



Boosting



11/11 points
earned (100%)

Quiz passed!

[Continue Course \(/learn/ml-classification/supplement/3TYwk/boosting-a-decision-stump\)](/learn/ml-classification/supplement/3TYwk/boosting-a-decision-stump)

[Back to Week 5 \(/learn/ml-classification/home/week/5\)](/learn/ml-classification/home/week/5)



1 / 1
points

1.

Which of the following is NOT an ensemble method?



1 / 1
points

2.

Each binary classifier in an ensemble makes predictions on an input x as listed in the table below. Based on the ensemble coefficients also listed in the table, what is the final ensemble model's prediction for x ?

	Classifier coefficient w_t	Prediction for x
Classifier 1	0.61	+1
Classifier 2	0.53	-1
Classifier 3	0.88	-1
Classifier 4	0.34	+1



1 / 1
points

3.

(True/False) Boosted trees tend to be more robust to overfitting than decision trees.



1 / 1
points

4.

(True/False) For AdaBoost, test error is an appropriate criterion for choosing the optimal number of iterations.



1 / 1
points

5.

Which of the following conditions must be true in order for $w_t > 0$?



1 / 1
points

6.

Which of the following classifiers is most accurate as computed on a weighted dataset? A classifier with:



1 / 1
points

7.

Imagine we are training a decision stump in an iteration of AdaBoost, and we are at a node. Each data point is (x_1, x_2, y) , where x_1, x_2 are features, and y is the label. Also included are the weights of the data. The data at this node is:

Weight	x_1	x_2	y
0.3	0	1	+1
0.35	1	0	-1
0.1	0	1	+1
0.25	1	1	+1

Suppose we split on feature x_2 . Calculate the weighted error of this split. Round your answer to 2 decimal places.



1 / 1
points

8.

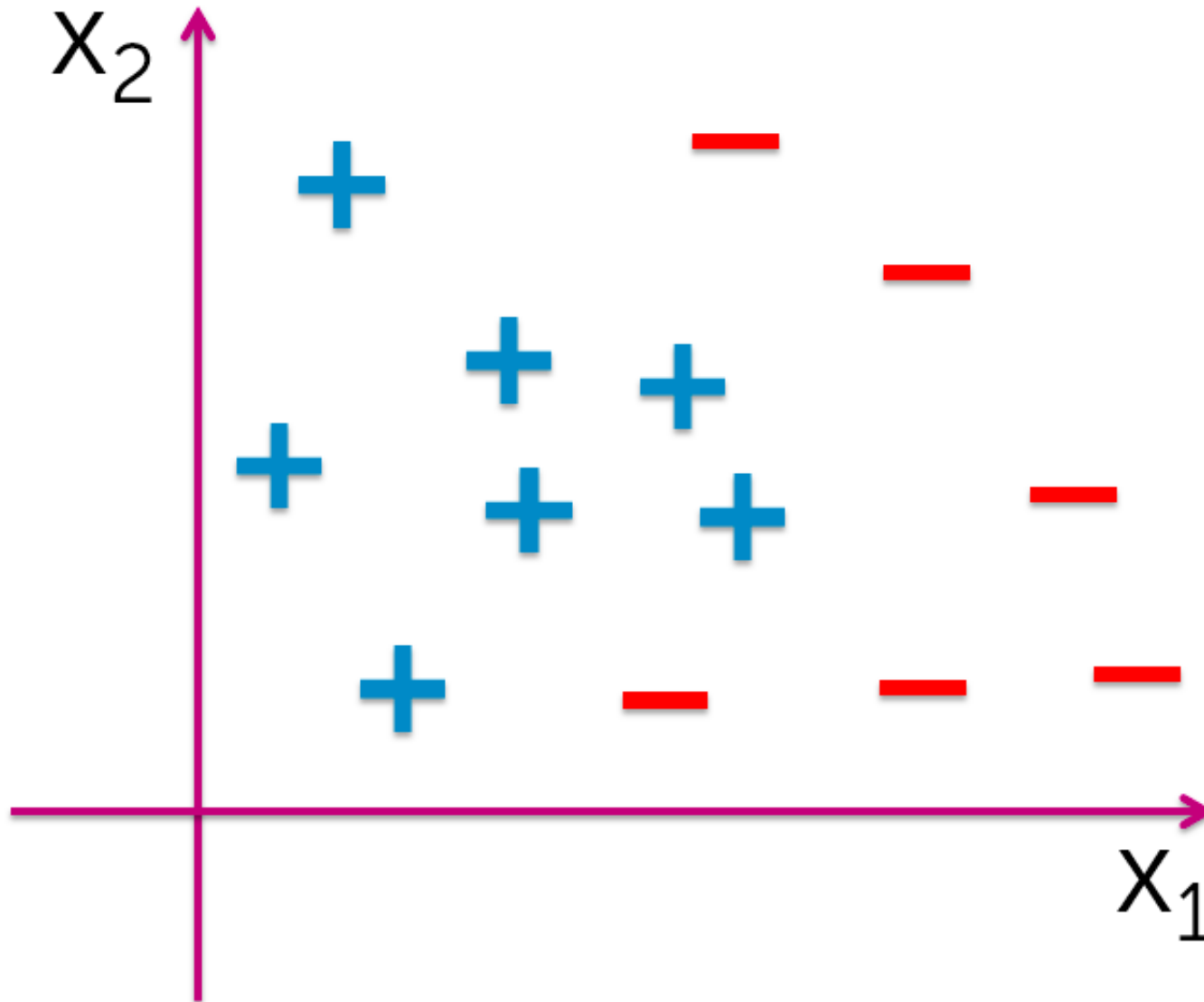
After each iteration of AdaBoost, the weights on the data points are typically normalized to sum to 1. This is used because



