

Chapter 1 Cumulative Review

Graph the function. Compare the graph to the graph of $f(x) = |x|$. Describe the domain and range.

22. $t(x) = |x| + 1$

23. $r(x) = |x - 3|$

24. $h(x) = -\frac{1}{4}|x|$

Graph the function. Describe the domain and range.

25. $y = \begin{cases} 2x + 1, & \text{if } x < -1 \\ 0, & \text{if } x \geq -1 \end{cases}$

26. $y = \begin{cases} x, & \text{if } x < 3 \\ \frac{2}{3}x - 4, & \text{if } x > 3 \end{cases}$

Solve the system of linear equations by graphing, substitution, or elimination.

27. $y = -\frac{1}{2}x - 2$

28. $8x + 14y = 4$

29. $y = 5x - 7$

$y = -\frac{3}{2}x + 2$

$-6x - 7y = -10$

$-3x - 2y = -12$

30. The sum of the digits of a two-digit number is 7. Reversing its digits increases the number by 9. What is the number?

Solve the equation by graphing. Check your solution(s).

31. $9x - 4 = 2 - 3x$

32. $|4 - x| = |-6 + x|$

Graph the inequality.

33. $y < \frac{1}{5}x + 2$

34. $y \geq -x + 3$

35. $2x - 2y \leq -2$

36. You have \$500 in a savings account at the beginning of the summer. You want to have at least \$200 by the end of the summer. You withdraw \$25 each week.

- Write an inequality that represents this situation.
- For how many weeks can you withdraw money?

Graph the system of linear inequalities.

37. $x \leq -3$

38. $y \leq \frac{1}{2}x + 2$

39. $4x + y < 2$

$y < \frac{5}{3}x + 2$

$y < -2x - 3$

$y > -2$

**Chapter
1****Cumulative Review (continued)**

Evaluate the expression.

40. 2^0

41. $(-3)^0$

42. 3^{-4}

43. $\frac{(-3)^2}{-8^0}$

Simplify the expression. Write your answer using only positive exponents.

44. w^{-3}

45. h^0

46. $12x^{-5}y^0$

47. $\frac{2^{-4}x^2}{z^0}$

48. $\frac{r^{-7}}{10^{-2}z^{-5}}$

49. $\frac{17x^{-1}y^{-10}}{7^{-2}z^0}$

Rewrite the expression in rational exponent form.

50. $\sqrt{8}$

51. $\sqrt[7]{18}$

52. $\sqrt[3]{3}$

Rewrite the expression in radical form.

53. $24^{1/4}$

54. $37^{1/10}$

55. $140^{1/2}$

Evaluate the expression.

56. $\sqrt[3]{729}$

57. $\sqrt[4]{625}$

58. $\sqrt[5]{-32}$

59. $512^{2/3}$

60. $(-256)^{5/8}$

61. $1024^{6/5}$

Graph and compare the two functions.

62. $f(x) = |x + 2|$; $g(x) = |2x + 2|$

63. $h(x) = |x - 1| - 2$; $t(x) = |3x - 1| - 2$

Graph the function. Describe the domain and range.

64. $y = \begin{cases} 2x + 1, & \text{if } x \geq -1 \\ 3x - 1, & \text{if } x < -1 \end{cases}$

65. $y = \begin{cases} -\frac{1}{2}x + 2, & \text{if } x < -2 \\ \frac{1}{2}x - 3, & \text{if } x \geq -2 \end{cases}$