**STUDY QUESTIONS**

1. The uniform distribution is sometimes referred to as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

distribution.

2. Suppose a set of data are uniformly distributed from *x* = 5 to *x* = 13. The height of

the distribution is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The mean of this distribution is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The standard deviation of this distribution is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. Suppose a set of data are uniformly distributed from *x* = 27 to *x* = 44. The height of

this distribution is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The mean of this distribution is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The standard deviation of this distribution is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. A set of values is uniformly distributed from 84 to 98. The probability of a value

occurring between 89 and 93 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The probability of a

value occurring between 80 and 90 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The probability of a

value occurring that is greater than 75 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

5. Probably the most widely known and used of all distributions is the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ distribution.

6. Many human characteristics can be described by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

distribution.

7. The area under the curve of a normal distribution is \_\_\_\_\_\_\_\_.

8. In working normal curve problems using the raw values of *x*, the mean, and the

standard deviation, a problem can be converted to \_\_\_\_\_\_\_\_ scores.

9. A *z* score value is the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a value is

from the mean.

10. Within a range of *z* scores of ± 1*σ* from the mean, fall \_\_\_\_\_\_\_\_\_% of the values

of a normal distribution.

11. Suppose a population of values is normally distributed with a mean of 155 and a

standard deviation of 12. The *z* score for *x* = 170 is \_\_\_\_\_\_\_\_.

12. Suppose a population of values is normally distributed with a mean of 76 and a

standard deviation of 5.2. The *z* score for *x* = 73 is \_\_\_\_\_\_\_\_.

13. Suppose a population of values is normally distributed with a mean of 250 and a

variance of 225. The *z* score for *x* = 286 is \_\_\_\_\_\_\_\_.

14. Suppose a population of values is normally distributed with a mean of 9.8 and a

standard deviation of 2.5. The probability that a value is greater than 11 in the

distribution is \_\_\_\_\_\_\_\_.

15. A population is normally distributed with a mean of 80 and a variance of 400. The

probability that *x* lies between 50 and 100 is \_\_\_\_\_\_\_\_.

16. A population is normally distributed with a mean of 115 and a standard deviation of

13. The probability that a value is less than 85 is \_\_\_\_\_\_\_\_.

17. A population is normally distributed with a mean of 64. The probability that a

value from this population is more than 70 is .0485. The standard deviation is

\_\_\_\_\_\_\_\_\_\_.

18. A population is normally distributed with a mean of 90. 85.99% of the values in

this population are greater than 75. The standard deviation of this population is

\_\_\_\_\_\_\_\_.

19. A population is normally distributed with a standard deviation of 18.5. 69.85% of

the values in this population are greater than 93. The mean of the population is

\_\_\_\_\_\_\_\_.

20. A population is normally distributed with a variance of 50. 98.17% of the values of

the population are less than 27. The mean of the population is \_\_\_\_\_\_\_\_.

21. A population is normally distributed with a mean of 340 and a standard deviation of

55. 10.93% of values in the population are less than \_\_\_\_\_\_\_\_.

22. In working a binomial distribution problem by using the normal distribution, the

interval, \_\_\_\_\_\_\_\_, should lie between 0 and *n*.

23. A binomial distribution problem has an *n* of 10 and a *p* of .20. This problem

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ be worked by the normal distribution because of the size of *n*

and *p*.

24. A binomial distribution problem has an *n* of 15 and a *p* of .60. This problem

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ be worked by the normal distribution because of the size of *n*

and *p*.

25. A binomial distribution problem has an n of 30 and a *p* of .35. A researcher wants

to determine the probability of *x* being greater than 13 and to use the normal

distribution to work the problem. After correcting for continuity, the value of *x* that

he/she will be solving for is \_\_\_\_\_\_\_\_.

26. A binomial distribution problem has an *n* of 48 and a *p* of .80. A researcher wants

to determine the probability of *x* being less than or equal to 35 and wants to work

the problem using the normal distribution. After correcting for continuity, the value

of *x* that he/she will be solving for is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

27. A binomial distribution problem has an *n* of 60 and a *p* value of .72. A researcher

wants to determine the probability of *x* being exactly 45 and use the normal

distribution to work the problem. After correcting for continuity, he/she will be

solving for the area between \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_.

