STATISTICS/GRACEY
PRACTICE TEST/EXAM 2

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Identify the given random variable as being discrete or continuous.

1) The number of oil spills occurring off the Alaskan coast 1) _____
A) Discrete B) Continuous

2) The cost of a randomly selected orange 2) _____
A) Discrete B) Continuous

3) The pH level in a shampoo 3) _____
A) Discrete B) Continuous

4) The braking time of a car 4) _____
A) Continuous B) Discrete

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Determine whether the following is a probability distribution. If not, identify the requirement that is not satisfied.

5) 5) _____

x	P(x)
0	0.079
1	0.173
2	-0.030
3	0.170
4	0.075
5	0.533

6) A police department reports that the probabilities that 0, 1, 2, 3, and 4 car thefts will be reported in a given day are 0.135, 0.271, 0.271, 0.180, and 0.090, respectively. 6) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the mean of the given probability distribution.

7) 7) _____

x	P(x)
0	0.14
1	0.10
2	0.25
3	0.25
4	0.26

A) $\mu = 2.29$ B) $\mu = 2.53$ C) $\mu = 2.39$ D) $\mu = 2.43$

8) A police department reports that the probabilities that 0, 1, 2, and 3 burglaries will be reported in a given day are 0.48, 0.39, 0.12, and 0.01, respectively. 8) _____
A) $\mu = 0.66$ B) $\mu = 0.25$ C) $\mu = 1.50$ D) $\mu = 1.14$

Provide an appropriate response. Round to the nearest hundredth.

9) Find the standard deviation for the given probability distribution. 9) _____

x	P(x)
0	0.12
1	0.17
2	0.09
3	0.28
4	0.34

A) $\sigma = 2.91$ B) $\sigma = 1.45$ C) $\sigma = 1.99$ D) $\sigma = 1.41$

10) The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4979, 0.3793, 0.1084, 0.0138, and 0.0007, respectively. Find the standard deviation for the probability distribution. 10) _____

A) $\sigma = 0.54$ B) $\sigma = 0.73$ C) $\sigma = 0.97$ D) $\sigma = 0.68$

Answer the question.

11) Focus groups of 14 people are randomly selected to discuss products of the Yummy Company. It is determined that the mean number (per group) who recognize the Yummy brand name is 10.9, and the standard deviation is 0.98. Would it be unusual to randomly select 14 people and find that fewer than 7 recognize the Yummy brand name? 11) _____

A) Yes B) No

12) Assume that there is a 0.05 probability that a sports playoff series will last four games, a 0.45 probability that it will last five games, a 0.45 probability that it will last six games, and a 0.05 probability that it will last seven games. Is it unusual for a team to win a series in 4 games? 12) _____

A) Yes B) No

13) Suppose that a law enforcement group studying traffic violations determines that the accompanying table describes the probability distribution for five randomly selected people, where x is the number that have received a speeding ticket in the last 2 years. Is it unusual to find five speeders among five randomly selected people? 13) _____

x	P(x)
0	0.08
1	0.18
2	0.25
3	0.22
4	0.19
5	0.08

A) Yes B) No

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, x. The probabilities corresponding to the 14 possible values of x are summarized in the given table. Answer the question using the table.

Probabilities of Girls

x(girls)	P(x)	x(girls)	P(x)	x(girls)	P(x)
0	0.000	5	0.122	10	0.061
1	0.001	6	0.183	11	0.022
2	0.006	7	0.209	12	0.006
3	0.022	8	0.183	13	0.001
4	0.061	9	0.122	14	0.000

14) Find the probability of selecting exactly 8 girls. 14) _____

A) 0.000 B) 0.122 C) 0.183 D) 0.022

15) Find the probability of selecting 9 or more girls. 15) _____

A) 0.001 B) 0.061 C) 0.212 D) 0.122

16) Find the probability of selecting 2 or more girls. 16) _____

A) 0.999 B) 0.006 C) 0.001 D) 0.994

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

17) Let the random variable x represent the number of girls in a family of three children. Construct a table describing the probability distribution, then find the mean and standard deviation. 17) _____

