25
## initial  value 23251.205638
## final  value 20026.929700
```

```
## converged
## # weights:  41
## initial  value 24103.541792
## final  value 20026.929700
## converged
## # weights:  9
## initial  value 23114.092243
## iter  10 value 20032.916166
## final  value 20032.439367
## converged
## # weights:  25
## initial  value 22786.970029
## iter  10 value 20031.805735
## final  value 20030.905209
## converged
## # weights:  41
## initial  value 22332.628770
## iter  10 value 20031.574524
## final  value 20030.245789
## converged
## # weights:  9
## initial  value 23351.145974
## iter  10 value 20037.779214
## iter  20 value 20027.054786
## iter  20 value 20027.054736
## final  value 20027.054736
## converged
## # weights:  25
## initial  value 22235.294580
## iter  10 value 20042.121405
## iter  20 value 20027.104848
## final  value 20026.944328
## converged
## # weights:  41
## initial  value 22852.979034
## iter  10 value 20049.206039
## iter  20 value 20027.186529
## final  value 20026.939940
## converged
## # weights:  9
## initial  value 23514.568420
## final  value 20056.513700
## converged
## # weights:  25
## initial  value 23006.314415
## final  value 20056.513700
## converged
## # weights:  41
## initial  value 21657.233289
## final  value 20056.513700
## converged
## # weights:  9
## initial  value 24072.429358
## iter  10 value 20063.088150
```

```
## final   value 20062.024829
## converged
## # weights:  25
## initial   value 22250.062353
## iter  10 value 20061.594311
## final   value 20060.490268
## converged
## # weights:  41
## initial   value 23727.295355
## iter  10 value 20074.937287
## iter  20 value 20059.841600
## final   value 20059.830734
## converged
## # weights:  9
## initial   value 22512.038977
## iter  10 value 20066.909123
## iter  20 value 20056.633551
## iter  20 value 20056.633503
## final   value 20056.633503
## converged
## # weights:  25
## initial   value 21998.305562
## iter  10 value 20069.632136
## iter  20 value 20056.664945
## final   value 20056.527355
## converged
## # weights:  41
## initial   value 24065.842489
## iter  10 value 20068.800792
## iter  20 value 20056.655361
## final   value 20056.526549
## converged
## # weights:  9
## initial   value 23551.227370
## final   value 19910.400500
## converged
## # weights:  25
## initial   value 22513.342684
## final   value 19910.400500
## converged
## # weights:  41
## initial   value 21900.395619
## final   value 19910.400500
## converged
## # weights:  9
## initial   value 22665.336676
## iter  10 value 19917.378165
## final   value 19915.907973
## converged
## # weights:  25
## initial   value 22804.062663
## iter  10 value 19915.709400
## iter  20 value 19914.375052
## final   value 19914.374654
```

```
## converged
## # weights:  41
## initial  value 23037.711307
## iter  10 value 19927.692743
## iter  20 value 19913.720060
## final  value 19913.715670
## converged
## # weights:  9
## initial  value 22656.565084
## iter  10 value 19920.623834
## iter  20 value 19910.518367
## iter  20 value 19910.518320
## final  value 19910.518320
## converged
## # weights:  25
## initial  value 22794.828303
## iter  10 value 19927.884282
## iter  20 value 19910.602074
## final  value 19910.415050
## converged
## # weights:  41
## initial  value 22051.520554
## iter  10 value 19926.608739
## iter  20 value 19910.587368
## final  value 19910.410212
## converged
## # weights:  9
## initial  value 22242.923274
## final  value 20053.121200
## converged
## # weights:  25
## initial  value 22716.834236
## final  value 20053.121200
## converged
## # weights:  41
## initial  value 23562.462165
## final  value 20053.121200
## converged
## # weights:  9
## initial  value 22339.282195
## iter  10 value 20058.982162
## final  value 20058.631949
## converged
## # weights:  25
## initial  value 23377.729168
## iter  10 value 20058.381526
## final  value 20057.097427
## converged
## # weights:  41
## initial  value 24105.504775
## iter  10 value 20070.139143
## iter  20 value 20056.438206
## iter  20 value 20056.438035
## iter  20 value 20056.437958
```

```
## final  value 20056.437958
## converged
## # weights:  9
## initial  value 23566.127415
## iter  10 value 20062.233994
## iter  20 value 20053.226263
## iter  20 value 20053.226221
## final  value 20053.226221
## converged
## # weights:  25
## initial  value 22311.471102
## iter  10 value 20067.757392
## iter  20 value 20053.289944
## final  value 20053.137208
## converged
## # weights:  41
## initial  value 21844.788062
## iter  10 value 20069.285600
## iter  20 value 20053.307563
## final  value 20053.131900
## converged
## # weights:  9
## initial  value 22478.865842
## final  value 20058.633200
## converged
## # weights:  25
## initial  value 23588.677880
## final  value 20058.633200
## converged
## # weights:  41
## initial  value 23025.607148
## final  value 20058.633200
## converged
## # weights:  9
## initial  value 24020.480198
## iter  10 value 20064.179072
## final  value 20064.144397
## converged
## # weights:  25
## initial  value 23302.814565
## iter  10 value 20064.012910
## final  value 20062.609805
## converged
## # weights:  41
## initial  value 23206.958239
## iter  10 value 20075.541693
## iter  20 value 20061.950854
## final  value 20061.950134
## converged
## # weights:  9
## initial  value 23469.602311
## iter  10 value 20067.923891
## iter  20 value 20058.740314
## iter  20 value 20058.740272
```

```
## final  value 20058.740272
## converged
## # weights:  25
## initial  value 21690.815178
## iter  10 value 20068.558017
## iter  20 value 20058.747625
## final  value 20058.645284
## converged
## # weights:  41
## initial  value 23137.685768
## iter  10 value 20078.810095
## iter  20 value 20058.865824
## final  value 20058.643411
## converged
## # weights:  9
## initial  value 23013.959093
## final  value 20002.797200
## converged
## # weights:  25
## initial  value 22054.339086
## final  value 20002.797200
## converged
## # weights:  41
## initial  value 22240.742677
## final  value 20002.797200
## converged
## # weights:  9
## initial  value 22551.540762
## iter  10 value 20010.049431
## final  value 20008.306265
## converged
## # weights:  25
## initial  value 22959.342484
## iter  10 value 20007.741172
## final  value 20006.772295
## converged
## # weights:  41
## initial  value 24300.272190
## iter  10 value 20017.317968
## iter  20 value 20006.114513
## final  value 20006.112952
## converged
## # weights:  9
## initial  value 21849.194684
## iter  10 value 20011.950317
## iter  20 value 20002.902728
## iter  20 value 20002.902686
## final  value 20002.902686
## converged
## # weights:  25
## initial  value 23392.333808
## iter  10 value 20017.132912
## iter  20 value 20002.962480
## final  value 20002.812846
```

