

Chapter 4 Review

Name _____

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

Provide an appropriate response.

1) State whether the variable is discrete or continuous. 1) _____
The temperature in degrees Fahrenheit on July 4th in Juneau, Alaska

2) State whether the variable is discrete or continuous. 2) _____
The number of goals scored in a soccer game

3) The random variable x represents the number of cars per household in a town of 1000 households. Find the probability of randomly selecting a household that has between one and three cars, inclusive. 3) _____

Cars	Households
0	125
1	428
2	256
3	108
4	83

4) Determine the probability distribution's missing value. 4) _____
The probability that a tutor will see 0, 1, 2, 3, or 4 students

x	0	1	2	3	4
$P(x)$	0.01	0.04	0.37	0.34	?

5) If a person rolls doubles when tossing two dice, the roller profits \$90. If the game is fair, how much should the person pay to play the game? 5) _____

6) At a raffle, 10,000 tickets are sold at \$5 each for three prizes valued at \$4,800, \$1,200, and \$400. What is the expected value of one ticket? 6) _____

7) Determine whether the distribution represents a probability distribution. If not, any requirements that are not satisfied. 7) _____

x	P(x)
1	0.49
2	0.05
3	0.32
4	0.07
5	0.07

8) A book contains 500 pages. If there are 200 typing errors randomly distributed throughout the book, use the Poisson distribution to determine the probability that a page contains exactly three errors. 8) _____

9) Fifty-seven percent of families say that their children have an influence on their vacation plans. Consider a sample of eight families who are asked if their children influence their vacation plans. Identify the values of n, p, and q, and list the possible values of the random variable x. 9) _____

10) The probability that a house in an urban area will be burglarized is 5%. If 50 houses are randomly selected, what is the probability that none of the houses will be burglarized? 10) _____

11) According to government data, the probability that a woman between the ages of 25 and 29 was never married is 40%. In a random survey of 10 women in this age group, what is the probability that two or fewer were never married? 11) _____

Decide which probability distribution -binomial, geometric, or Poisson- applies to the question. You do not need to answer the question.

12) Given: The probability that a federal income tax return is filled out incorrectly with an error in favor of the taxpayer is 20%. Question: What is the probability that of the ten tax returns randomly selected for an audit in a given week, three returns will contain only errors favoring the taxpayer? 12) _____

13) Given: The probability that a federal income tax return is filled out incorrectly with an error in favor of the taxpayer is 20%. Question: What is the probability that when the ten tax returns are randomly selected for an audit, the sixth return will contain only errors favoring the taxpayer? 13) _____

14) Given: The probability that a federal income tax return is filled out incorrectly with an error in favor of the taxpayer is 20%. Question: What is the probability that of the ten tax returns randomly selected for an audit, three returns will contain only errors favoring the taxpayer? 14) _____

Provide an appropriate response.

- 15) The probability that an individual is left-handed is 0.11. In a class of 40 students, what is the probability of finding five left-handers? 15) _____
- 16) A book contains 500 pages. If there are 200 typing errors randomly distributed throughout the book, use the Poisson distribution to determine the probability that a page contains exactly three errors. 16) _____

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

- 17) The probability that a house in an urban area will be burglarized is 5%. If 20 houses are randomly selected, what is the mean of the number of houses burglarized? 17) _____
- A) 1 B) 1.5 C) 10 D) 0.5

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

- 18) Decide whether the experiment is a binomial experiment. If it is not, explain why. Testing a pain reliever using 40 people to determine if it is effective. The random variable represents the number of people who find the pain reliever to be effective. 18) _____
- 19) Decide whether the experiment is a binomial experiment. If it is not, explain why. You spin a number wheel that has 19 numbers 950 times. The random variable represents the winning numbers on each spin of the wheel. 19) _____
- 20) The random variable x represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Graph the probability distribution. 20) _____

x	0	1	2	3	4
$P(x)$	$\frac{3}{17}$	$\frac{5}{17}$	$\frac{6}{17}$	$\frac{2}{17}$	$\frac{1}{17}$

- 21) A sports announcer researched the performance of baseball players in the World Series. The random variable x represents the number of hits a player had in the series. Use the frequency distribution to construct a probability distribution. 21) _____

Hits	0	1	2	3	4	5	6	7
Players	7	9	7	4	1	1	2	1