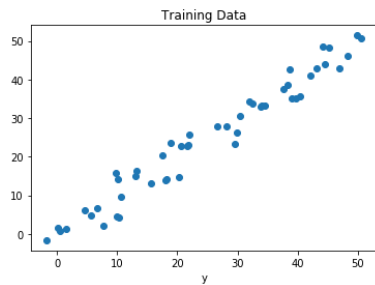CS691 Quiz 3   Name _____

1. Give an example where K-NN and K-Means would give the same result. Be as specific as you can. (4 points)

2. Draw a curve that is overfit to the data below. Explain why it is overfit. (2 points)

3. Give an example of noise at the feature level. Explain how that example demonstrates feature noise. (2 points)

4. Hyperparameters are chosen by analyzing the test data. True or False. Circle one and explain. (2 points)

CS491 Quiz 3   Name _____

1. We use the validation data to determine the max depth of a decision tree. True or False. Circle one and explain. (2 points)

2. What are two things K-NN and K-Means have in common? What is something that makes them different? (3 points).

3. Answer the following questions given the training data below. Each sample is listed as $s = (x_1, x_2, y)$, where x_1 and x_2 are the features and y is the label. (5 points)

$s_1 = (2, 2, -1)$
$s_2 = (0, 0, 1)$
$s_3 = (3, 5, -1)$
$s_4 = (1, 1, 1)$
$s_5 = (1, 0, 1)$
$s_6 = (3, 2, -1)$
$s_7 = (2, 4, -1)$
$s_8 = (0, 1, 1)$

   (a) How would a 1-NN classify the following sample? $s_t = (3, 3)$
   (b) How would a 1-NN classify the following sample? $s_t = (-1, -1)$
   (c) How would a 3-NN classify the following sample? $s_t = (1, 2)$
   (d) How would a 5-NN classify the following sample? $s_t = (3, 1)$
   (e) How would a 5-NN classify the following sample? $s_t = (0.5, 0.5)$