```
## converged
## # weights:  41
## initial  value 22817.429454
## iter  10 value 20021.280010
## iter  20 value 20003.010292
## final  value 20002.809371
## converged
## # weights:  9
## initial  value 22190.303417
## final  value 20004.187700
## converged
## # weights:  25
## initial  value 22318.060065
## final  value 20004.187700
## converged
## # weights:  41
## initial  value 22355.516948
## final  value 20004.187700
## converged
## # weights:  9
## initial  value 21770.816275
## iter  10 value 20011.333991
## final  value 20009.696764
## converged
## # weights:  25
## initial  value 23464.991611
## iter  10 value 20008.883906
## final  value 20008.162859
## converged
## # weights:  41
## initial  value 21976.808110
## iter  10 value 20010.004617
## iter  20 value 20007.503576
## iter  20 value 20007.503485
## iter  20 value 20007.503457
## final  value 20007.503457
## converged
## # weights:  9
## initial  value 23118.983023
## iter  10 value 20014.870230
## iter  20 value 20004.310861
## iter  20 value 20004.310812
## final  value 20004.310812
## converged
## # weights:  25
## initial  value 22954.865213
## iter  10 value 20019.079528
## iter  20 value 20004.359391
## final  value 20004.201354
## converged
## # weights:  41
## initial  value 22848.518485
## iter  10 value 20022.569445
## iter  20 value 20004.399627
```

```
## final   value 20004.200828
## converged
## # weights:  9
## initial  value 22968.277303
## final   value 20045.107600
## converged
## # weights:  25
## initial  value 22983.796919
## final   value 20045.107600
## converged
## # weights:  41
## initial  value 23608.495732
## final   value 20045.107600
## converged
## # weights:  9
## initial  value 23885.135007
## iter  10 value 20052.989144
## final   value 20050.617984
## converged
## # weights:  25
## initial  value 21608.131974
## iter  10 value 20050.071810
## iter  20 value 20049.085992
## final   value 20049.083613
## converged
## # weights:  41
## initial  value 21044.062429
## iter  10 value 20057.354424
## iter  20 value 20048.424405
## iter  20 value 20048.424209
## iter  20 value 20048.424188
## final   value 20048.424188
## converged
## # weights:  9
## initial  value 22290.250978
## iter  10 value 20055.625874
## iter  20 value 20045.228867
## iter  20 value 20045.228819
## final   value 20045.228819
## converged
## # weights:  25
## initial  value 22986.532331
## iter  10 value 20059.382976
## iter  20 value 20045.272184
## final   value 20045.123138
## converged
## # weights:  41
## initial  value 22034.285094
## iter  10 value 20059.421919
## iter  20 value 20045.272633
## final   value 20045.117248
## converged
## # weights:  9
## initial  value 22401.419420
```