18) Ten apples, four of which are rotten, are in a refrigerator. Three apples are randomly selected without replacement. Let the random variable x represent the number chosen that are rotten. Construct a table describing the probability distribution, then find the mean and standard deviation for the random variable x. 18) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

19) In a game, you have a 1/27 probability of winning $100 and a 26/27 probability of losing $4. What is your expected value? 19) _____

A) -$0.15 B) -$3.85 C) $3.70 D) $7.56

20) Suppose you pay $2.00 to roll a fair die with the understanding that you will get back $4.00 for rolling a 2 or a 4, nothing otherwise. What is your expected value? 20) _____

A) -$0.67 B) $2.00 C) -$2.00 D) $4.00

21) A 28-year-old man pays $200 for a one-year life insurance policy with coverage of $120,000. If the probability that he will live through the year is 0.9994, what is the expected value for the insurance policy? 21) _____

A) -$199.88 B) $119,928.00 C) -$128.00 D) $72.00

22) The prizes that can be won in a sweepstakes are listed below together with the chances of winning each one: $3800 (1 chance in 8600); $1700 (1 chance in 5400); $700 (1 chance in 4600); $200 (1 chance in 2600). Find the expected value of the amount won for one entry if the cost of entering is 55 cents. 22) _____

A) $200 B) $0.44 C) $0.47 D) $0.91

Determine whether the given procedure results in a binomial distribution. If not, state the reason why.

23) Rolling a single die 37 times, keeping track of the numbers that are rolled. 23) _____

A) Not binomial: there are too many trials.
B) Not binomial: there are more than two outcomes for each trial.
C) Procedure results in a binomial distribution.
D) Not binomial: the trials are not independent.

24) Rolling a single die 19 times, keeping track of the "fives" rolled. 24) _____

A) Procedure results in a binomial distribution.
B) Not binomial: there are more than two outcomes for each trial.
C) Not binomial: there are too many trials.
D) Not binomial: the trials are not independent.

25) Choosing 7 marbles from a box of 40 marbles (20 purple, 12 red, and 8 green) one at a time without replacement, keeping track of the number of red marbles chosen. 25) _____

A) Not binomial: the trials are not independent.
B) Not binomial: there are more than two outcomes for each trial.
C) Procedure results in a binomial distribution.
D) Not binomial: there are too many trials.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

26) Multiple-choice questions on a test each have 4 possible answers, one of which is correct. Assume that you guess the answers to 4 such questions. 26) _____

a. Use the multiplication rule to find the probability that the first two guesses are wrong and the third and fourth guesses are correct. That is, find P(WWCC), where C denotes a correct answer and W denotes a wrong answer.

b. Make a complete list of the different possible arrangements of 2 wrong answers and 2 correct answers, then find the probability for each entry in the list.

c. Based on the preceding results, what is the probability of getting exactly 2 correct answers when 4 guesses are made?

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. Round to three decimal places.

27) $n = 4, x = 3, p = \frac{1}{6}$ 27) _____

A) 0.023 B) 0.004 C) 0.015 D) 0.012

28) $n = 12, x = 5, p = 0.25$ 28) _____

A) 0.082 B) 0.103 C) 0.027 D) 0.091

Find the indicated probability. Round to three decimal places.

29) A test consists of 10 true/false questions. To pass the test a student must answer at least 6 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? 29) _____

A) 0.205 B) 0.377 C) 0.828 D) 0.172

30) A machine has 12 identical components which function independently. The probability that a component will fail is 0.2. The machine will stop working if more than three components fail. Find the probability that the machine will be working. 30) _____

A) 0.795 B) 0.927 C) 0.206 D) 0.133

31) An airline estimates that 90% of people booked on their flights actually show up. If the airline books 71 people on a flight for which the maximum number is 69, what is the probability that the number of people who show up will exceed the capacity of the plane? 31) _____

A) 0.001 B) 0.005 C) 0.004 D) 0.022

32) A car insurance company has determined that 9% of all drivers were involved in a car accident last year. Among the 11 drivers living on one particular street, 3 were involved in a car accident last year. If 11 drivers are randomly selected, what is the probability of getting 3 or more who were involved in a car accident last year? 32) _____

A) 0.057 B) 0.943 C) 0.424 D) 0.070

Find the indicated probability.

