1. The mean and standard deviation of a Uniform distribution only depend on the interval over which the distribution is defined.

- **a.** True
- **b.** False

2. In Grafton, a rural area in Vermont, the distance (in meters) between telephone poles has a uniform distribution with a = 40 and b = 65. Suppose two consecutive telephone poles are selected at random.

Fill in the blanks. (Give your answers to two decimal places.)

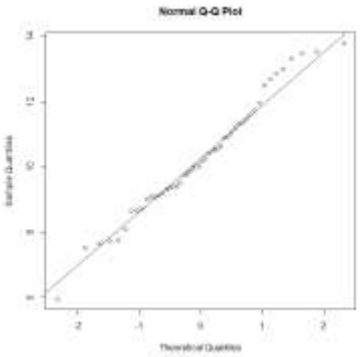
1. The probability that the distance between the poles is between 45 and 55 meters is (Answer 1).

2. Any distance between poles greater than 50 meters is considered to be environment friendly. The probability that the distance is environment friendly is (Answer 2).

3. For a normal distribution, the points in a normal probability plot will fall along a straight line or a bell-shaped curve.

- **a.** True
- **b.** False

4. Bicycle paths are usually planned and constructed according to certain guidelines (such as the American Association of State Highway and Transportation Officials guidelines for construction). There are construction standards for width, offset from the road, maximum grade, and horizontal and vertical clearances. A random sample of bicycle-path widths (in feet) was obtained, and the probability plot was determined. This plot is shown below.



Which of the following describes the data?

- **a.** Normal
- **b.** Skewed
- **c.** Symmetrical but not normal
- **d.** None of the above

5. For any exponential random variable, the mean is equal to the standard deviation.

- True
- False

6. Each time that you access the problem, you will get a different question.

In Columbia, South Carolina, on a randomly selected Friday night between 9:00 P.M. and 2:00 A.M., the time (in minutes) between calls to a 911 dispatcher has an exponential distribution with $\lambda = 0.125$. Suppose a Friday evening in Columbia is selected at random.

Fill in the blank. (Give your answer to four decimal places.)

The probability that the next call will occur after ____ .

Fill in the blank. (Give your answer as a whole number.)

The standard deviation (mean or variance) for the time between 911 calls is ___ .

7. Statistics are used to estimate parameters.

- True
- False

8. Obtaining many values of the statistic and constructing a histogram is a method to approximate a sampling distribution.

- **a.** True
- **b.** False

9. Each time you access the problem, you will get a different question. The answer to the question will be:

- Statistic
- Parameter

10. The sample mean varies from sample to sample.

- True
- False

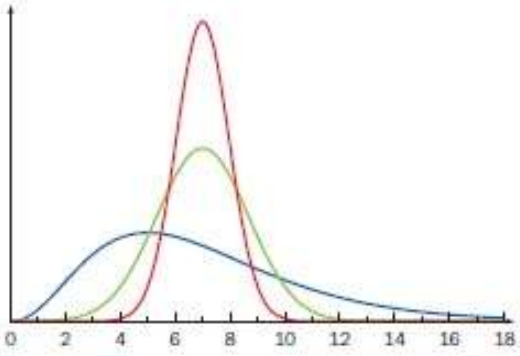
11. The distribution of $\bar{x}$ is never exactly normal.

- True
- False

12. As n increases, the variance of $\bar{x}$ also increases.

- True
- False

13. The given figure shows graphs of the probability density function for the random variable X and the approximate density functions for the random variable $\bar{x}$ for n = 5 and the random variable $\bar{x}$ for n = 15.



Identify the correct graph of the probability density function for X, probability density function for $\bar{x}$ with n = 5, and probability density function for $\bar{x}$ with n = 15.

- Probability density function for X: Blue, probability density function for $\bar{x}$ with n = 5: Green, probability density function for $\bar{x}$ with n = 15: Red
- Probability density function for X: Red, probability density function for $\bar{x}$ with n = 5: Green, probability density function for $\bar{x}$ with n = 15: Blue
- Probability density function for X: Red, probability density function for $\bar{x}$ with n = 5: Blue, probability density function for $\bar{x}$ with n = 15: Green
- Probability density function for X: Green, probability density function for $\bar{x}$ with n = 5: Blue, probability density function for $\bar{x}$ with n = 15: Red

14. One measure of an athlete's ability is the height of his or her vertical leap. Many professional basketball players are known for their remarkable vertical leaps, which lead to amazing dunks. DJ Stephens is the current vertical-leap record holder at 46 inches. However, the mean vertical leap of all NBA players is 28 inches. Suppose the standard deviation is 7 inches and 36 NBA players are selected at random.

Fill in the blanks. (Give your answers to four decimal places.)

1. The probability that the mean vertical leap for the 36 players will be less than 26.4 inches is _(Answer 1)_.

2. The probability that the mean vertical leap for the 36 players will be between 27.5 and 28.5 inches is _(Answer 2)_.