

Name _____

Date _____

LESSON
10.2

Practice

For use with pages 690–697

Find the number of combinations.

1. ${}_6C_4$

2. ${}_8C_5$

3. ${}_7C_3$

4. ${}_9C_7$

5. ${}_{13}C_9$

6. ${}_{10}C_6$

7. ${}_{12}C_8$

8. ${}_{14}C_{10}$

Find the number of possible 5-card hands that contain the cards specified. The cards are taken from a standard 52-card deck.

9. 5 red cards
10. 4 spades and 1 card that is not a spade
11. 3 face cards (kings, queens, or jacks) and 2 cards that are not face cards
12. 2 aces and 3 cards that are not aces
13. At most 1 diamond
14. At least 1 king

Use the binomial theorem to write the binomial expansion.

15. $(x - 2)^4$

16. $(x + 3)^3$

17. $(2x + 5)^5$

18. $(4x - 1)^6$

19. $(x + 6y)^3$

20. $(x - 5y)^5$

21. $(3x - y)^6$

22. $(8x + y)^4$

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Practice *continued*
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23. Find the coefficient of x^6 in the expansion of $(2x + 3)^{10}$.
24. Find the coefficient of x^4 in the expansion of $(3x - 1)^{11}$.
25. Find the coefficient of x^7 in the expansion of $(2x - 5)^9$.
26. Find the coefficient of x^3 in the expansion of $(3x + 2)^{12}$.
27. **School Play** A teacher is holding tryouts for the school play. There are 15 students trying out for 7 parts in the play. Each student can play each part. In how many ways can the teacher select the students?
28. **Soccer Starters** A youth indoor soccer team has 6 starting players. The starting players must consist of 3 boys and 3 girls. There are 7 boys and 6 girls on the team. Each player can play each position. In how many ways can the coach select players to start the game?
29. **Football Cards** You have a plastic sheet that holds 9 trading cards. You want to fill the sheet with football cards consisting of 4 quarterbacks, 3 running backs, and 2 wide receivers. In your collection of cards, you have 10 quarterbacks, 7 running backs, and 8 wide receivers. In how many different ways can you select the cards?