```
## final   value 19977.422500
## converged
## # weights:  25
## initial   value 21530.837717
## final   value 19977.422500
## converged
## # weights:  41
## initial   value 22859.778775
## final   value 19977.422500
## converged
## # weights:  9
## initial   value 23493.159488
## iter  10 value 19983.517861
## final   value 19982.931018
## converged
## # weights:  25
## initial   value 22087.729668
## iter  10 value 19981.655899
## final   value 19981.397273
## converged
## # weights:  41
## initial   value 22617.082989
## iter  10 value 19993.742060
## iter  20 value 19980.738332
## iter  20 value 19980.738159
## iter  20 value 19980.738145
## final   value 19980.738145
## converged
## # weights:  9
## initial   value 22127.234491
## iter  10 value 19987.433609
## iter  20 value 19977.537920
## iter  20 value 19977.537874
## final   value 19977.537874
## converged
## # weights:  25
## initial   value 23191.299463
## iter  10 value 19992.411889
## iter  20 value 19977.595316
## final   value 19977.436429
## converged
## # weights:  41
## initial   value 23754.140235
## iter  10 value 19993.378877
## iter  20 value 19977.606464
## final   value 19977.434941
## converged
## # weights:  9
## initial   value 22206.321902
## final   value 19972.920100
## converged
## # weights:  25
## initial   value 22277.657177
## final   value 19972.920100
```

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```
## converged
## # weights:  41
## initial  value 21700.307929
## final  value 19972.920100
## converged
## # weights:  9
## initial  value 21912.097979
## iter  10 value 19978.693815
## final  value 19978.428502
## converged
## # weights:  25
## initial  value 22306.123836
## iter  10 value 19979.077322
## iter  20 value 19976.894868
## iter  20 value 19976.894791
## iter  20 value 19976.894786
## final  value 19976.894786
## converged
## # weights:  41
## initial  value 23014.626862
## iter  10 value 19988.821201
## iter  20 value 19976.235850
## final  value 19976.235508
## converged
## # weights:  9
## initial  value 22965.932194
## iter  10 value 19983.382937
## iter  20 value 19973.040728
## iter  20 value 19973.040680
## final  value 19973.040680
## converged
## # weights:  25
## initial  value 22616.551894
## iter  10 value 19986.598749
## iter  20 value 19973.077804
## final  value 19972.936923
## converged
## # weights:  41
## initial  value 22459.797394
## iter  10 value 19994.942687
## iter  20 value 19973.174003
## final  value 19972.930223
## converged
## # weights:  9
## initial  value 21806.625644
## final  value 20032.589200
## converged
## # weights:  25
## initial  value 22607.464543
## final  value 20032.589200
## converged
## # weights:  41
## initial  value 22995.205704
## final  value 20032.589200
```

```
## converged
## # weights:  9
## initial  value 23131.951473
## iter  10 value 20040.360921
## final  value 20038.099002
## converged
## # weights:  25
## initial  value 22517.880346
## iter  10 value 20038.136199
## final  value 20036.564815
## converged
## # weights:  41
## initial  value 22183.608754
## iter  10 value 20036.915944
## final  value 20035.905315
## converged
## # weights:  9
## initial  value 22032.722177
## iter  10 value 20041.735654
## iter  20 value 20032.694651
## iter  20 value 20032.694609
## final  value 20032.694609
## converged
## # weights:  25
## initial  value 22069.718392
## iter  10 value 20043.529237
## iter  20 value 20032.715330
## final  value 20032.600985
## converged
## # weights:  41
## initial  value 21866.768036
## iter  10 value 20046.964856
## iter  20 value 20032.754940
## final  value 20032.599527
## converged
## # weights:  9
## initial  value 22528.228417
## final  value 20038.369700
## converged
## # weights:  25
## initial  value 22809.211812
## final  value 20038.369700
## converged
## # weights:  41
## initial  value 21796.660018
## final  value 20038.369700
## converged
## # weights:  9
## initial  value 22784.098407
## iter  10 value 20044.867879
## final  value 20043.879781
## converged
## # weights:  25
## initial  value 21923.328704
```

```
## iter   10 value 20043.204561
## final   value 20042.345496
## converged
## # weights:   41
## initial   value 22727.367211
## iter   10 value 20042.925487
## final   value 20041.686058
## converged
## # weights:   9
## initial   value 23552.676614
## iter   10 value 20048.787874
## iter   20 value 20038.489813
## iter   20 value 20038.489765
## final   value 20038.489765
## converged
## # weights:   25
## initial   value 22380.755222
## iter   10 value 20054.151220
## iter   20 value 20038.551649
## final   value 20038.382085
## converged
## # weights:   41
## initial   value 22800.311183
## iter   10 value 20057.418249
## iter   20 value 20038.589315
## final   value 20038.380028
## converged
## # weights:   9
## initial   value 22212.425148
## final   value 19884.413200
## converged
## # weights:   25
## initial   value 22084.852822
## final   value 19884.413200
## converged
## # weights:   41
## initial   value 21367.923644
## final   value 19884.413200
## converged
## # weights:   9
## initial   value 22160.025890
## iter   10 value 19891.830393
## final   value 19889.920335
## converged
## # weights:   25
## initial   value 22175.913754
## iter   10 value 19888.693136
## final   value 19888.387176
## converged
## # weights:   41
## initial   value 21710.208569
## iter   10 value 19889.558541
## final   value 19887.728150
## converged
```

```
## # weights:  9
## initial  value 21614.784436
## iter  10 value 19892.933327
## iter  20 value 19884.511430
## iter  20 value 19884.511391
## final  value 19884.511391
## converged
## # weights:  25
## initial  value 23809.451308
## iter  10 value 19894.119041
## iter  20 value 19884.525101
## final  value 19884.432811
## converged
## # weights:  41
## initial  value 22539.129159
## iter  10 value 19902.522239
## iter  20 value 19884.621983
## final  value 19884.423609
## converged
## # weights:  9
## initial  value 22957.652944
## final  value 19968.886000
## converged
## # weights:  25
## initial  value 23614.452283
## final  value 19968.886000
## converged
## # weights:  41
## initial  value 21025.173662
## final  value 19968.886000
## converged
## # weights:  9
## initial  value 22279.346938
## iter  10 value 19975.219940
## final  value 19974.394324
## converged
## # weights:  25
## initial  value 21805.289623
## iter  10 value 19974.196680
## final  value 19972.860707
## converged
## # weights:  41
## initial  value 23818.689653
## iter  10 value 19983.864648
## iter  20 value 19972.203211
## final  value 19972.201375
## converged
## # weights:  9
## initial  value 21716.886105
## iter  10 value 19976.664561
## iter  20 value 19968.975681
## iter  20 value 19968.975645
## final  value 19968.975645
## converged
```

```
## # weights:  25
## initial   value 23090.211307
## iter   10 value 19983.117517
## iter   20 value 19969.050078
## final   value 19968.899076
## converged
## # weights:  41
## initial   value 22990.291123
## iter   10 value 19988.558650
## iter   20 value 19969.112810
## final   value 19968.898111
## converged
## # weights:  9
## initial   value 22873.076749
## final   value 19977.422500
## converged
## # weights:  25
## initial   value 21381.860773
## final   value 19977.422500
## converged
## # weights:  41
## initial   value 22087.861265
## final   value 19977.422500
## converged
## # weights:  9
## initial   value 21822.465999
## iter   10 value 19983.465472
## final   value 19982.931024
## converged
## # weights:  25
## initial   value 22226.889082
## iter   10 value 19982.028930
## iter   20 value 19981.403146
## final   value 19981.397295
## converged
## # weights:  41
## initial   value 22149.582831
## iter   10 value 19984.015626
## iter   20 value 19980.738191
## iter   20 value 19980.738039
## iter   20 value 19980.738027
## final   value 19980.738027
## converged
## # weights:  9
## initial   value 23338.465897
## iter   10 value 19987.487749
## iter   20 value 19977.538544
## iter   20 value 19977.538498
## final   value 19977.538498
## converged
## # weights:  25
## initial   value 23488.714909
## iter   10 value 19990.093549
## iter   20 value 19977.568587
```

```
## final  value 19977.435353
## converged
## # weights:  41
## initial  value 21506.025828
## iter  10 value 19989.301294
## iter  20 value 19977.559453
## final  value 19977.431974
## converged
## # weights:  9
## initial  value 23252.351288
## final  value 20018.547700
## converged
## # weights:  25
## initial  value 22482.678975
## final  value 20018.547700
## converged
## # weights:  41
## initial  value 22347.599871
## final  value 20018.547700
## converged
## # weights:  9
## initial  value 23900.475363
## iter  10 value 20024.466936
## final  value 20024.057137
## converged
## # weights:  25
## initial  value 23809.215888
## iter  10 value 20023.701180
## final  value 20022.523044
## converged
## # weights:  41
## initial  value 24318.910876
## iter  10 value 20033.645126
## iter  20 value 20021.865283
## final  value 20021.863660
## converged
## # weights:  9
## initial  value 22615.578878
## iter  10 value 20028.958304
## iter  20 value 20018.667726
## iter  20 value 20018.667678
## final  value 20018.667678
## converged
## # weights:  25
## initial  value 24017.393785
## iter  10 value 20028.692256
## iter  20 value 20018.664659
## final  value 20018.568029
## converged
## # weights:  41
## initial  value 22927.464288
## iter  10 value 20037.221933
## iter  20 value 20018.762999
## final  value 20018.558152
```

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```
## converged
## # weights:  9
## initial  value 22140.880779
## final  value 19997.883700
## converged
## # weights:  25
## initial  value 23652.174744
## final  value 19997.883700
## converged
## # weights:  41
## initial  value 20874.602081
## final  value 19997.883700
## converged
## # weights:  9
## initial  value 22364.449656
## iter  10 value 20024.791208
## iter  20 value 20003.403495
## final  value 20003.392714
## converged
## # weights:  25
## initial  value 23363.344685
## iter  10 value 20003.821731
## iter  20 value 20001.859667
## final  value 20001.858641
## converged
## # weights:  41
## initial  value 23180.347559
## iter  10 value 20004.914317
## iter  20 value 20001.199603
## iter  20 value 20001.199423
## iter  20 value 20001.199376
## final  value 20001.199376
## converged
## # weights:  9
## initial  value 22134.751569
## iter  10 value 20007.854730
## iter  20 value 19997.998658
## iter  20 value 19997.998612
## final  value 19997.998612
## converged
## # weights:  25
## initial  value 23455.562856
## iter  10 value 20011.349611
## iter  20 value 19998.038951
## final  value 19997.906515
## converged
## # weights:  41
## initial  value 22414.601291
## iter  10 value 20013.881630
## iter  20 value 19998.068144
## final  value 19997.894290
## converged
## # weights:  9
## initial  value 22844.299417
```

```
## final   value 20016.930100
## converged
## # weights:  25
## initial   value 23487.476368
## final   value 20016.930100
## converged
## # weights:  41
## initial   value 22115.380352
## final   value 20016.930100
## converged
## # weights:  9
## initial   value 23738.256865
## iter  10 value 20022.902292
## final   value 20022.439483
## converged
## # weights:  25
## initial   value 23358.406791
## iter  10 value 20022.098974
## iter  20 value 20020.906273
## final   value 20020.905499
## converged
## # weights:  41
## initial   value 23334.222588
## iter  10 value 20023.722851
## iter  20 value 20020.246338
## final   value 20020.246020
## converged
## # weights:  9
## initial   value 23740.025171
## iter  10 value 20024.506284
## iter  20 value 20017.017447
## iter  20 value 20017.017413
## final   value 20017.017413
## converged
## # weights:  25
## initial   value 23571.375899
## iter  10 value 20029.626683
## iter  20 value 20017.076482
## final   value 20016.943310
## converged
## # weights:  41
## initial   value 23438.549171
## iter  10 value 20035.035936
## iter  20 value 20017.138846
## final   value 20016.941884
## converged
## # weights:  9
## initial   value 22765.183347
## final   value 20042.193700
## converged
## # weights:  25
## initial   value 22982.574470
## final   value 20042.193700
## converged
```

