Math 5364 Homework 13

1. Split `wdbc.data` into 70% training and 30% test data.
   (a) Fit a neural network with `size = 1` to the training data, plot it, and calculate the accuracy and area under the ROC curve using the test data.
   (b) Use 10-fold cross-validation to find the optimal value of `size`.
   (c) Repeat part (a) for the optimal value of size.
2. (a) Randomly generate 100 points from $[0, 2\pi]$, and fit a neural network for predicting $y = \sin(x)$ using this data.
   (b) Use 10-fold cross validation to find the optimal value of `size` for this neural network.
   (c) Plot $y = \sin(x)$ and the predictions from your neural network on the same graph.