**Discussion 3**

**CHAPTER 3: NUMERICAL DESCRIPTIVE MEASURES**

1. **Which of the following statistics is not a measure of central tendency?**

a) Arithmetic mean.

b) Median.

c) Mode.

d) Q3.

1. **Which measure of central tendency can be used for both numerical and categorical variables?**

a) Arithmetic mean.

b) Median.

c) Mode.

d) Geometric mean.

1. **In a right-skewed distribution**

 a) the median equals the arithmetic mean.

b) the median is less than the arithmetic mean.

c) the median is greater than the arithmetic mean.

d) none of the above.

1. **Which of the following statements about the median is not true?**

a) It is more affected by extreme values than the arithmetic mean.

b) It is a measure of central tendency.

c) It is equal to Q2.

d) It is equal to the mode in bell-shaped "normal" distributions.

1. **In a perfectly symmetrical bell-shaped "normal" distribution**

a) the arithmetic mean equals the median.

b) the median equals the mode.

c) the arithmetic mean equals the mode.

d) All the above.

1. **In a perfectly symmetrical distribution**

a) the range equals the interquartile range.

b) the interquartile range equals the arithmetic mean.

c) the median equals the arithmetic mean.

d) the variance equals the standard deviation.

1. **Which of the following is NOT a measure of central tendency?**

a) The arithmetic mean.

b) The geometric mean.

c) The mode.

d) The interquartile range.

1. **Which of the following is the easiest to compute?**

a) The arithmetic mean.

b) The median.

c) The mode.

d) The geometric mean.

1. **True or False: The median of the values 3.4, 4.7, 1.9, 7.6, and 6.5 is 1.9.**

 ANSWER:

1. **True or False: In a set of numerical data, the value for Q3 can never be smaller than the value for Q1.**

 ANSWER:

1. **True or False: In a set of numerical data, the value for Q2 is always halfway between Q1 and Q3.**

ANSWER:

1. **True or False: If the distribution of a data set were perfectly symmetrical, the distance from Q1 to the median would always equal the distance from Q3 to the median in a boxplot.**

ANSWER:

1. **True or False: In right-skewed distributions, the distance from Q3 to the largest value is greater than the distance from the smallest observation to Q1.**

ANSWER:

1. **True or False: In left-skewed distributions, the distance from the smallest value to Q1 is greater than the distance from Q3 to the largest value.**

ANSWER:

1. **True or False: A boxplot is a graphical representation of a five-number summary.**

ANSWER:

1. **True or False: The five-number summary consists of the smallest value, the first quartile, the median, the third quartile, and the largest value.**

ANSWER:

1. **True or False: In a boxplot, the box portion represents the data between the first and third quartile values.**

ANSWER:

1. **True or False: The line drawn within the box of the boxplot always represents the arithmetic mean.**

ANSWER:

1. **True or False: The line drawn within the box of the boxplot always represents the median.**

ANSWER:

1. **True or False: In a sample of size 40, the sample mean is 15. In this case, the sum of all observations in the sample is = 600. ΣXi**

ANSWER:

**SCENARIO 3-2**

The data below represent the amount of grams of carbohydrates in a serving of breakfast cereal in a sample of 11 different servings.

11 15 23 29 19 22 21 20 15 25 17

1. **Referring to Scenario 3-2, the arithmetic mean carbohydrates in this sample is \_\_\_\_\_\_\_\_ grams.**

ANSWER:

1. **Referring to Scenario 3-2, the median carbohydrate amount in the cereal is \_\_\_\_\_\_\_\_ grams.**

ANSWER:

1. **Referring to Scenario 3-2, is the carbohydrate amount in the cereal right- or left-skewed?**

ANSWER:

1. **Referring to Scenario 3-2, the first quartile of the carbohydrate amounts is \_\_\_\_\_\_\_\_ grams.**

ANSWER:

1. **Referring to Scenario 3-2, the third quartile of the carbohydrate amounts is \_\_\_\_\_\_\_\_ grams.**

ANSWER:

1. **Referring to Scenario 3-2, the range in the carbohydrate amounts is \_\_\_\_\_\_\_\_ grams.**

ANSWER:

1. **Referring to Scenario 3-2, the interquartile range in the carbohydrate amounts is \_\_\_\_\_\_\_\_ grams.**

ANSWER:

1. **Referring to Scenario 3-2, the variance of the carbohydrate amounts is \_\_\_\_\_\_\_\_ (grams squared).**

ANSWER:

1. **Referring to Scenario 3-2, the standard deviation of the carbohydrate amounts is \_\_\_\_\_\_\_\_ grams.**

ANSWER:

1. **Referring to Scenario 3-2, the coefficient of variation of the carbohydrate amounts is \_\_\_\_\_\_\_\_ percent.**

ANSWER:

1. **Referring to Scenario 3-2, the five-number summary of the carbohydrate amounts consists of \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_.**

ANSWER: