Statistics for Business and Economics
BUAD 202-7,8
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Additional Problems

1. The mean, median, and mode have the same value for which of the following probability distributions?
   a. uniform
   b. normal
   c. exponential
   d. Poisson

2. The uniform probability distribution is used with _____.
   a. a continuous random variable
   b. a discrete random variable
   c. a normally distributed random variable
   d. any random variable

3. The assembly time for a product is uniformly distributed between 6 and 10 minutes. The probability of assembling the product in less than 6 minutes is _____.
   a. 0
   b. .50
   c. .15
   d. 1

4. The assembly time for a product is uniformly distributed between 6 and 10 minutes. The standard deviation of assembly time (in minutes) is approximately _____.
   a. .33
   b. .13
   c. 16
   d. None of the answers is correct.

5. Which of the following is NOT a characteristic of the normal probability distribution?
   a. The graph of the curve is the shape of a rectangle.
   b. The total area under the curve is always equal to 1.
   c. The random variable assumes a value within plus or minus three standard deviations of its mean 99.72% of the time.
   d. The mean is equal to the median, which is also equal to the mode.

6. A standard normal distribution is a normal distribution with _____.
   a. a mean of 1 and a standard deviation of 0
   b. a mean of 0 and a standard deviation of 1
   c. any mean and a standard deviation of 1
   d. any mean and any standard deviation

7. For the standard normal probability distribution, the area to the left of the mean is _____.
   a. −.5

b.   0.5
c.   any value between 0 and 1
d.   1

8. For a standard normal distribution, the probability of z ≤ 0 is _____.
   a.   0
   b.   −.5
   c.   .5
   d.   1

9. Assume z is a standard normal random variable. Then $P(1.20 \leq z \leq 1.85)$ equals _____.
   a.   .4678
   b.   .3849
   c.   .8527
   d.   .0829

10. For a standard normal distribution, the probability of obtaining a z value between −1.9 and 1.7 is _____.
   a.   .9267
   b.   .4267
   c.   1.4267
   d.   .5000

Exhibit 6-3
The weight of football players is normally distributed with a mean of 200 pounds and a standard deviation of 25 pounds.

11. Refer to Exhibit 6-3. What is the random variable in this experiment?
   a.   Weight of football players
   b.   200 pounds
   c.   25 pounds
   d.   Normal distribution

Exhibit 6-4
The starting salaries of individuals with an MBA degree are normally distributed with a mean of $40,000 and a standard deviation of $5,000.

12. Refer to Exhibit 6-4. What is the random variable in this experiment?
   a.   Starting salaries
   b.   Normal distribution
   c. $40,000
   d. $5,000

13. Refer to Exhibit 6-4. What is the probability that a randomly selected individual with an MBA degree will get a starting salary of at least $47,500?
   a.   .4332
   b.   .9332

c. .0668
d. .5000

Exhibit 6-6
The life expectancy of a particular brand of tire is normally distributed with a mean of 40,000 and a standard deviation of 5,000 miles.

14. Refer to Exhibit 6-6. What is the random variable in this experiment?
    a. Life expectancy of this brand of tire
    b. Normal distribution
    c. 40,000 miles
    d. None of the answers is correct.

15. Refer to Exhibit 6-6. What is the probability that a randomly selected tire will have a life of at least 47,500 miles?
    a. .4332
    b. .9332
    c. .0668
    d. None of the answers is correct.

16. The time it takes to hand carve a guitar neck is uniformly distributed between 110 and 190 minutes.
a. What is the probability that a guitar neck can be carved between 95 and 165 minutes?
b. What is the probability that the guitar neck can be carved between 120 and 200 minutes?
c. Determine the expected completion time for carving the guitar neck.
d. Compute the standard deviation.

17. Assume z is a standard normal random variable. Compute the following probabilities.
a. $P(-1.33 \leq z \leq 1.67)$
b. $P(1.23 \leq z \leq 1.55)$
c. $P(z \geq 2.32)$
d. $P(z \geq -2.08)$
e. $P(z \geq -1.08)$

18. The salaries at a corporation are normally distributed with an average salary of $19,000 and a standard deviation of $4,000.
a. What is the probability that an employee will have a salary between $12,520 and $13,480?
b. What is the probability that an employee will have a salary more than $11,880?
c. What is the probability that an employee will have a salary less than $28,440?

19. The monthly income of residents of Daisy City is normally distributed with a mean of $3,000 and a standard deviation of $500.
a. Define the random variable in words.
b. The mayor of Daisy City makes $2,250 a month. What percentage of Daisy City's residents has incomes that are more than the mayor's?

c. Individuals with incomes of less than $1,985 per month are exempt from city taxes. What percentage of residents is exempt from city taxes?

d. What are the minimum and maximum incomes of the middle 95% of the residents?

e. Two hundred residents have incomes of at least $4,440 per month. What is the population of Daisy City?

20. The weekly earnings of bus drivers are normally distributed with a mean of $395. If only 1.1% of the bus drivers have a weekly income of more than $429.35, what is the standard deviation of the weekly earnings of the bus drivers?