1. A computer program is said to learn from experience E with **1 point**

   respect to some task T and some performance measure P if its

   performance on T, as measured by P, improves with experience E.

   Suppose we feed a learning algorithm a lot of historical weather

   data, and have it learn to predict weather. In this setting, what is T?

   ○ The probability of it correctly predicting a future date's weather.

   ○ None of these.

   ◉ The weather prediction task.

   ○ The process of the algorithm examining a large amount of historical weather data.

2. Suppose you are working on weather prediction, and you would **1 point**

   like to predict whether or not it will be raining at 5pm

   tomorrow. You want to use a learning algorithm for this.

   Would you treat this as a classification or a regression problem?

   ◉ Classification

   ○ Regression

3. Suppose you are working on stock market prediction. You would like to predict whether or not a certain **1 point**
   company will declare bankruptcy within the next 7 days (by training on data of similar companies that had
   previously been at risk of bankruptcy). Would you treat this as a classification or a regression problem?

   ◉ Classification

   ○ Regression

4. Some of the problems below are best addressed using a supervised **1 point**

   learning algorithm, and the others with an unsupervised

   learning algorithm. Which of the following would you apply

   supervised learning to? (Select all that apply.) In each case, assume some appropriate

   dataset is available for your algorithm to learn from.

   ☐ Take a collection of 1000 essays written on the US Economy, and find a way to automatically group
   these essays into a small number of groups of essays that are somehow "similar" or "related".

   ☑ Given historical data of children's ages and heights, predict children's height as a function of their age.

   ☐ Examine a large collection of emails that are known to be spam email, to discover if there are sub-types
   of spam mail.

   ☑ Given 50 articles written by male authors, and 50 articles written by female authors, learn to predict the
   gender of a new manuscript's author (when the identity of this author is unknown).

5. Which of these is a reasonable definition of machine learning? **1 point**

   ○ Machine learning learns from labeled data.

   ○ Machine learning is the field of allowing robots to act intelligently.

   ◉ Machine learning is the field of study that gives computers the ability to learn without being explicitly
   programmed.

   ○ Machine learning is the science of programming computers.