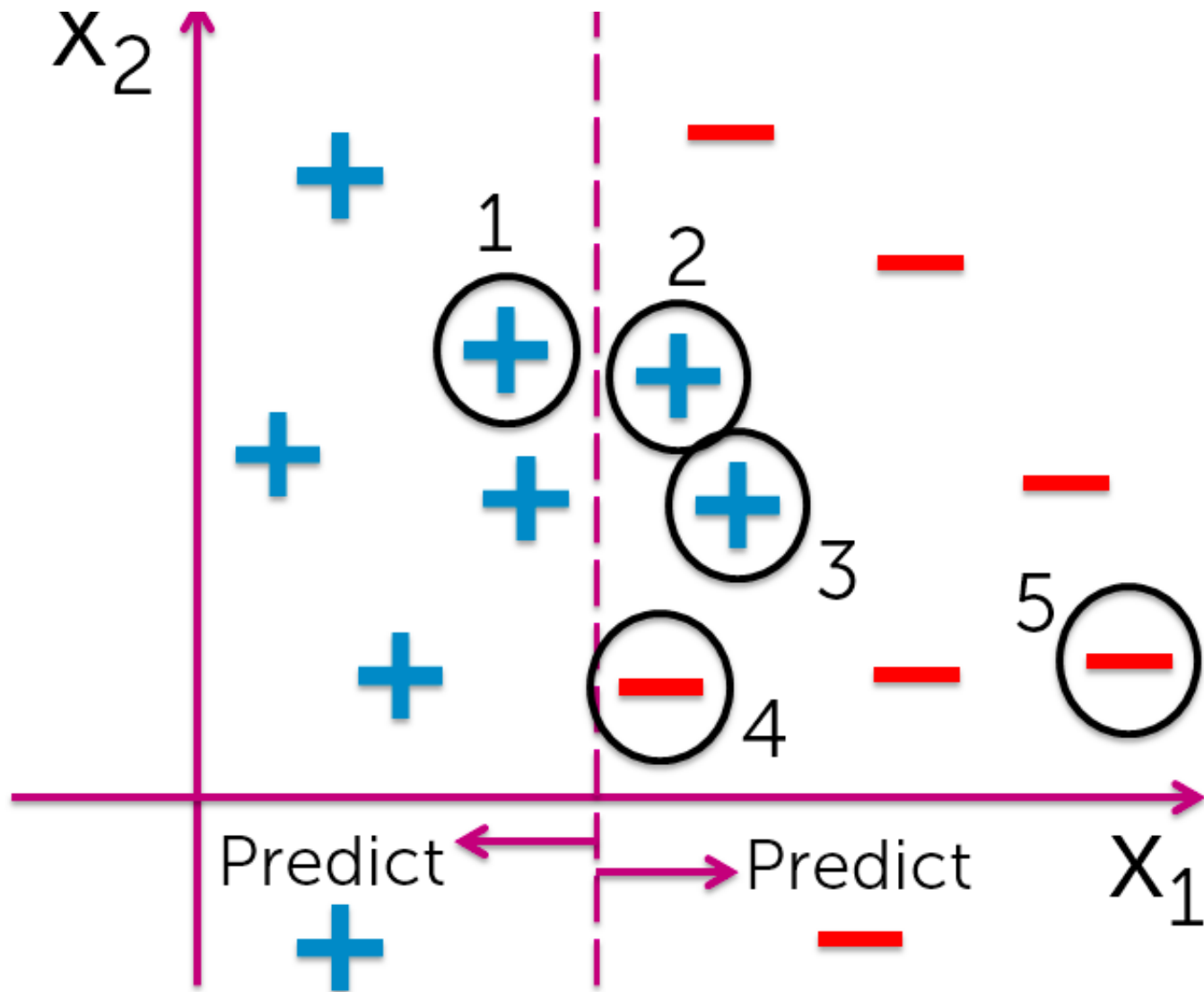
1 / 1
points

9.

