

CS 6375 - Quiz 3 -Key

Name \_\_\_\_\_

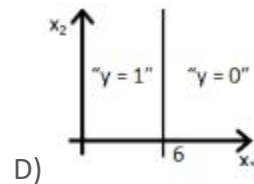
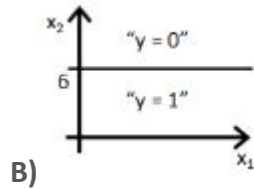
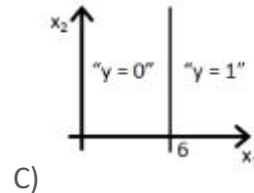
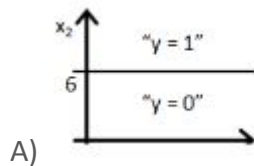
[2 Points Each]

1. Suppose you train a logistic regression classifier and your hypothesis function H is

$$h_{\theta}(x) = \sigma(\theta_0 + \theta_1 x_1 + \theta_2 x_2)$$

Where  $\theta_0 = 6$ ;  $\theta_1 = 0$ ;  $\theta_2 = -1$

Which of the following figure will represent the decision boundary as given by above classifier?



B.

2. What happens to Naive Bayes document posteriors (for binary classification), if you keep increasing the pseudo-count parameter very very high?
- A. They all become either 0 or 1.
  - B. They all become 0.5.
  - C. They all become the prior**
  - D. Neither of the above.

3. SVM C parameter controls tradeoff between smooth decision boundary and classifying training points correctly. Does a large C mean

A. More training points incorrect / Soft Margin

**B. More training points correct / Hard Margin**

4. When SVM algorithm is run on a training data, it is determined that there are three support vector, two of them are negative samples and one is positive. The Lagrangian coefficients associated with negative ones are 0.25 each. What is the coefficient of the positive one?

0.5

5. Given the hyperplane defined by the line  $y = x_1 - 2x_2$  i.e.  $w = [1, -2]$  and  $b = 0$ . Are the point correctly predicted? 1)  $y = 1, x = (1,0)$  2)  $y = 1, x = (1,1)$  ?

1. Yes 2. No