33) The brand name of a certain chain of coffee shops has a 49% recognition rate in the town of Coffleton. An executive from the company wants to verify the recognition rate as the company is interested in opening a coffee shop in the town. He selects a random sample of 9 Coffleton residents. Find the probability that exactly 4 of the 9 Coffleton residents recognize the brand name. 33) _____

A) 0.00199 B) 0.0576 C) 0.174 D) 0.251

34) In a survey of 300 college graduates, 58% reported that they entered a profession closely related to their college major. If 6 of those survey subjects are randomly selected without replacement for a follow-up survey, what is the probability that 3 of them entered a profession closely related to their college major? 34) _____

A) 0.289 B) 0.157 C) 0.711 D) 0.195

35) The brand name of a certain chain of coffee shops has a 45% recognition rate in the town of Coffleton. An executive from the company wants to verify the recognition rate as the company is interested in opening a coffee shop in the town. He selects a random sample of 9 Coffleton residents. Find the probability that exactly 4 of the 9 Coffleton residents recognize the brand name. 35) _____

A) 0.0410 B) 0.260 C) 0.00206 D) 0.212

36) A slot machine at a hotel is configured so that there is a 1/1600 probability of winning the jackpot on any individual trial. If a guest plays the slot machine 5 times, find the probability of exactly 2 jackpots. If a guest told the hotel manager that she had hit two jackpots in 5 plays of the slot machine, would the manager be surprised? 36) _____

A) 0.000000391; Yes, the probability of 2 jackpots in 5 plays is extremely small.
B) 0.00000390; Yes, the probability of 2 jackpots in 5 plays is extremely small.
C) 0.000000390; Yes, the probability of 2 jackpots in 5 plays is extremely small.
D) 0.0941; No, hitting 2 jackpots in 5 trials is not so unlikely.

Find the mean, μ, for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth.

37) n = 36; p = 0.2 37) _____

A) μ = 7.2 B) μ = 7.9 C) μ = 6.7 D) μ = 7.5

38) n = 22; p = 3/5 38) _____

A) μ = 13.5 B) μ = 13.2 C) μ = 12.7 D) μ = 13.9

Find the standard deviation, σ, for the binomial distribution which has the stated values of n and p. Round your answer to the nearest hundredth.

39) n = 2699; p = 0.63 39) _____

A) σ = 25.08 B) σ = 29.20 C) σ = 22.67 D) σ = 28.35

Use the given values of n and p to find the minimum usual value $\mu - 2\sigma$ and the maximum usual value $\mu + 2\sigma$. Round your answer to the nearest hundredth unless otherwise noted.

40) n = 93, p = 0.25 40) _____

A) Minimum: -11.62; maximum: 58.13 B) Minimum: 31.6; maximum: 14.9

C) Minimum: 19.07; maximum: 27.43 D) Minimum: 14.9; maximum: 31.6

41) n = 351, p = $\frac{2}{7}$ 41) _____

A) Minimum: 88.32; maximum: 112.26 B) Minimum: 83.36; maximum: 117.21

C) Minimum: 91.82; maximum: 108.75 D) Minimum: 117.21; maximum: 83.36

42) n = 319, p = 0.243 Round your answers to the nearest thousandth. 42) _____

A) Minimum: 66.684; maximum: 88.35 B) Minimum: 92.838; maximum: 62.196

C) Minimum: 69.857; maximum: 85.177 D) Minimum: 62.196; maximum: 92.838

Solve the problem.

