Chapter 6 - The Normal Distribution

1. Which choice is another term that can be used to describe a normal distribution:
   A) independent variable
   B) discrete distribution
   C) negatively or positively skewed
   D) bell curve

2. Which of the following characteristics does not apply to a theoretical normal distribution?
   A) It is bell-shaped.
   B) The mean, median, and mode are equal.
   C) It is bimodal.
   D) It is never negative.

3. The normal distribution curve can be used as a probability distribution curve for normally distributed variables.

4. If a normal distribution has a mean of 20 and a standard deviation of 10, then
   A) the median is 20 and the mode is 20.
   B) the median is 10 and the mode is 30.
   C) the median is 30 and the mode is 10.
   D) the median is 20 and the mode is 30.

5. One normal curve has a mean of 24 and a standard deviation of 3. A second normal curve has a mean of 3 and a standard deviation of 24. The curve that is more dispersed, or spread out, is
   A) the first normal curve.
   B) the second normal curve.
   C) both; they are equally spread out.
   D) neither; by definition,a normal curve shows no spread.

6. Which of the following properties distinguishes the standard normal distribution from other normal distributions?
   A) The mean is 0 and the standard deviation is 1.
   B) The total area under the curve is equal to 1.00.
   C) The curve is continuous.
   D) The mean is located at the center of the distribution.

7. To find the area under the standard normal distribution curve between two *z* values, one first finds the difference between the two *z* values, then locates the value corresponding to that difference in the *Standard Normal Distribution* table.

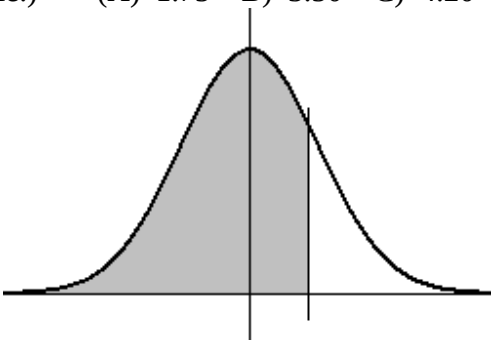
8. The area under a normal distribution curve is always positive even if the *z* value is negative.

9. The following formula can be used to find the specific value of the variable in a data set that corresponds to a particular value of the standard normal variable: $X = z \cdot \sigma + \mu$

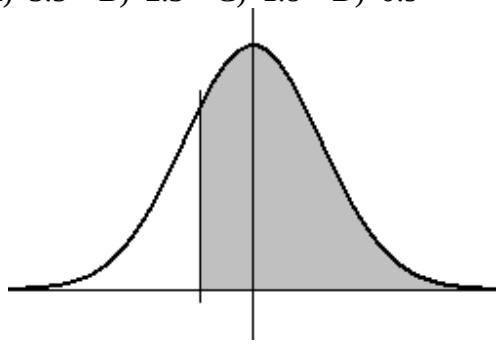
10. In order to have the *standard* error of the mean be 12, one would need to take _____ samples from a normally distributed population with a standard deviation of 48. (A) 4 B) 16 C) 64 D) 256

11. The standard deviation of sample means will be larger than the standard deviation of the population.

12. *X* is a normally distributed random variable with a mean of 8.00. If the probability that *X* is less than 9.54 is 0.67 (as shown below), then what is the standard deviation of *X*? (Note: the diagram is not necessarily to scale.) (A) 1.75 B) 3.50 C) 4.20 D) 12.25



13. *X* is a normally distributed random *variable* with a mean of 4.0. Find the standard deviation of the distribution if 59.10% of the data lies to the right of 3.20. (Note: the diagram is not necessarily to scale.) (A) 3.5 B) 2.3 C) 1.8 D) 0.9



14. *X* is a normally distributed random variable with a standard deviation of 3.00. Find the mean of *X* if 12.71% of the area under the distribution curve lies to the right of 12.92. (Note: the diagram is not necessarily to scale.) (A) 11.9 B) 10.5 C) 9.5 D) 9.0