Moore SCC 8e

Chapter 12

1. The two sets of values commonly used to describe center AND spread are:

a. Five-number summary AND median

b. Mean and standard deviation AND median and mode

*c. Mean and standard deviation AND five-number summary

d. Mean and median AND mode

A. Incorrect. This is one common description. The other is mean and standard deviation.
B. Incorrect. Mode is not used to describe spread.
C. Correct. These are the two common descriptions of center and spread.
D. Incorrect. Mode is not used to describe spread.

Text Reference: Section 12.3: Mean and standard deviation

2. The five-number summary consists of which of the following?

I. Mean II. Median III. Mode IV: Minimum value

V: Maximum value VI: 1st quartile VII: 3rd quartile

VIII: Standard deviation IX: Range

a. I, II, III, IV, V

b. I, III, VIII, IX

*c. II, IV, V, VI, VII

d. I, IV, V, VI, VIII

e. I, IV, V, VIII, IX

A. Incorrect. The five-number summary consists of the minimum, 1st quartile, median, 3rd quartile, and the maximum.

B. Incorrect. The five-number summary consists of the minimum, 1st quartile, median, 3rd quartile, and the maximum.
C. Correct. The five-number summary consists of the minimum, 1st quartile, median, 3rd quartile, and the maximum.
D. Incorrect. The five-number summary consists of the minimum, 1st quartile, median, 3rd quartile, and the maximum.
E. Incorrect. The five-number summary consists of the minimum, 1st quartile, median, 3rd quartile, and the maximum.

Text Reference: Section 12.2: The five-number summary and boxplots

3. A graph of the five-number summary of a data set is a:

a. Histogram

b. Stem and leaf

c. Dot plot

*d. Boxplot

A. Incorrect. A histogram is a graph of the stem and leaf.
B. Incorrect. The stem and leaf separates digits of a data set into groups or classes of a certain width.
C. Incorrect. Dot plots show the distribution of data, but not the five-number summary.
D. Correct.

Text Reference: Section 12.2: The five-number summary and boxplots

4. Standard deviation is:

*a. The average distance of observations from the mean

b. The average distance of observations from the median

c. The square of distances of each observation from the mean

d. The sum of the observations divided by the number of observations

e. None of the choices are correct.

A. Correct. Standard deviation describes the spread associated with the mean.
B. Incorrect. Standard deviation associates with the mean of a data set.
C. Incorrect. This is a step in finding the standard deviation.
D. Incorrect. This is the method used to calculate the mean.
E. Incorrect. Standard deviation is the average distance of observations from the mean.

Text Reference: Section 12.3: Mean and standard deviation

5. A survey was given to a group of 12 seniors in high school about how much money they spent last weekend. The results are below:

$45 $30 $15 $105 $35 $50 $15 $40 $45 $75 $60 $50

The median of the data set is:

a. $32.50

*b. $45

c. $50

d. $47.50

e. None of the choices are correct.

A. Incorrect. Sort the list first then find the median by averaging the two middle numbers.
B. Correct. This is the middle of the sorted list.
C. Incorrect. Sort the list first then find the median by averaging the two middle numbers.
D. Incorrect. Sort the list first then find the median by averaging the two middle numbers.

E. Incorrect. Sort the list first then find the median by averaging the two middle numbers.

Text Reference: Section 12.1: Median and quartiles

6. A survey was given to a group of 12 seniors in high school about how much money they spent last weekend. The results are below:

$45 $30 $15 $105 $35 $50 $15 $40 $45 $75 $60 $50

The 1st quartile of the data set is

a. $67.50

b. $15

c. $35

*d. $32.50

A. Incorrect. Find the median of the first half of the data set (after you have sorted it) and you will find that the Q1 is $32.50.
B. Incorrect. Find the median of the first half of the data set (after you have sorted it) and you will find that the Q1 is $32.50.
C. Incorrect. Find the median of the first half of the data set (after you have sorted it) and you will find that the Q1 is $32.50.
D. Correct. Take the first half of the data set and find the median, which is $32.50.

Text Reference: Section 12.1: Median and quartiles

7. A survey was given to a group of 12 seniors in high school about how much money they spent last weekend. The results are below:

$45 $30 $15 $105 $35 $50 $15 $40 $45 $75 $60 $50

The mean of the data set is:

a. $\bar{x} = \frac{565}{11} \approx 51.4$ $\bar{x} = \frac{565}{12} \approx 47.1$

*b. $\bar{x} = \frac{565}{12} \approx 47.1$

c. $\bar{x}$ is the middle number which is 45.

d. None of the choices are correct.

A. Incorrect. This is not the correct formula. The denominator should be 12.
B. Correct.
C. Incorrect. The mean is the sum of the observations divided by the total number of observations (565/12) which is approximately 47.1.
D. Incorrect. The mean is the sum of the observations divided by the total number of observations (565/12) which is approximately 47.1.

Text Reference: Section 12.3: Mean and standard deviation

8. A survey was given to a group of 12 seniors in high school about how much money they spent last weekend. The results are below:

$45 $30 $15 $105 $35 $50 $15 $40 $45 $75 $60 $50

The standard deviation of this data set

*a. ≈ $25

b. ≈ $23.9

c. ≈ $47.1

d. None of the choices are correct.

A. Correct.
B. Incorrect. Check the book for calculating standard deviation. It is approximately $25.
C. Incorrect. Check the book for calculating standard deviation. It is approximately $25.
D. Incorrect. Check the book for calculating standard deviation. It is approximately $25.

Text Reference: Section 12.3: Mean and standard deviation

9. When a standard deviation of a data set is 0, then:

a. All observations have the same value

b. There is no spread at all

c. The mean is 0

*d. All observations have the same value and there is no spread at all.

e. None of the choices are correct.

A. Incorrect. When s=0, the observations have the same value *and* there is no spread.
B. Incorrect. When s=0, the observations have the same value *and* there is no spread.
C. Incorrect. When the standard deviation is zero, the observations have the same value and there is no spread.
D. Correct. When s=0, the observations have the same value and there is no spread.
E. Incorrect. When s=0, the observations have the same value and there is no spread.

Text Reference: Section 12.3: Mean and standard deviation

10. The measure of central tendency that is most influenced by extreme observations is:

*a. Mean

b. Median

c. Mode

d. Standard deviation

A. Correct. Mean deals with averages, weights, or centers of gravity. Extreme observations would affect this value greatly.
B. Incorrect. Median is the middle number. It is a position in a list. Mean deals with averages, weights, or centers of gravity. Extreme observations would affect the mean value greatly.
C. Incorrect. Mode is the number that occurs the most. Mean deals with averages, weights, or centers of gravity. Extreme observations would affect this value greatly.
D. Incorrect. Standard deviation describes spread and is not a measure of central tendency.

Text Reference: Section 12.4: Choosing numerical descriptions