1. Thinking about the R^2 metric used for evaluating regression, answer the following questions:
   1. The highest possible score for the r^2 metric is 1. This happens when each y prediction is exactly correct, leading the expression for r^2 to be 1 - 0.
   2. If a model predicted the average value of the training set for every input, the score it would get on a test set with the same average would be 0. That’s because the numerator and denominator in the fraction of the r^2 metric will be the same, causing the whole expression to become 1 - 1.
   3. The lowest score you can get for r^2 is negative infinity. If you have a simple linear regression, the line could be “infinitely” distant from the data.
2. When using accuracy to measure your model's performance on a classification problem:
   1. The best possible score you can get is 1. If every test item is predicted as the right class, the ratio of correct predictions to total test items must be 1:1.
   2. If a model predicted the same class no matter what, and 85% of the test items were of that class, then the score would be .85.
   3. The worst possible score you can get on a test set that only has two classes is 0.5. This is because, technically, a score of 0 is achievable, but if you flip your predictions that becomes a score of 1. So realistically, the worst possible score you can get is doing just as well as just randomly guessing.
3. A model gets a recall score of 0 for class A on a test set with 3 classes. If you take one of the test items that are in class A and have this model predict what class it is, it will predict class B or C. This is because for it to have a recall of 0 for class A, it must have never predicted any true positives for class A (only false negatives).
4. A model gets a precision score of 1 for class A on a test set with 3 classes. If you take one of the test items that are in class A and have this model predict what class it is, it could predict any of the classes. This is because precision tells nothing about false negatives.
5. If a model with classes A and B has an AUC score of 1 and you give it an item from the test set that is in class A, it will predict class A and give it a probability >=50% (the AUC score does not tell you anything about the probability it predicts). This is because an AUC score of 1 means that the model is perfect (can separate the two classes into 2 distinct groups and this separation is accurate).
6. If a model with classes A and B has an AUC score of 0 and you give it an item from the test set that is in class A, it will predict class B and give it a probability of >=50% (the AUC score does not tell you anything about the probability it predicts). An AUC score of 0 means that the model is perfectly incorrect (it has separated the classes into 2 distinct groups, but has flipped them).