Name: _____ Key

Statistics Test Review Homework

1. If Mark received a z-score of 1.75 for the ACT and the average score is 22 with a standard deviation of 2.23. What score did Mark receive?

$$1.75 = \frac{x - 22}{2.23}$$

$$x = 25.9$$

2. Based on the following data set for average GPAs, determine quartile 1, quartile 2, and quartile 3.

3.5, 2.5, 3.7, 4.0, 2.1, 1.8, 3.5, 3.2, 4.5

1.8, 2.1, 2.5, 3.2, 3.5, 3.5, 3.7, 4, 4.5

Median/Q2 = 3.5

$Q_1 = 2.3$

$Q_3 = 3.38$

3. If a distribution has a mean of 78 and the standard deviation is 12, what value would be -2 standard deviations from the mean?

54

4. What is the standard deviation of the set of data?

37, 42, 56, 98, 42, 12, 15, 62

$\sigma = 25.7$

$\bar{x} = 45.5$

72.25 , 12.25 , 110.25 , 2756.25

12.25 , 1122.25 , 930.25 , 272.25

$$\sqrt{\frac{4288}{7}} = \sqrt{612.57} = 24.75$$

5. Which of the following is false about the normal curve.

a. It is bell shaped

b. The less data points you have the more normally distributed your curve will be

c. Mean, median, and mode are the same

d. If you have a z-score of 0 your score is the average

6. Mitch and Mel and are trying to decide whose bench press is more impressive based on male vs. female. Mitch benched 150 pounds and the male average is 130 with a standard deviation of 7. Mel benched 95 pounds and the female average is 85 with a standard deviation of 3. Whose bench press was more impressive? Include your z-scores in your answer.

Mitch $z = 2.86$ Mel $z = 3.3$

Mitch is more impressive

7. On the Stats Quiz Trevor received a z-score of -1.2. The grades were normally distributed. The exam average was 75 and the standard deviation was 3. What was Trevor's score?

$$-1.2 = \frac{x - 75}{3} \qquad x = 71.1$$

8. What percentage of scores will fall between 0 and +3 standard deviations in the normal distribution?

49.5%

9. Lindsey wants to study how many people at Long Branch High School support the arts.

1. The first sample was made up of 100 people Lindsey randomly chosen in the hallway between periods.

2. The second sample was made up of 150 people attending the school play.

Which sample best fulfills the purpose of the survey and why?

b/c unbiased

10. Sierra received a 3.7 z-score on the PSAT last year. The test scores were normally distributed with an average of 620 and a standard deviation of 45. What was Sierra's score?

$$3.7 = \frac{x - 620}{45}$$

$x = 786.5 \approx 787$

11. Eli wanted to study who Long Branch students have failed a class

1. He created a survey question asking students for their name, grade level and how many classes they have failed.
2. He made sure to ask an equal number of girls as boys.
3. He went to 10 classes on different floors to make sure he asked different grade levels

Which step or steps did Eli add bias to his sample?

1 and 3

12. Maria surveyed 450 residents of Long Branch about how much they spend at the grocery store per week. The mean of the sample was $125 with a standard deviation of $9.60. Maria can be 95onfident that the mean amount of money spent at the grocery store for all Long Branch residents is $125 with what margin of error.

(Use the formula $m = 1.96\frac{s}{\sqrt{n}}$)

$$1.96 \cdot \frac{9.60}{\sqrt{450}} = .89$$

13. Marcus wants to study how sleep effects grades. He asked 5 of his classmates to get 5 hours of sleep each night for a week and 5 of his other classmates to get 8 hours of sleep each night for a week. He gave them a test at the end of the week to see if sleep affected their scores on the test. What type of study did Marcus conduct?

experimental

14. What percentage of scores fall between -2 and +2 standard deviations in the normal distribution?

95%

15. If a distribution has a mean of 12 and the standard deviation is 2.8, what value would be +3 standard deviations from the mean?

20.4

16. Period A1's class average for Statistics quiz 1 was 93% and the standard deviation was 3.45. If Davi scored a 95%, what was his z-score?

$$z \frac{95-93}{3.45} = .58$$