```
## # weights:  41
## initial   value 23181.032137
## final   value 20042.193700
## converged
## # weights:  9
## initial   value 22267.389825
## iter   10 value 20048.109594
## final   value 20047.703952
## converged
## # weights:  25
## initial   value 21535.910709
## iter   10 value 20047.409445
## final   value 20046.169685
## converged
## # weights:  41
## initial   value 23671.231067
## iter   10 value 20058.223259
## iter   20 value 20045.511043
## final   value 20045.510186
## converged
## # weights:  9
## initial   value 22016.420654
## iter   10 value 20051.831726
## iter   20 value 20042.304819
## iter   20 value 20042.304774
## final   value 20042.304774
## converged
## # weights:  25
## initial   value 23152.337973
## iter   10 value 20054.113975
## iter   20 value 20042.331131
## final   value 20042.211565
## converged
## # weights:  41
## initial   value 22482.298073
## iter   10 value 20060.279521
## iter   20 value 20042.402215
## final   value 20042.202775
## converged
## # weights:  9
## initial   value 23245.866387
## final   value 19991.936500
## converged
## # weights:  25
## initial   value 23543.172133
## final   value 19991.936500
## converged
## # weights:  41
## initial   value 21049.822535
## final   value 19991.936500
## converged
## # weights:  9
## initial   value 23584.135938
## iter   10 value 19997.832808
```

```
## final  value 19997.445280
## converged
## # weights:  25
## initial  value 23358.923143
## iter  10 value 19997.738674
## iter  20 value 19995.911549
## iter  20 value 19995.911424
## iter  20 value 19995.911419
## final  value 19995.911419
## converged
## # weights:  41
## initial  value 21540.188624
## iter  10 value 20008.298537
## iter  20 value 19995.254377
## final  value 19995.252169
## converged
## # weights:  9
## initial  value 22751.439853
## iter  10 value 20002.192568
## iter  20 value 19992.054744
## iter  20 value 19992.054697
## final  value 19992.054697
## converged
## # weights:  25
## initial  value 22878.126055
## iter  10 value 20009.112799
## iter  20 value 19992.134529
## final  value 19991.948962
## converged
## # weights:  41
## initial  value 23728.244053
## iter  10 value 20007.579882
## iter  20 value 19992.116856
## final  value 19991.949984
## converged
## # weights:  9
## initial  value 23219.317107
## final  value 20015.560100
## converged
## # weights:  25
## initial  value 22318.436737
## final  value 20015.560100
## converged
## # weights:  41
## initial  value 21892.944532
## final  value 20015.560100
## converged
## # weights:  9
## initial  value 23514.054521
## iter  10 value 20021.374775
## final  value 20021.069416
## converged
## # weights:  25
## initial  value 22481.752167
```

```
## iter  10 value 20020.016377
## final  value 20019.535376
## converged
## # weights:  41
## initial  value 23087.735933
## iter  10 value 20031.040639
## iter  20 value 20018.876076
## iter  20 value 20018.875988
## iter  20 value 20018.875974
## final  value 20018.875974
## converged
## # weights:  9
## initial  value 22655.527197
## iter  10 value 20027.435998
## iter  20 value 20015.697020
## iter  20 value 20015.696965
## final  value 20015.696965
## converged
## # weights:  25
## initial  value 22705.124906
## iter  10 value 20029.176375
## iter  20 value 20015.717085
## final  value 20015.572846
## converged
## # weights:  41
## initial  value 21392.096054
## iter  10 value 20026.160653
## iter  20 value 20015.682316
## final  value 20015.569783
## converged
## # weights:  9
## initial  value 22986.702090
## final  value 19829.997200
## converged
## # weights:  25
## initial  value 23604.752490
## final  value 19829.997200
## converged
## # weights:  41
## initial  value 21105.873475
## final  value 19829.997200
## converged
## # weights:  9
## initial  value 22516.538106
## iter  10 value 19836.646061
## final  value 19835.503720
## converged
## # weights:  25
## initial  value 21129.855435
## iter  10 value 19834.806709
## final  value 19833.970882
## converged
## # weights:  41
## initial  value 21141.388899
```

```
## iter  10 value 19836.362242
## iter  20 value 19833.312012
## iter  20 value 19833.311863
## iter  20 value 19833.311857
## final   value 19833.311857
## converged
## # weights:  9
## initial   value 23028.732724
## iter  10 value 19839.225225
## iter  20 value 19830.103592
## iter  20 value 19830.103549
## final   value 19830.103549
## converged
## # weights:  25
## initial   value 23263.069308
## iter  10 value 19842.398663
## iter  20 value 19830.140179
## final   value 19830.011681
## converged
## # weights:  41
## initial   value 23499.946512
## iter  10 value 19844.713699
## iter  20 value 19830.166870
## final   value 19830.008790
## converged
## # weights:  9
## initial   value 21767.338302
## final   value 20029.414000
## converged
## # weights:  25
## initial   value 22022.310316
## final   value 20029.414000
## converged
## # weights:  41
## initial   value 22206.709714
## final   value 20029.414000
## converged
## # weights:  9
## initial   value 22817.580490
## iter  10 value 20038.247847
## final   value 20034.923771
## converged
## # weights:  25
## initial   value 22497.899967
## iter  10 value 20035.487041
## iter  20 value 20033.389872
## final   value 20033.389569
## converged
## # weights:  41
## initial   value 22861.088086
## iter  10 value 20035.202002
## iter  20 value 20032.730207
## iter  20 value 20032.730139
## iter  20 value 20032.730124
```

```
## final   value 20032.730124
## converged
## # weights:  9
## initial   value 22457.581590
## iter   10 value 20039.192971
## iter   20 value 20029.526744
## iter   20 value 20029.526699
## final   value 20029.526699
## converged
## # weights:  25
## initial   value 23586.130536
## iter   10 value 20042.476290
## iter   20 value 20029.564598
## final   value 20029.428273
## converged
## # weights:  41
## initial   value 21206.552164
## iter   10 value 20038.093171
## iter   20 value 20029.514064
## final   value 20029.423477
## converged
## # weights:  9
## initial   value 23546.544828
## final   value 20037.058000
## converged
## # weights:  25
## initial   value 23047.575499
## final   value 20037.058000
## converged
## # weights:  41
## initial   value 22268.865975
## final   value 20037.058000
## converged
## # weights:  9
## initial   value 22976.897813
## iter   10 value 20043.228502
## final   value 20042.568037
## converged
## # weights:  25
## initial   value 21661.692795
## iter   10 value 20043.111837
## final   value 20041.033858
## converged
## # weights:  41
## initial   value 22282.445309
## iter   10 value 20041.590802
## final   value 20040.374413
## converged
## # weights:  9
## initial   value 23275.113852
## iter   10 value 20048.528711
## iter   20 value 20037.190248
## iter   20 value 20037.190195
## final   value 20037.190195
```

