Which distribution has a larger standard deviation, distribution "a" or distribution "b?" Explain your response.

A: Distribution "a" has a larger standard deviation. The standard deviation is a measure of variability; that is, it provides an idea of how spread out scores are in a distribution. Clearly, scores are more spread out in distribution "a."

2. Suppose you take a test in a class. From your standpoint, and assuming you want to have a good test grade, would you want to hear that scores on your test were normally distributed, positively skewed, or negatively skewed? Explain your reasoning.

   A: From a student perspective, a negatively skewed distribution is preferable to a positively skewed or a normal distribution of scores. That's because in a negatively skewed distribution, there are a few low scores dragging down the mean. However, most people scored quite high, which is a good thing for most students. Obviously, if you're one of the students with an unusually negative score, this is not a good thing for you. But in general, negatively skewed distributions of test scores are good news for most students.

3. Explain the role that the standard deviation plays in identifying outliers in a dataset.

   A: Researchers identify outliers by seeing how many standard deviations a score is from the mean of the dataset. There are no definite rules about how many standard deviations a score needs to be from the mean to qualify as an outlier. The most critical consideration is that researchers disclose the number of standard deviation units used to identify outliers in their research.