Consider the following 2D dataset with binary labels.



We train a series of weak binary classifiers using AdaBoost. In one iteration, the weak binary classifier produces the decision boundary as follows:



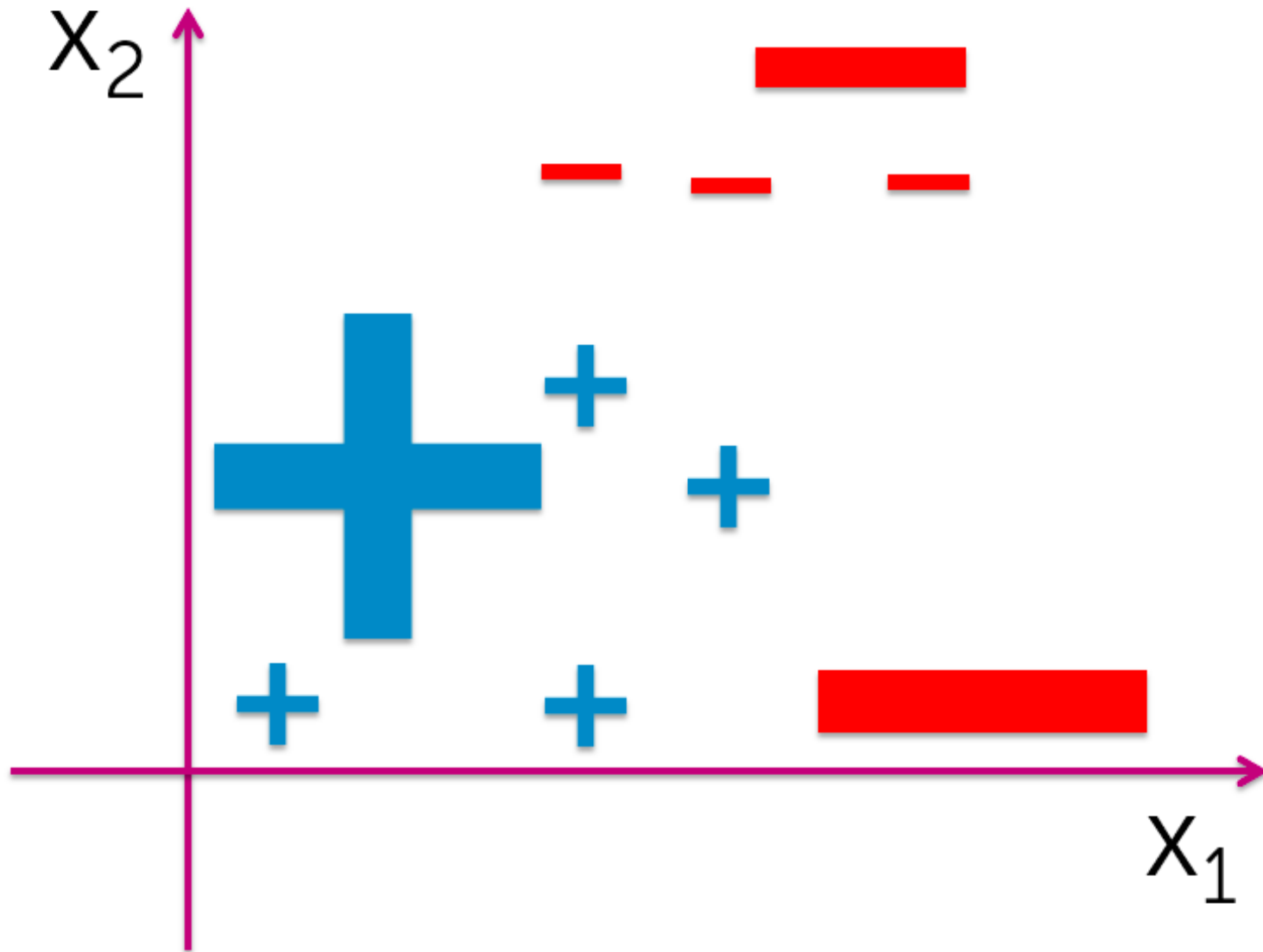
Which of the five points (indicated in the second figure) will receive higher weight in the following iteration?
Choose all that apply.



1 / 1
points

10.

Suppose we are running AdaBoost using decision tree stumps. At a particular iteration, the data points have weights according to the figure. (Large points indicate heavy weights.)



Which of the following decision tree stumps is most likely to be fit in the next iteration?



1 / 1
points

11.

(True/False) AdaBoost can boost any kind of classifier, not just a decision tree stump.