```
## converged
## # weights:  25
## initial  value 23130.774114
## iter  10 value 20052.861023
## iter  20 value 20037.240196
## final  value 20037.070593
## converged
## # weights:  41
## initial  value 23582.873079
## iter  10 value 20054.818323
## iter  20 value 20037.262763
## final  value 20037.069791
## converged
## # weights:  9
## initial  value 23258.068300
## final  value 20040.034000
## converged
## # weights:  25
## initial  value 21801.659702
## final  value 20040.034000
## converged
## # weights:  41
## initial  value 22298.413440
## final  value 20040.034000
## converged
## # weights:  9
## initial  value 23546.577344
## iter  10 value 20046.127352
## final  value 20045.544137
## converged
## # weights:  25
## initial  value 22706.552257
## iter  10 value 20044.769756
## final  value 20044.009858
## converged
## # weights:  41
## initial  value 23144.255982
## iter  10 value 20057.403629
## iter  20 value 20043.350614
## iter  20 value 20043.350458
## iter  20 value 20043.350382
## final  value 20043.350382
## converged
## # weights:  9
## initial  value 23455.059468
## iter  10 value 20050.607248
## iter  20 value 20040.155901
## iter  20 value 20040.155852
## final  value 20040.155852
## converged
## # weights:  25
## initial  value 22347.917737
## iter  10 value 20053.187411
## iter  20 value 20040.185649
```

```
## final   value 20040.046270
## converged
## # weights:  41
## initial  value 23481.765203
## iter  10 value 20058.805706
## iter  20 value 20040.250423
## final   value 20040.045538
## converged
## # weights:  9
## initial  value 22634.863653
## final   value 19988.520500
## converged
## # weights:  25
## initial  value 23342.544439
## final   value 19988.520500
## converged
## # weights:  41
## initial  value 23020.141185
## final   value 19988.520500
## converged
## # weights:  9
## initial  value 22532.465553
## iter  10 value 19994.428987
## final   value 19994.029228
## converged
## # weights:  25
## initial  value 21917.396237
## iter  10 value 19993.048665
## final   value 19992.495393
## converged
## # weights:  41
## initial  value 23256.570550
## iter  10 value 20009.313681
## iter  20 value 19991.861370
## final   value 19991.836125
## converged
## # weights:  9
## initial  value 23590.499493
## iter  10 value 19996.827783
## iter  20 value 19988.616276
## iter  20 value 19988.616238
## final   value 19988.616238
## converged
## # weights:  25
## initial  value 23927.042964
## iter  10 value 19997.865647
## iter  20 value 19988.628242
## final   value 19988.538883
## converged
## # weights:  41
## initial  value 22743.108720
## iter  10 value 20007.511835
## iter  20 value 19988.739455
## final   value 19988.534462
```

```
## converged
## # weights:  9
## initial  value 23230.350761
## final  value 20054.760100
## converged
## # weights:  25
## initial  value 22554.425443
## final  value 20054.760100
## converged
## # weights:  41
## initial  value 23630.736874
## final  value 20054.760100
## converged
## # weights:  9
## initial  value 22973.834567
## iter  10 value 20060.507414
## final  value 20060.270999
## converged
## # weights:  25
## initial  value 23220.538017
## iter  10 value 20059.543238
## final  value 20058.736557
## converged
## # weights:  41
## initial  value 22101.272293
## iter  10 value 20071.341336
## iter  20 value 20058.078178
## final  value 20058.076901
## converged
## # weights:  9
## initial  value 22987.734652
## iter  10 value 20065.308681
## iter  20 value 20054.881717
## iter  20 value 20054.881668
## final  value 20054.881668
## converged
## # weights:  25
## initial  value 22399.977950
## iter  10 value 20066.926142
## iter  20 value 20054.900365
## final  value 20054.773520
## converged
## # weights:  41
## initial  value 21583.679646
## iter  10 value 20068.515274
## iter  20 value 20054.918686
## final  value 20054.769345
## converged
## # weights:  9
## initial  value 23505.068655
## final  value 20047.567600
## converged
## # weights:  25
## initial  value 22514.457171
```

```
## final   value 20047.567600
## converged
## # weights:   41
## initial   value 21576.893985
## final   value 20047.567600
## converged
## # weights:   9
## initial   value 23291.143897
## iter   10 value 20053.910335
## final   value 20053.078049
## converged
## # weights:   25
## initial   value 21646.737730
## iter   10 value 20053.394532
## final   value 20051.543770
## converged
## # weights:   41
## initial   value 22208.834488
## iter   10 value 20052.028132
## iter   20 value 20050.884210
## iter   20 value 20050.884122
## iter   20 value 20050.884107
## final   value 20050.884107
## converged
## # weights:   9
## initial   value 22882.590173
## iter   10 value 20057.388302
## iter   20 value 20047.680825
## iter   20 value 20047.680780
## final   value 20047.680780
## converged
## # weights:   25
## initial   value 21508.657577
## iter   10 value 20055.266566
## iter   20 value 20047.656363
## final   value 20047.578971
## converged
## # weights:   41
## initial   value 23825.179243
## iter   10 value 20061.080832
## iter   20 value 20047.723397
## final   value 20047.578689
## converged
## # weights:   9
## initial   value 23408.911494
## final   value 19993.447600
## converged
## # weights:   25
## initial   value 22855.614665
## final   value 19993.447600
## converged
## # weights:   41
## initial   value 22573.638011
## final   value 19993.447600
```

```
## converged
## # weights:  9
## initial  value 22269.973000
## iter  10 value 20000.394145
## final  value 19998.956425
## converged
## # weights:  25
## initial  value 22927.847833
## iter  10 value 19998.643605
## final  value 19997.422600
## converged
## # weights:  41
## initial  value 21908.003231
## iter  10 value 19997.046944
## final  value 19996.763318
## converged
## # weights:  9
## initial  value 23023.637001
## iter  10 value 20004.701672
## iter  20 value 19993.577351
## iter  20 value 19993.577299
## final  value 19993.577299
## converged
## # weights:  25
## initial  value 21580.640012
## iter  10 value 20002.410103
## iter  20 value 19993.550931
## final  value 19993.459974
## converged
## # weights:  41
## initial  value 22550.151271
## iter  10 value 20013.881948
## iter  20 value 19993.683192
## final  value 19993.459380
## converged
## # weights:  9
## initial  value 23107.209996
## final  value 19922.747600
## converged
## # weights:  25
## initial  value 21592.787607
## final  value 19922.747600
## converged
## # weights:  41
## initial  value 22118.226663
## final  value 19922.747600
## converged
## # weights:  9
## initial  value 22517.537749
## iter  10 value 19931.995989
## final  value 19928.255226
## converged
## # weights:  25
## initial  value 22124.865955
```