43) According to a college survey, 22% of all students work full time. Find the mean for the number of students who work full time in samples of size 16. 43) _____

A) 0.2 B) 2.8 C) 3.5 D) 4.0

44) A die is rolled 10 times and the number of times that two shows on the upper face is counted. If this experiment is repeated many times, find the mean for the number of twos. 44) _____

A) 8.33 B) 2.5 C) 1.67 D) 3.33

45) On a multiple choice test with 9 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the number of correct answers. 45) _____

A) 4.5 B) 3 C) 2.3 D) 6.8

46) The probability of winning a certain lottery is $\frac{1}{67{,}158}$. For people who play 746 times, find the mean number of wins. 46) _____

A) 0.0013 B) 0.0111 C) 0.000015 D) 90.0

47) A company manufactures batteries in batches of 19 and there is a 3% rate of defects. Find the variance for the number of defects per batch. 47) _____

A) 55.3 B) 0.7 C) 0.6 D) 0.3

48) A die is rolled 17 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the number of twos. 48) _____

A) 14.2 B) 4.3 C) 1.5 D) 2.1

49) In a certain town, 53% of voters favor a given ballot measure. For groups of 26 voters, find the variance for the number who favor the measure. 49) _____

A) 6.5 B) 41.9 C) 13.8 D) 2.5

Determine if the outcome is unusual. Consider as unusual any result that differs from the mean by more than 2 standard deviations. That is, unusual values are either less than $\mu - 2\sigma$ or greater than $\mu + 2\sigma$.

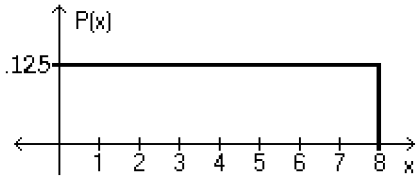
50) A survey for brand recognition is done and it is determined that 68% of consumers have heard of Dull Computer Company. A survey of 800 randomly selected consumers is to be conducted. For such groups of 800, would it be unusual to get 595 consumers who recognize the Dull Computer Company name? 50) _____

A) Yes B) No

51) The Acme Candy Company claims that 60% of the jawbreakers it produces weigh more than .4 ounces. Suppose that 800 jawbreakers are selected at random from the production lines. Would it be unusual for this sample of 800 to contain 544 jawbreakers that weigh more than .4 ounces? 51) _____

A) Yes B) No

Using the following uniform density curve, answer the question.



52) What is the probability that the random variable has a value greater than 4? 52) _____

A) 0.450 B) 0.375 C) 0.500 D) 0.625

53) What is the probability that the random variable has a value less than 4? 53) _____

A) 0.250 B) 0.375 C) 0.625 D) 0.500

54) What is the probability that the random variable has a value between 0.2 and 0.8? 54) _____

A) 0.2 B) 0.075 C) 0.05 D) 0.325

Assume that the weight loss for the first month of a diet program varies between 6 pounds and 12 pounds, and is spread evenly over the range of possibilities, so that there is a uniform distribution. Find the probability of the given range of pounds lost.

55) More than 10 pounds 55) _____

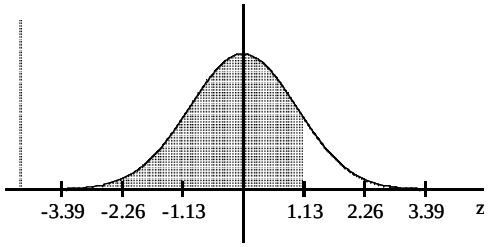
A) $\frac{2}{3}$ B) $\frac{1}{3}$ C) $\frac{1}{7}$ D) $\frac{5}{6}$

56) Between 8.5 pounds and 10 pounds 56) _____

A) $\frac{3}{4}$ B) $\frac{1}{3}$ C) $\frac{1}{2}$ D) $\frac{1}{4}$

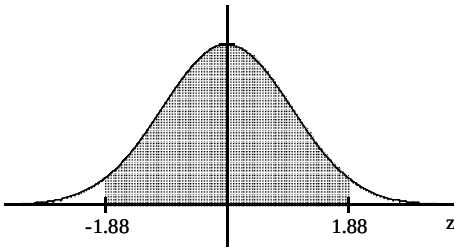
Find the area of the shaded region. The graph depicts the standard normal distribution with mean 0 and standard deviation 1.