28. A binomial distribution problem has an *n* of 27 and a *p* of .53. If this problem were

converted to a normal distribution problem, the mean of the distribution would be

\_\_\_\_\_\_\_\_. The standard deviation of the distribution would be \_\_\_\_\_\_\_\_.

29. A binomial distribution problem has an *n* of 113 and a *p* of .29. If this problem

were converted to a normal distribution problem, the mean of the distribution would

be \_\_\_\_\_\_\_\_. The standard deviation of the distribution would be \_\_\_\_\_\_\_\_.

30. A binomial distribution problem is to determine the probability that *x* is less than 22

when the sample size is 40 and the value of *p* is .50. Using the normal distribution

to work this problem produces a probability of \_\_\_\_\_\_\_\_.

31. A binomial distribution problem is to determine the probability that *x* is exactly 14

when the sample size is 20 and the value of *p* is .60. Using the normal distribution

to work this problem produces a probability of \_\_\_\_\_\_\_\_.

32. A binomial distribution problem is to determine the probability that *x* is greater than

or equal to 18 when the sample size is 30 and the value of *p* is .55. Using the

normal distribution to work this problem produces a probability of \_\_\_\_\_\_\_\_.

33. A binomial distribution problem is to determine the probability that *x* is greater than

10 when the sample size is 20 and the value of *p* is .60. Using the normal

distribution to work this problem produces a probability of \_\_\_\_\_\_\_\_. If this

problem had been worked using the binomial tables, the obtained probability would

have been \_\_\_\_\_\_\_\_. The difference in answers using these two techniques is

\_\_\_\_\_\_\_\_.

34. The exponential distribution is a\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ distribution.

35. The exponential distribution is closely related to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ distribution.

36. The exponential distribution is skewed to the \_\_\_\_\_\_\_\_.

37. Suppose random arrivals occur at a rate of 5 per minute. Assuming that random

arrivals are Poisson distributed, the probability of there being at least 30 seconds

between arrivals is \_\_\_\_\_\_\_\_.

38. Suppose random arrivals occur at a rate of 1 per hour. Assuming that random

arrivals are Poisson distributed, the probability of there being less than 2 hours

between arrivals is \_\_\_\_\_\_\_\_.

39. Suppose random arrivals occur at a rate of 1.6 every five minutes. Assuming that

random arrivals are Poisson distributed, the probability of there being between three

minutes and six minutes between arrivals is \_\_\_\_\_\_\_\_.

40. Suppose that the mean time between arrivals is 40 seconds and that random arrivals

are Poisson distributed. The probability that at least one minute passes between two

arrivals is \_\_\_\_\_\_\_\_. The probability that at least two minutes pass between two

arrivals is \_\_\_\_\_\_\_\_.

41. Suppose that the mean time between arrivals is ten minutes and that random arrivals

are Poisson distributed. The probability that no more than seven minutes pass

between two arrivals is \_\_\_\_\_\_\_\_.

42. The mean of an exponential distribution equals \_\_\_\_\_\_\_\_.

43. Suppose that random arrivals are Poisson distributed with an average arrival of 2.4

per five minutes. The associated exponential distribution would have a mean of

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and a standard deviation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

44. An exponential distribution has an average interarrival time of 25 minutes. The

standard deviation of this distribution is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**ANSWERS TO STUDY QUESTIONS**

1. Rectangular 23. Cannot

2. 1/8, 9, 2.3094 24. Can

3. 1/17, 35.5, 4.9075 25. 13.5

4. .2857, .7143, 1.000 26. 35.5

5. Normal 27. 44.5, 45.5

6. Normal 28. 14.31, 2.59

7. 1 29. 32.77, 4.82

8. *z* 30. .6808

9. Standard deviations 31. .1212

10. 68% 32. .3557

11. 1.25 33. .7517, .7550, .0033

12. -0.58 34. Continuous

13. 2.40 35. Poisson

14. .3156 36. Right

15. .7745 37. .0821

16. .0104 38. .8647

17. 3.614 39. .2363

18. 13.89 40. .2231, .0498

19. 102.62 41. .5034

20. 12.22 42. 1/λ

21. 272.35 43. 2.08 Minutes, 2.08 Minutes

22. *µ* ± 3*σ* 44. 25 Minutes