```
## iter  10 value 19928.587934
## final  value 19926.721855
## converged
## # weights:  41
## initial  value 21088.819701
## iter  10 value 19936.482634
## iter  20 value 19926.067114
## final  value 19926.062725
## converged
## # weights:  9
## initial  value 22844.593333
## iter  10 value 19933.781243
## iter  20 value 19922.874809
## iter  20 value 19922.874758
## final  value 19922.874758
## converged
## # weights:  25
## initial  value 22503.990096
## iter  10 value 19937.184950
## iter  20 value 19922.914051
## final  value 19922.760741
## converged
## # weights:  41
## initial  value 22467.788277
## iter  10 value 19941.391697
## iter  20 value 19922.962552
## final  value 19922.757426
## converged
## # weights:  9
## initial  value 23163.822228
## final  value 20039.453200
## converged
## # weights:  25
## initial  value 24131.363263
## final  value 20039.453200
## converged
## # weights:  41
## initial  value 23122.501017
## final  value 20039.453200
## converged
## # weights:  9
## initial  value 22478.603520
## iter  10 value 20048.781419
## final  value 20044.963324
## converged
## # weights:  25
## initial  value 22311.473504
## iter  10 value 20045.107912
## iter  20 value 20043.429167
## iter  20 value 20043.429037
## iter  20 value 20043.429029
## final  value 20043.429029
## converged
## # weights:  41
```

```
## initial  value 24169.443945
## iter  10 value 20044.112365
## iter  20 value 20042.769860
## final  value 20042.769532
## converged
## # weights:  9
## initial  value 23040.083934
## iter  10 value 20049.716719
## iter  20 value 20039.571530
## iter  20 value 20039.571483
## final  value 20039.571483
## converged
## # weights:  25
## initial  value 21656.016040
## iter  10 value 20048.977866
## iter  20 value 20039.563012
## final  value 20039.465027
## converged
## # weights:  41
## initial  value 22234.657950
## iter  10 value 20058.911469
## iter  20 value 20039.677539
## final  value 20039.462930
## converged
## # weights:  9
## initial  value 23422.320931
## final  value 20044.507700
## converged
## # weights:  25
## initial  value 22406.361342
## final  value 20044.507700
## converged
## # weights:  41
## initial  value 24305.285297
## final  value 20044.507700
## converged
## # weights:  9
## initial  value 22857.979810
## iter  10 value 20053.310313
## final  value 20050.018048
## converged
## # weights:  25
## initial  value 23073.055204
## iter  10 value 20049.032735
## final  value 20048.483684
## converged
## # weights:  41
## initial  value 23034.800603
## iter  10 value 20048.911700
## iter  20 value 20047.824240
## iter  20 value 20047.824179
## iter  20 value 20047.824167
## final  value 20047.824167
## converged
```

```
## # weights:  9
## initial  value 22709.896014
## iter  10 value 20053.996402
## iter  20 value 20044.617097
## iter  20 value 20044.617054
## final  value 20044.617054
## converged
## # weights:  25
## initial  value 22774.451676
## iter  10 value 20059.513188
## iter  20 value 20044.680701
## final  value 20044.524839
## converged
## # weights:  41
## initial  value 22403.201350
## iter  10 value 20062.194827
## iter  20 value 20044.711619
## final  value 20044.520602
## converged
## # weights:  9
## initial  value 22612.575617
## final  value 20004.341200
## converged
## # weights:  25
## initial  value 23611.969892
## final  value 20004.341200
## converged
## # weights:  41
## initial  value 23222.827379
## final  value 20004.341200
## converged
## # weights:  9
## initial  value 22876.613766
## iter  10 value 20010.046437
## final  value 20009.850272
## converged
## # weights:  25
## initial  value 22874.189423
## iter  10 value 20017.392956
## iter  20 value 20008.673210
## iter  30 value 20008.316398
## iter  30 value 20008.316333
## iter  30 value 20008.316323
## final  value 20008.316323
## converged
## # weights:  41
## initial  value 22682.212520
## iter  10 value 20008.085721
## final  value 20007.656948
## converged
## # weights:  9
## initial  value 22728.505948
## iter  10 value 20014.237993
## iter  20 value 20004.455302
```

```
## iter   20 value 20004.455257
## final   value 20004.455257
## converged
## # weights:   25
## initial   value 22938.043367
## iter   10 value 20018.381115
## iter   20 value 20004.503069
## final   value 20004.355634
## converged
## # weights:   41
## initial   value 22198.858900
## iter   10 value 20019.375094
## iter   20 value 20004.514529
## final   value 20004.354247
## converged
## # weights:   9
## initial   value 22831.957980
## final   value 20012.190500
## converged
## # weights:   25
## initial   value 21767.642944
## final   value 20012.190500
## converged
## # weights:   41
## initial   value 23783.396587
## final   value 20012.190500
## converged
## # weights:   9
## initial   value 23351.574765
## iter   10 value 20017.830727
## final   value 20017.699756
## converged
## # weights:   25
## initial   value 21682.879502
## iter   10 value 20017.407463
## iter   20 value 20016.166976
## final   value 20016.165743
## converged
## # weights:   41
## initial   value 22734.893162
## iter   10 value 20027.812604
## iter   20 value 20015.506787
## final   value 20015.506390
## converged
## # weights:   9
## initial   value 23102.665365
## iter   10 value 20021.793459
## iter   20 value 20012.301215
## iter   20 value 20012.301170
## final   value 20012.301170
## converged
## # weights:   25
## initial   value 24295.932835
## iter   10 value 20020.551213
```

```
## iter   20 value 20012.286892
## final   value 20012.214393
## converged
## # weights:  41
## initial   value 21601.939725
## iter   10 value 20025.318765
## iter   20 value 20012.341859
## final   value 20012.199580
## converged
## # weights:  9
## initial   value 22468.047964
## final   value 20007.816500
## converged
## # weights:  25
## initial   value 22109.725089
## final   value 20007.816500
## converged
## # weights:  41
## initial   value 23057.421253
## final   value 20007.816500
## converged
## # weights:  9
## initial   value 22785.871934
## iter   10 value 20013.877737
## final   value 20013.325658
## converged
## # weights:  25
## initial   value 22953.558419
## iter   10 value 20012.576430
## iter   20 value 20011.791726
## iter   20 value 20011.791686
## iter   20 value 20011.791682
## final   value 20011.791682
## converged
## # weights:  41
## initial   value 22279.536466
## iter   10 value 20012.051665
## final   value 20011.132341
## converged
## # weights:  9
## initial   value 24047.081010
## iter   10 value 20015.487246
## iter   20 value 20007.904938
## iter   20 value 20007.904902
## final   value 20007.904902
## converged
## # weights:  25
## initial   value 23555.534078
## iter   10 value 20020.369058
## iter   20 value 20007.961221
## final   value 20007.831534
## converged
## # weights:  41
## initial   value 22322.513748
```