57) 57) _____



A) 0.8708 B) 0.8907 C) 0.1292 D) 0.8485

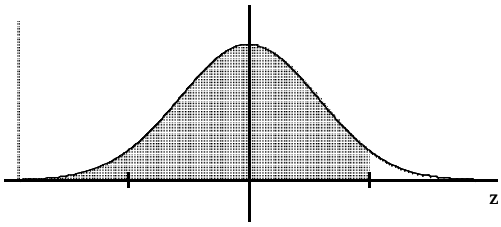
58) 58) _____



A) 0.9398 B) 0.0301 C) 0.0602 D) 0.9699

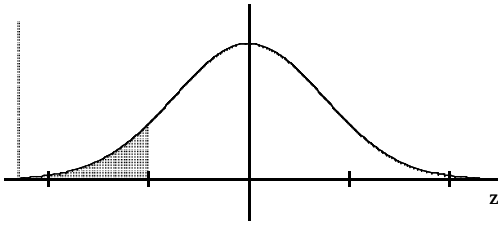
Find the indicated z score. The graph depicts the standard normal distribution with mean 0 and standard deviation 1.

59) Shaded area is 0.9599. 59) _____



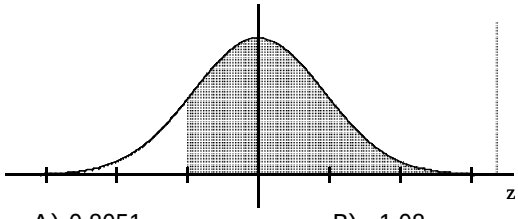
A) 1.03 B) -1.38 C) 1.75 D) 1.82

60) Shaded area is 0.0901. 60) _____



A) -1.39 B) -1.45 C) -1.34 D) -1.26

61) Shaded area is 0.8599. 61) _____



A) 0.8051 B) -1.08 C) 0.5557 D) 1.08

If z is a standard normal variable, find the probability.

62) The probability that z lies between 0 and 3.01 62) _____
A) 0.4987 B) 0.9987 C) 0.5013 D) 0.1217

63) The probability that z lies between -2.41 and 0 63) _____
A) 0.0948 B) 0.5080 C) 0.4910 D) 0.4920

64) The probability that z is less than 1.13 64) _____
A) 0.1292 B) 0.8485 C) 0.8708 D) 0.8907

65) The probability that z lies between -1.10 and -0.36 65) _____
A) 0.2239 B) -0.2237 C) 0.4951 D) 0.2237

66) The probability that z lies between 0.7 and 1.98 66) _____
A) 0.2181 B) 0.2175 C) 1.7341 D) -0.2181

67) The probability that z lies between -0.55 and 0.55 67) _____
A) -0.4176 B) -0.9000 C) 0.9000 D) 0.4176

68) $P(z > 0.59)$ 68) _____
A) 0.2224 B) 0.7224 C) 0.2190 D) 0.2776

69) $P(-0.73 < z < 2.27)$ 69) _____
A) 0.2211 B) 0.7557 C) 0.4884 D) 1.54

The Precision Scientific Instrument Company manufactures thermometers that are supposed to give readings of 0°C at the freezing point of water. Tests on a large sample of these thermometers reveal that at the freezing point of water, some give readings below 0°C (denoted by negative numbers) and some give readings above 0°C (denoted by positive numbers). Assume that the mean reading is 0°C and the standard deviation of the readings is 1.00°C. Also assume that the frequency distribution of errors closely resembles the normal distribution. A thermometer is randomly selected and tested. Find the temperature reading corresponding to the given information.

70) Find P_{96}, the 96th percentile. 70) _____
A) -1.38° B) 1.75° C) 1.03° D) 1.82°

71) Find Q_3, the third quartile. 71) _____
A) 0.53° B) 0.82° C) 0.67° D) -1.3°

72) If 7% of the thermometers are rejected because they have readings that are too high, but all other thermometers are acceptable, find the temperature that separates the rejected thermometers from the others. 72) _____
A) 1.48° B) 1.26° C) 1.45° D) 1.39°

73) A quality control analyst wants to examine thermometers that give readings in the bottom 4%. Find the reading that separates the bottom 4% from the others. 73) _____
A) -1.89° B) -1.63° C) -1.75° D) -1.48°

Find the indicated value.

