Lesson 4: Describing Quantitative Data: Center, & Spread

Preparation

## Solutions

**Please note that the steps show rounded numbers, but that the final answers to the problems are calculated without rounding.**

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| Problem | Part | Solution |
| 1 | Shape | c. Symmetric, bell-shaped, skewed right, and skewed left, uniform, unimodal, bimodal, or multimodal |
| 1 | Center | a. Average, mean, median, mode |
| 1 | Spread | b. Standard deviation, variance |
| 2 | - | The standard deviation is a measure of the spread in a distribution. If the standard deviation is small then the data tend to be closer together. If the standard deviation is large, the data is usually more spread out. |
| 3 | - | Answers will vary |
| 4 | - | Sample variance is also a measure of spread in a data set. The sample variance is an estimator of the true population variance. The sample variance is just the sample standard deviation squared or . |
| 5 | Percentiles | A percentile is a number such that a specified percentage of the data are at or below this number, such as at the 50th percentile, this value is as large or larger than 50% of all the data. |
| 5 | Quartiles | Quartiles are just three special percentiles, , , and percentiles divide the data into fourths. |
| 5 | Five-number summary | The five number summary is comprised of the minimum, first quartile, median, third quartile, and maximum. It is just a good way to summarize the data into just five numbers. |
| 5 | Boxplot | A boxplot is a graphical representation of the five-number summary. |
| 6 | - | Answers may vary, students should choose a company and justify why. They will probably choose B or C, because they have the highest means. |