

6

CHAPTER TEST

Find the number of permutations or combinations.

1. ${}_4C_3$

2. ${}_7C_7$

3. ${}_{18}C_4$

4. ${}_9C_5$

Use the binomial theorem to write the binomial expansion.

5. $(x + 5)^3$

6. $(3a - 3)^5$

7. $(s + t^2)^4$

8. $(c^3 - 2d^2)^6$

Calculate the probability of k successes for a binomial experiment consisting of n trials with probability p of success on each trial.

9. $k = 4, n = 11, p = 0.4$

10. $k \leq 2, n = 5, p = 0.7$

11. $k \geq 8, n = 9, p = 0.9$

12. **TRUE-OR-FALSE QUIZ** Calculate the probability of randomly guessing at least 8 correct answers on a 10 question true-or-false quiz.

13. **GOVERNMENT** There are 15 members on a city council. On a recent agenda item, 8 of the council members voted in favor of a budget increase for city park improvements. How many combinations of council members could have voted in favor of the budget increase?

A normal distribution has a mean of 72 and a standard deviation of 5. Find the probability that a randomly selected x -value from the distribution is in the given interval.

14. Between 67 and 77

15. Between 57 and 72

16. At least 62

Find the margin of error for a survey that has the given sample size. Round your answer to the nearest tenth of a percent.

17. 340

18. 8125

19. 931

20. 1560

21. **TEST SCORES** The scores on a standardized test administered to 10,000 students have a mean of 50 and a standard deviation of 10. Find the z -score for each student whose score is given.

a. Kevin: 55

b. Manuel: 70

c. Colby: 40

d. Neal: 47

22. **SHOPPING SURVEY** In a survey of 1600 U.S. adults, 61% said that they have purchased a product online. Find the margin of error for the survey. Then give an interval that is likely to contain the exact percent of all U.S. adults who have purchased a product online.

23. **FISHING** A study found that 9% of people cite fishing as their favorite leisure-time activity. Suppose you randomly survey 8 people about their leisure-time activities. What is the probability that at least 2 of the people cite fishing as their favorite?