74) $z_{0.05}$ 74) _____
A) 1.645 B) 1.755 C) 1.325 D) 1.545

75) $z_{0.36}$ 75) _____

A) 0.36 B) 0.45 C) 1.76 D) 1.60

Provide an appropriate response.

76) Which of the following is true about the distribution of IQ scores? 76) _____

A) The median is 100. B) The standard deviation is 20.

C) The mean is 1. D) The mean is 75.

77) Which of the following is true about the distribution of IQ scores? 77) _____

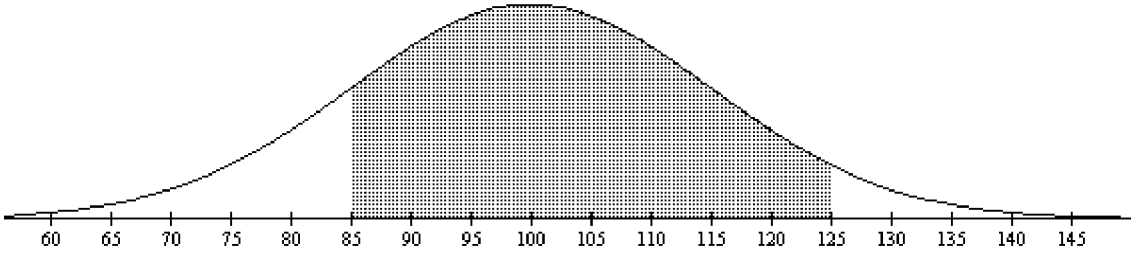
A) The area under its bell-shaped curve is 1.

B) The area under its bell-shaped curve is 10.

C) The area under its bell-shaped curve is 2.

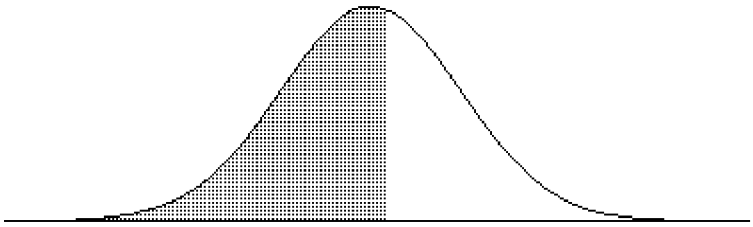
D) Its distribution is skewed to the right.

78) Find the area of the shaded region. The graph depicts IQ scores of adults, and those scores are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). 78) _____



A) 0.7619 B) 0.7303 C) 0.7745 D) 0.7938

79) Find the indicated IQ score. The graph depicts IQ scores of adults, and those scores are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). 79) _____



The shaded area under the curve is 0.5675.

A) 102.6 B) 110.7 C) 97.5 D) 129.6

80) Assume that adults have IQ scores that are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). Find the probability that a randomly selected adult has an IQ between 90 and 120 (somewhere in the range of normal to bright normal). 80) _____

A) 0.6568 B) 0.6014 C) 0.6977 D) 0.6227

Solve the problem. Round to the nearest tenth unless indicated otherwise.

81) Scores on a test are normally distributed with a mean of 67.7 and a standard deviation of 9.3. Find P_{81}, which separates the bottom 81% from the top 19%. 81) _____

A) 0.88 B) 75.9 C) 0.291 D) 70.4

82) Human body temperatures are normally distributed with a mean of 98.20°F and a standard deviation of 0.62°F. Find the temperature that separates the top 7% from the bottom 93%. Round to the nearest hundredth of a degree. 82) _____

A) 98.78°F B) 97.28°F C) 99.12°F D) 98.40°F

Assume that X has a normal distribution, and find the indicated probability.

83) The mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. 83) _____

A) 0.0802 B) 0.9599 C) 0.5589 D) 0.0401

84) The mean is μ= 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1. 84) _____

A) 0.1357 B) 0.8413 C) 0.1550 D) 0.1587

85) The mean is μ = 137.0 and the standard deviation is σ = 5.3. Find the probability that X is between 134.4 and 140.1. 85) _____

A) 0.4069 B) 0.8138 C) 1.0311 D) 0.6242

Find the indicated probability.