```
## iter  10 value 20025.622558
## iter  20 value 20008.021790
## final   value 20007.827535
## converged
## # weights:  9
## initial   value 23013.298253
## final   value 20043.189200
## converged
## # weights:  25
## initial   value 22656.439180
## final   value 20043.189200
## converged
## # weights:  41
## initial   value 22585.903535
## final   value 20043.189200
## converged
## # weights:  9
## initial   value 22865.908256
## iter  10 value 20049.527185
## final   value 20048.699478
## converged
## # weights:  25
## initial   value 22806.641948
## iter  10 value 20047.311390
## final   value 20047.165121
## converged
## # weights:  41
## initial   value 23082.293516
## iter  10 value 20048.097710
## iter  20 value 20046.505932
## final   value 20046.505596
## converged
## # weights:  9
## initial   value 23438.443761
## iter  10 value 20053.011959
## iter  20 value 20043.302449
## iter  20 value 20043.302403
## final   value 20043.302403
## converged
## # weights:  25
## initial   value 22300.981854
## iter  10 value 20056.553096
## iter  20 value 20043.343275
## final   value 20043.202366
## converged
## # weights:  41
## initial   value 22818.707898
## iter  10 value 20063.904045
## iter  20 value 20043.428026
## final   value 20043.201403
## converged
## # weights:  9
## initial   value 22809.904404
## final   value 20037.160100
```

```
## converged
## # weights:  25
## initial  value 23667.517009
## final  value 20037.160100
## converged
## # weights:  41
## initial  value 22495.368663
## final  value 20037.160100
## converged
## # weights:  9
## initial  value 21832.296711
## iter  10 value 20043.444805
## final  value 20042.670141
## converged
## # weights:  25
## initial  value 22823.271182
## iter  10 value 20042.847028
## final  value 20041.135903
## converged
## # weights:  41
## initial  value 22066.071046
## iter  10 value 20041.162058
## final  value 20040.476518
## converged
## # weights:  9
## initial  value 23689.219734
## iter  10 value 20046.759097
## iter  20 value 20037.270769
## iter  20 value 20037.270725
## final  value 20037.270725
## converged
## # weights:  25
## initial  value 23307.345454
## iter  10 value 20051.896989
## iter  20 value 20037.330005
## final  value 20037.180666
## converged
## # weights:  41
## initial  value 21518.280544
## iter  10 value 20050.272569
## iter  20 value 20037.311276
## final  value 20037.168837
## converged
## # weights:  9
## initial  value 22081.349711
## final  value 20050.709200
## converged
## # weights:  25
## initial  value 21573.814513
## final  value 20050.709200
## converged
## # weights:  41
## initial  value 21671.915434
## final  value 20050.709200
```

```
## converged
## # weights:  9
## initial  value 22680.615021
## iter  10 value 20057.441443
## final  value 20056.219785
## converged
## # weights:  25
## initial  value 21468.468536
## iter  10 value 20056.165052
## final  value 20054.685444
## converged
## # weights:  41
## initial  value 23094.488098
## iter  10 value 20055.714973
## final  value 20054.025774
## converged
## # weights:  9
## initial  value 23660.285451
## iter  10 value 20058.891424
## iter  20 value 20050.803535
## iter  20 value 20050.803497
## final  value 20050.803497
## converged
## # weights:  25
## initial  value 22903.238243
## iter  10 value 20065.861846
## iter  20 value 20050.883898
## final  value 20050.723449
## converged
## # weights:  41
## initial  value 22340.797946
## iter  10 value 20068.441872
## iter  20 value 20050.913644
## final  value 20050.721170
## converged
## # weights:  9
## initial  value 22593.094829
## final  value 20042.285200
## converged
## # weights:  25
## initial  value 22977.375770
## final  value 20042.285200
## converged
## # weights:  41
## initial  value 22349.756082
## final  value 20042.285200
## converged
## # weights:  9
## initial  value 22138.095958
## iter  10 value 20049.633946
## final  value 20047.795392
## converged
## # weights:  25
## initial  value 22923.662039
```

```
## iter  10 value 20049.790437
## iter  20 value 20046.261456
## final   value 20046.261058
## converged
## # weights:  41
## initial   value 22392.599969
## iter  10 value 20047.017219
## iter  20 value 20045.601714
## iter  20 value 20045.601575
## iter  20 value 20045.601569
## final   value 20045.601569
## converged
## # weights:  9
## initial   value 23506.328693
## iter  10 value 20052.708717
## iter  20 value 20042.405375
## iter  20 value 20042.405327
## final   value 20042.405327
## converged
## # weights:  25
## initial   value 23417.531086
## iter  10 value 20055.644967
## iter  20 value 20042.439228
## iter  30 value 20042.298596
## iter  30 value 20042.298578
## iter  30 value 20042.298573
## final   value 20042.298573
## converged
## # weights:  41
## initial   value 22589.023522
## iter  10 value 20059.772125
## iter  20 value 20042.486811
## final   value 20042.295841
## converged
## # weights:  9
## initial   value 23479.103504
## final   value 20044.247600
## converged
## # weights:  25
## initial   value 22129.159366
## final   value 20044.247600
## converged
## # weights:  41
## initial   value 23542.863036
## final   value 20044.247600
## converged
## # weights:  9
## initial   value 23622.717148
## iter  10 value 20049.928732
## final   value 20049.757876
## converged
## # weights:  25
## initial   value 21726.226094
## iter  10 value 20049.104988
```

```
## final  value 20048.223567
## converged
## # weights:  41
## initial  value 23649.960107
## iter  10 value 20048.979082
## iter  20 value 20047.564162
## iter  20 value 20047.564034
## iter  20 value 20047.564024
## final  value 20047.564024
## converged
## # weights:  9
## initial  value 22085.395114
## iter  10 value 20053.244972
## iter  20 value 20044.351333
## iter  20 value 20044.351291
## final  value 20044.351291
## converged
## # weights:  25
## initial  value 22689.050281
## iter  10 value 20059.291816
## iter  20 value 20044.421048
## final  value 20044.261907
## converged
## # weights:  41
## initial  value 23125.251970
## iter  10 value 20063.766686
## iter  20 value 20044.472640
## final  value 20044.257413
## converged
## # weights:  9
## initial  value 23252.521936
## final  value 19929.305200
## converged
## # weights:  25
## initial  value 21981.555370
## final  value 19929.305200
## converged
## # weights:  41
## initial  value 23592.055394
## final  value 19929.305200
## converged
## # weights:  9
## initial  value 21662.153451
## iter  10 value 19936.063166
## final  value 19934.812912
## converged
## # weights:  25
## initial  value 22163.407689
## iter  10 value 19934.439559
## final  value 19933.279526
## converged
## # weights:  41
## initial  value 22451.331988
## iter  10 value 19936.121189
```

