

CHAPTER
9**Cumulative Review***For use after Chapter 9***Write an algebraic expression, an equation, or an inequality.***(Lessons 1.3, 1.4)*

- The product of 8 and a number x is equal to 32.
- Three times the sum of a number y and 8
- The difference of 10 and the square of a number z is less than 18.
- Graph the function $y = 5x - 3$ with domain 1, 2, 3, 4, and 5. *(Lesson 1.7)*

Simplify the expression when $x = -2$ and $y = 5$. *(Lessons 2.2–2.6)*

- | | |
|-------------------------|--------------------|
| 5. $ x - (-y)$ | 6. $-3y + x^2$ |
| 7. $5 \div \frac{1}{x}$ | 8. $3(y - 2) - 2y$ |
| 9. $ x + y $ | 10. $xy - 4x$ |

Solve the proportion. *(Lessons 3.5, 3.6)*

- | | | |
|------------------------------------|-------------------------------------|--------------------------------------|
| 11. $\frac{d}{21} = \frac{18}{63}$ | 12. $\frac{9}{m+7} = \frac{45}{55}$ | 13. $\frac{y}{15} = \frac{y+12}{35}$ |
|------------------------------------|-------------------------------------|--------------------------------------|

14. **Survey** In a school survey of 2550 students, 1428 of the students surveyed said they regularly attend the school's football games. What percent of the students surveyed regularly attend the school's football games? *(Lesson 3.7)*

Identify the slope and y -intercept of the line with the given equation.*(Lesson 4.5)*

- | | | |
|----------------------------|--------------------|------------------|
| 15. $y = \frac{4}{3}x - 1$ | 16. $5x - 3y = 30$ | 17. $6x - y = 3$ |
|----------------------------|--------------------|------------------|

Tell whether the equation represents direct variation. If so, identify the constant of variation. *(Lesson 4.5, 4.6)*

- | | | |
|-------------------|-------------------|-----------------------------|
| 18. $6x - 3y = 0$ | 19. $2x + 2y = 4$ | 20. $\frac{1}{2}x - 2y = 0$ |
|-------------------|-------------------|-----------------------------|

Write an equation in slope-intercept form of the line with the given characteristics. *(Lessons 4.4, 5.1–5.3)*

- | | |
|--|--|
| 21. slope: 5; y -intercept: -2 | 22. passes through $(2, 7)$; slope: 1 |
| 23. passes through $(2, 3)$ and $(6, 5)$ | 24. passes through $(1, 4)$; parallel to $y = 7x - 3$ |

Solve the inequality, if possible. Graph your solution. *(Lessons 6.1–6.4, 6.6)*

- | | | |
|----------------|-------------------|---------------------|
| 25. $-4x > 28$ | 26. $9x - 5 < 13$ | 27. $ 2x - 1 > 14$ |
|----------------|-------------------|---------------------|

Cumulative Review *continued*
For use after Chapter 9**Graph the inequality.** (Lesson 6.7)

28. $y \leq 2x - 8$

29. $y > 7$

Solve the linear system. (Lessons 7.2–7.4)

30. $y = 5x - 2$

31. $9x + 2y = 5$

32. $3x + 7y = 43$

$7x - 3y = 10$

$-9x - 4y = 19$

$2x - 10y = -74$

Tell whether the linear system has one solution, no solution, or infinitely many solutions. (Lesson 7.5)

33. $-2x + y = 3$

34. $x = 8y + 7$

35. $3x - 7y = 10$

$y = 2x + 5$

$3x - 2y = 12$

$6x = 14y + 20$

Simplify the expression. Write your answer using only positive exponents.
(Lessons 8.1–8.3)

36. $(-3)^2(-3)(-3)^8$

37. $-(11x^3)^2$

38. $\left(\frac{m^{-2}n}{2mn^3}\right)^2$

39. $(4a^2b)^3 \cdot 2a^{-3}$

40. Write 19,321,000 in scientific notation. (Lesson 8.4)

41. Write 3.21×10^{-4} in standard form. (Lesson 8.4)42. Graph the function $y = \left(\frac{1}{2}\right)^x$. Identify the domain and the range of the function.
(Lesson 8.5)**Find the sum or difference.** (Lesson 9.1)

43. $(7h^3 + 4h^2 - 3h) + (9h^3 - 2h^2 - 4h)$

44. $(11k^2 - 3k + 5) - (-3k^2 + 7k + 2)$

Find the product. (Lessons 9.2, 9.3)

45. $(w^2 + 5w - 6)(w + 2)$

46. $(3y - 7)(2y + 3)$

47. $(5x - 9)^2$

Factor the polynomial. (Lessons 9.5–9.8)

48. $k^2 - 15k + 36$

49. $3m^3 + 12m^2 - 36m$

50. $-2a^2 + 72$