86) The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? 86) _____

A) 47.72% B) 2.28% C) 97.72% D) 37.45%

87) The weekly salaries of teachers in one state are normally distributed with a mean of $490 and a standard deviation of $45. What is the probability that a randomly selected teacher earns more than $525 a week? 87) _____

A) 0.2823 B) 0.7823 C) 0.2177 D) 0.1003

88) The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. What is the probability that a pregnancy lasts at least 300 days? 88) _____

A) 0.0166 B) 0.0179 C) 0.9834 D) 0.4834

Solve the problem.

89) The amount of snowfall falling in a certain mountain range is normally distributed with a mean of 91 inches, and a standard deviation of 10 inches. What is the probability that the mean annual snowfall during 25 randomly picked years will exceed 93.8 inches? 89) _____

A) 0.4192 B) 0.5808 C) 0.0808 D) 0.0026

90) The weights of the fish in a certain lake are normally distributed with a mean of 11 lb and a standard deviation of 12. If 16 fish are randomly selected, what is the probability that the mean weight will be between 8.6 and 14.6 lb? 90) _____

A) 0.3270 B) 0.6730 C) 0.0968 D) 0.4032

91) The scores on a certain test are normally distributed with a mean score of 60 and a standard deviation of 2. What is the probability that a sample of 90 students will have a mean score of at least 60.2108? 91) _____

A) 0.8413 B) 0.3174 C) 0.1587 D) 0.3413

92) Human body temperatures are normally distributed with a mean of 98.20°F and a standard deviation of 0.62°F. If 19 people are randomly selected, find the probability that their mean body temperature will be less than 98.50°F. 92) _____

A) 0.0833 B) 0.9826 C) 0.3343 D) 0.4826

93) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.7 hours. 93) _____

A) 0.1346 B) 0.1946 C) 0.1469 D) 0.1285

94) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time is less than 7.6 hours. 94) _____

A) 0.0103 B) 0.0036 C) 0.0025 D) 0.0008

95) A final exam in Math 160 has a mean of 73 with standard deviation 7.8. If 24 students are randomly selected, find the probability that the mean of their test scores is greater than 78. 95) _____

A) 0.0036 B) 0.8962 C) 0.0008 D) 0.0103

96) A final exam in Math 160 has a mean of 73 with standard deviation 7.8. If 24 students are randomly selected, find the probability that the mean of their test scores is less than 76. 96) _____

A) 0.9699 B) 0.9203 C) 0.0301 D) 0.8962

1) A
2) A
3) B
4) A
5) Not a probability distribution. One of the P(x)'s is negative.
6) Not a probability distribution. The sum of the P(x)'s is not 1, since 0.9470 ≠ 1.0000.
7) C
8) A
9) D
10) B
11) A
12) A
13) B
14) C
15) C
16) A
17)

x	P(x)
0	0.125
1	0.375
2	0.375
3	0.125

$\mu = 1.500$
$\sigma = 0.866$

18)

x	P(x)
0	0.167
1	0.500
2	0.300
3	0.033

$\mu = 1.200$
$\sigma = 0.748$

19) A
20) A
21) C
22) B
23) B
24) A
25) A
26) a. 0.0352
b. WWCC
WCWC
WCCW
CWWC
CWCW
CCWW
Each of the 6 arrangements has probability 0.0352
c. 0.211
27) C
28) B

29) B
30) A
31) B
32) D
33) D
34) A
35) B
36) B
37) A
38) B
39) A
40) D
41) B
42) D
43) C
44) C
45) C
46) B
47) C
48) C
49) A
50) A
51) A
52) C
53) D
54) B
55) B
56) D
57) A
58) A
59) C
60) C
61) B
62) A
63) D
64) C
65) D
66) A
67) D
68) D
69) B
70) B
71) C
72) A
73) C
74) A
75) A
76) A
77) A
78) D

79) A
80) A
81) B
82) C
83) D
84) D
85) A
86) B
87) C
88) A
89) C
90) B
91) C
92) B
93) C
94) C
95) C
96) A