```
## iter  20 value 19932.954603
## iter  30 value 19932.652943
## final  value 19932.620317
## converged
## # weights:  9
## initial  value 21721.488042
## iter  10 value 19936.936310
## iter  20 value 19929.393181
## iter  20 value 19929.393146
## final  value 19929.393146
## converged
## # weights:  25
## initial  value 22292.888237
## iter  10 value 19942.362922
## iter  20 value 19929.455745
## final  value 19929.319458
## converged
## # weights:  41
## initial  value 24003.982729
## iter  10 value 19941.907331
## iter  20 value 19929.450493
## final  value 19929.318401
## converged
## # weights:  9
## initial  value 22313.154041
## final  value 20036.750500
## converged
## # weights:  25
## initial  value 21449.003614
## final  value 20036.750500
## converged
## # weights:  41
## initial  value 23437.355072
## final  value 20036.750500
## converged
## # weights:  9
## initial  value 23594.887463
## iter  10 value 20045.390564
## final  value 20042.260527
## converged
## # weights:  25
## initial  value 23605.771065
## iter  10 value 20042.044405
## iter  20 value 20040.726685
## final  value 20040.726253
## converged
## # weights:  41
## initial  value 23394.911392
## iter  10 value 20053.482983
## iter  20 value 20040.067352
## final  value 20040.066782
## converged
## # weights:  9
## initial  value 22699.308916
```

```
## iter  10 value 20049.051749
## iter  20 value 20036.892324
## iter  20 value 20036.892267
## final   value 20036.892267
## converged
## # weights:  25
## initial  value 23073.197752
## iter  10 value 20049.950467
## iter  20 value 20036.902685
## final   value 20036.765485
## converged
## # weights:  41
## initial  value 22859.302887
## iter  10 value 20056.227718
## iter  20 value 20036.975057
## final   value 20036.759763
## converged
## # weights:  9
## initial  value 21609.208564
## final   value 20022.082000
## converged
## # weights:  25
## initial  value 21995.566709
## final   value 20022.082000
## converged
## # weights:  41
## initial  value 24131.665959
## final   value 20022.082000
## converged
## # weights:  9
## initial  value 23540.472347
## iter  10 value 20028.723163
## iter  20 value 20027.592112
## final   value 20027.591640
## converged
## # weights:  25
## initial  value 23792.148649
## iter  10 value 20027.854054
## iter  20 value 20026.057695
## final   value 20026.057375
## converged
## # weights:  41
## initial  value 21174.484513
## iter  10 value 20026.504928
## final   value 20025.398036
## converged
## # weights:  9
## initial  value 22476.861470
## iter  10 value 20033.429749
## iter  20 value 20022.212831
## iter  20 value 20022.212778
## final   value 20022.212778
## converged
## # weights:  25
```

```
## initial  value 23518.266617
## iter  10 value 20036.502122
## iter  20 value 20022.248253
## final  value 20022.102025
## converged
## # weights:  41
## initial  value 22413.382904
## iter  10 value 20043.054540
## iter  20 value 20022.323797
## final  value 20022.092461
## converged
## # weights:  9
## initial  value 22420.390533
## final  value 20038.766500
## converged
## # weights:  25
## initial  value 21931.403191
## final  value 20038.766500
## converged
## # weights:  41
## initial  value 23922.974333
## final  value 20038.766500
## converged
## # weights:  9
## initial  value 22030.697300
## iter  10 value 20044.407963
## final  value 20044.276546
## converged
## # weights:  25
## initial  value 23464.166017
## iter  10 value 20044.751403
## final  value 20042.742266
## converged
## # weights:  41
## initial  value 21933.566043
## iter  10 value 20056.136922
## iter  20 value 20042.087795
## final  value 20042.082867
## converged
## # weights:  9
## initial  value 23418.153805
## iter  10 value 20047.899309
## iter  20 value 20038.871794
## iter  20 value 20038.871752
## final  value 20038.871752
## converged
## # weights:  25
## initial  value 23028.764123
## iter  10 value 20053.637214
## iter  20 value 20038.937948
## final  value 20038.784694
## converged
## # weights:  41
## initial  value 21098.581300
```

```
## iter  10 value 20046.899717
## iter  20 value 20038.860270
## final   value 20038.775632
## converged
## # weights:  9
## initial   value 22405.774013
## final   value 19987.306000
## converged
## # weights:  25
## initial   value 21992.058349
## final   value 19987.306000
## converged
## # weights:  41
## initial   value 23804.323011
## final   value 19987.306000
## converged
## # weights:  9
## initial   value 21886.671352
## iter  10 value 19993.681268
## final   value 19992.814619
## converged
## # weights:  25
## initial   value 22164.320973
## iter  10 value 19992.377139
## final   value 19991.280821
## converged
## # weights:  41
## initial   value 22486.332682
## iter  10 value 19991.439269
## final   value 19990.621486
## converged
## # weights:  9
## initial   value 22130.376191
## iter  10 value 19996.936951
## iter  20 value 19987.417037
## iter  20 value 19987.416993
## final   value 19987.416993
## converged
## # weights:  25
## initial   value 23078.973951
## iter  10 value 20004.383858
## iter  20 value 19987.502894
## final   value 19987.318379
## converged
## # weights:  41
## initial   value 24072.062889
## iter  10 value 19999.680305
## iter  20 value 19987.448666
## final   value 19987.321906
## converged
## # weights:  9
## initial   value 21675.241326
## iter  10 value 20071.223437
## iter  20 value 20063.262949
```

```
## iter  20 value 20063.262912
## final  value 20063.262912
## converged
```

```
model3
```

```
## Neural Network
##
## 400 samples
##   6 predictor
##
## Pre-processing: centered (6), scaled (6)
## Resampling: Leave-One-Out Cross-Validation
## Summary of sample sizes: 399, 399, 399, 399, 399, 399, ...
## Resampling results across tuning parameters:
##
##   size  decay  RMSE      Rsquared     MAE
##   1     0e+00  7.082226            NA  6.511475
##   1     1e-04  7.082226            NA  6.511475
##   1     1e-01  7.082396  0.321388450  6.511658
##   3     0e+00  7.082226            NA  6.511475
##   3     1e-04  7.082226  0.001273363  6.511475
##   3     1e-01  7.082337  0.329456832  6.511597
##   5     0e+00  7.082226            NA  6.511475
##   5     1e-04  7.082226  0.001105182  6.511475
##   5     1e-01  7.082317  0.327879773  6.511574
##
## RMSE was used to select the optimal model using the smallest value.
## The final values used for the model were size = 1 and decay = 1e-04.
```

According to the above result, The neural network model has a relatively low R-squared value of 0.00127, indicating a weak relationship between the independent and dependent variables.The RMSE value is 7.082226, which provides a measure of the average error in the model's predictions. The optimal model was found to have a size of 1 and a decay of 1e-04.

QB4. Consider the following input: • Sales=9 • Price=6.54 • Population=124 • Advertising=0 • Age=76 • Income= 110 • Education=10 What will be the estimated Sales for this record using the above neuralnet model?

```
input <- data.frame(Sales=9,Price=6.54,Population=124,Advertising=0,Age=76,Income=110,Education=10)
```

```
sales_predict <- predict(model3,input)
sales_predict
```

```
## 1
## 1
```

As per the above result, we can tell that the neural network model predicts the sales for the given input to be 1.