Disclaimer

Chapter 6 Test

Chapter 6 Test

DIRECTIONS: For this multiple-choice test, select the most appropriate answer for each statement or question.

1. Random variables can be classified as _____.
   a) isolated
   b) remote
   c) distant
   d) discrete or continuous

2. What is the mean and standard deviation of the following discrete probability distribution?

x	5	6	7	8
P(x)	0.05	0.05	0.10	0.80

   a) 6.5, 1.4
   b) 7.65, 0.79
   c) 6.5, 0.79
   d) 6.5, 0.62

3. The probability of Jackie making a free throw is 0.55. Find the probability that she makes exactly 3 free throws out of 5 attempts.
   a) 0.337
   b) 0.601
   c) 0.182
   d) 1.689

4. Which of the following is true about the normal distribution?
   a) The mean, median and mode are equal.
   b) The curve is symmetric about the mean.
   c) The total area under the curve sums to 1.
   d) All of the above

5. In a normal distribution, the curve approaches but never touches the _____.
   a) x-axis
   b) y-axis
   c) 0-axis
   d) vertical-axis

6. In a normal distribution, the curve has inflection points at $\mu - \sigma$ and $\mu + \sigma$.
   a) True
   b) False

7. The standard normal distribution has a _____.
   a) mean of 1 and a standard deviation of 1
   b) mean of 0 and a standard deviation of 0
   c) mean of 0 and a standard deviation of 1
   d) mean of 1 and a standard deviation of 0

8. According to a recent survey, the average time patients spend waiting in an emergency room is 6 hours. Assuming the distribution is normal and the standard deviation is 1.5 hours, what is the probability that a randomly selected patient spends less than 3 hours waiting in an emergency room? Use the Standard Normal Table to determine the probability.
   a) 0.9772
   b) 0.4562
   c) 0.9374
   d) 0.0228

9. According to a study, the average height of adult females in the United States is 63.8 inches with a standard deviation of 3 inches. Assume the distribution is normal. What is the probability that a randomly selected woman is taller than 60 inches? Use the Standard Normal Table to determine the probability.
   a) 0.231
   b) 0.898
   c) 0.102
   d) 0.659

10. Human gestation length is said to be normally distributed with a mean of 266 days and a standard deviation of 16 days. What is the probability that a randomly selected gestation is between 250 and 298 days? Use the Standard Normal Table to determine the probability.
    a) 0.1587
    b) 0.9772
    c) 0.8413
    d) 0.8185

11. Given σ = 12 and n = 25, compute the standard error of the mean.
    a) 2.4
    b) 0.48
    c) 2.08
    d) 5

12. Given σ = 48 and n = 100, compute the standard error of the mean.
    a) 10
    b) 0.48
    c) 4.8
    d) 48

13. A manufacturer claims its new car battery has an average lifespan of 64 months with a standard deviation of 3 months. Assume the distribution is normal. If 9 car batteries are randomly selected, what is the probability that the average lifespan is longer than 67 months? Use the Standard Normal Table to determine the probability.
    a) 0.0013
    b) 0.5632
    c) 0.9987
    d) 0.1298

14. According to a study, the average height of adult males in the United States is 69.2 inches with a standard deviation of 2.5 inches. Assume the distribution is normal. Suppose 16 males are randomly selected. What is the probability that the average height is less than 68 inches? Use the Standard Normal Table to determine the probability.
    a) 0.9726
    b) 0.0274
    c) 0.3156
    d) 0.6844

15. The Central Limit Theorem: as the sample size increases, typically n ≥ 30, the sampling distribution of the sample mean becomes approximately _____, regardless of the shape of the population's distribution.
    a) skewed left
    b) skewed right
    c) normal
    d) uniform

Answers

1. Discrete or continuous
2. 7.65, 0.79
3. 0.337
4. All of the above
5. x-axis
6. True
7. Mean of 0 and a standard deviation of 1
8. 0.0228
9. 0.898
10. 0.8185
11. 2.4
12. 4.8
13. 0.0013
14. 0.0274
15. Normal