HMC CS 158
Quiz 7: Ensemble Methods

1. Bagging can reduce bias / variance / bias and variance.
   Boosting can reduce bias / variance / bias and variance.

2. Given a training set with 4 unique instances, how many distinct bootstrapped training sets of size 3 are possible?

3. True or False: The AdaBoost algorithm requires that all weak learners are chosen from the same class of learners (for example, all learners in an ensemble are decision stumps).

4. True or False: AdaBoost can boost a sequence of learners whose error rate is worse than random ($\epsilon_t > 0.5$ for a binary classification task).

5. Randomization is used (explicitly) in which of the following ensemble methods? Select all that apply.

   (a) Bagging

   (b) Random Forests

   (c) AdaBoost