Name: _____

Group Members: _____

1. A data set has a mean that is much higher than the median. Which of the following is most likely **true**?

   A. The distribution of values is symmetric.
   B. The distribution of values is skewed left.
   C. The distribution of values is skewed right.
   D. The distribution has a few high outliers.

2. The Clemson intramural basketball team has 15 players who are each a different height. The team trades its shortest player for a tall center who is now the tallest person on the team. Which of the statements is **false**?

   A. The range of heights might be different.
   B. The median height will remain the same.
   C. The mean height of the team will increase.
   D. The standard deviation of the heights might be different.

3. **Explain** your reasoning for your answer to Question 2. Why did you choose your answer over the others?

4. At Hogwarts, Professor Slughorn's Potions class of 23 students had an average of 82 on their last exam. Professor Snape's class of 27 students had an average of 77 on the same test. What is the average of the two classes combined? (Hint: Use a weighted average.)

5. In Jane Austen's nineteenth century English literature class, attendance counts for 5% of the final grade, quizzes count for 15%, exams count for 45%, and the final exam counts for 35%. Jane has averages of 95 for attendance, 92 for quizzes, and 85 for exams. What would she need to score on the final to have an A (a course average of 90) in the course?

6. At an Amateur Rubik's Cube Competition, the solving times (in seconds) for each of ten randomly-selected participants are listed in the table below.

28	32	33	35	37
39	42	46	51	59

Find the following statistics from your sample. For each one, be sure to **label** the values with the appropriate symbol, **show** your work, and include your **answer** with **units**.

(a) Calculate the **mean** of the distribution.

(b) Find the **median** of the distribution.

(c) Find the **standard deviation** of the distribution. (Hint: Take the variance first.)

7. The number of coffee shop customers on a given day at Central Perk follows a distribution that is roughly symmetric and unimodal with a mean of 240 customers and a standard deviation of 20 customers.

   (a) Why is it appropriate to use the Empirical Rule here? (Hint: What do we know about the distribution?)

   (b) According to the Empirical Rule, on what percentage of days can the coffee shop expect between 220 and 280 customers? Draw a **sketch** of the distribution with axis values and appropriate shading.

   (c) The maximum occupancy of the coffee shop is 300 customers. According to the Empirical Rule, on what percentage of days can the coffee shop expect more than 300 customers, having to turn people away? Draw a **sketch** with axis values and appropriate shading.

8. Suppose we didn't know that the distribution above was symmetric and unimodal, so we had to use Chebyshev's Rule to learn about our data.

   (a) On at least what percent of days should we expect between 200 and 280 customers? (Hint: First identify k, the number of standard deviations from the mean, to use in Formula 4.9.) Show your work!

   (b) Determine the range of the number of customers Central Perk can expect on at least 55.6% of days.

9. The following list represents the times, in minutes, that it took 10 randomly-selected fishermen at Issaqueena Lake to get the first bite on their hook.

3, 19, 21, 21, 23, 25, 28, 30, 31, 32

(a) Write the **five-number summary** for the data. Label the values and show any calculations.

(b) Calculate the **fences** and state whether there are any **outliers**.

(c) Construct a **boxplot**. Include a title with units for your horizontal axis.

(d) Describe the **distribution** of the boxplot you constructed by discussing its shape, center, spread, and any outliers.