Cumulative Review

1. $x = 6$ **2.** $x = 4\pi$ **3.** $x = 6$

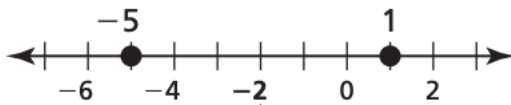**4. a.** $8\,h$ **b.** $5\,h$

5. $x = -9, x = 3$
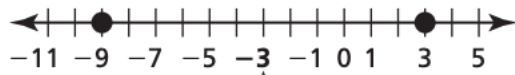
Each solution is 6 units from -3.

6. no solution

7. $z = -5, z = 1$

Each solution is 3 units from -2.

8. $x \leq -3$

9. $t \geq 8$

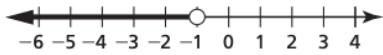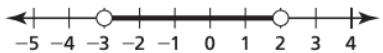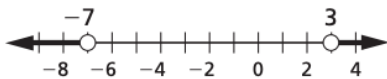**10.** $x < -1$

11. $-3 < x < 2$

12. no solution

13. $x > 3$ or $x < -7$

14. a. $\left| x - 50 \right| \leq \frac{7}{32}$ **b.** $49\frac{25}{32}$ in. $\leq x \leq 50\frac{7}{32}$ in.
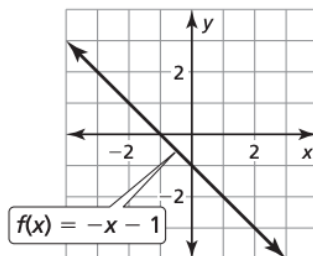
15. not a function; The input -3 has two outputs, 2 and 6.

16. not a function; *Sample answer:* The input -5 has two outputs, 1 and -1 .
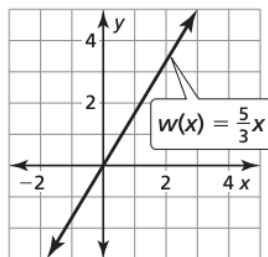
17. a. y is the dependent variable, and x is the independent variable.

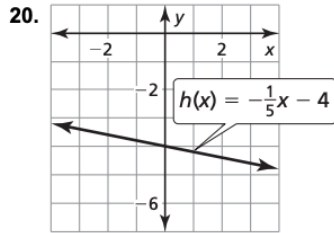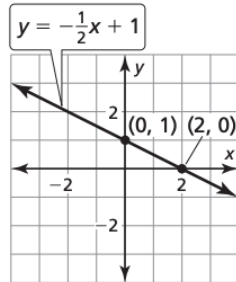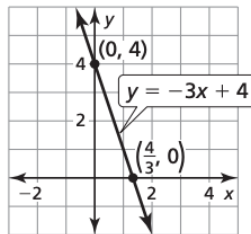 **b.** domain: $0 \leq x \leq 20$, range: $225 \leq y \leq 1725$

18.

$f(x) = -x - 1$

19.

$w(x) = \frac{5}{3}x$

Answers

20.

$h(x) = -\frac{1}{5}x - 4$

21. a. $290   **b.** 8 nights

22. x-intercept : 2, y-intercept : 1

$y = -\frac{1}{2}x + 1$

(0, 1) (2, 0)

23. x-intercept : $\frac{4}{3}$, y-intercept : 4

(0, 4)

$y = -3x + 4$

$\left(\frac{4}{3}, 0\right)$

24. x-intercept : $-\frac{10}{3}$, y-intercept : 2

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

$\left(\frac{-10}{3}, 0\right)$

(0, 2)

25. $m = 2, b = 0$

$y = 2x$

26. $m = 0, b = -6$

$y = -6$
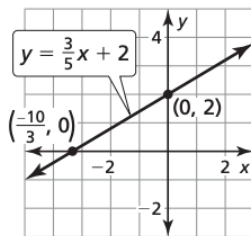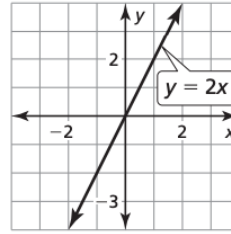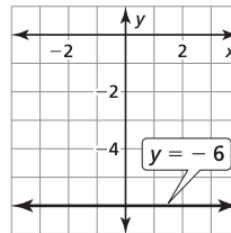
27. $m = \frac{4}{5}, b = -5$

$y = \frac{4}{5}x - 5$
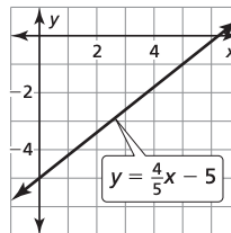
28. The graph of t is a vertical stretch by a factor of 2 followed by a vertical translation 5 units up of the graph of f; domain: all real numbers, range: $y \geq 5$

29. The graph of r is horizontal translation 1 unit right of the graph of f; domain: all real numbers, range: $y \geq 0$

30. The graph of h is a vertical shrink by a factor of $\frac{1}{2}$, followed by a reflection in the x-axis and a horizontal translation 1 unit right of the graph of f; domain: all real numbers, range: $y \leq 0$

31. $y = -\frac{7}{3}x$ **32.** $y = -10$

33. $y = -\frac{3}{2}x + 3$ **34.** $y = x + 1$

Answers

35. $y = \dfrac{5}{4}x - 2$

36. $y - 2 = x - 1$ or $y - 4 = x - 3$

37. $y + 9 = 2(x + 8)$ or $y + 5 = 2(x + 6)$

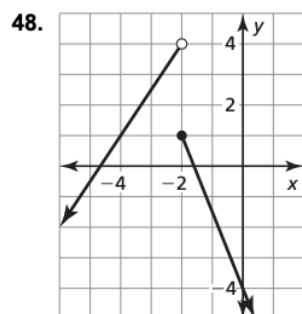**38.** $y + 7 = -(x - 2)$ or $y - 2 = -(x + 7)$

39. $y - 2 = -\dfrac{1}{2}x$ or $y + 3 = -\dfrac{1}{2}(x - 10)$

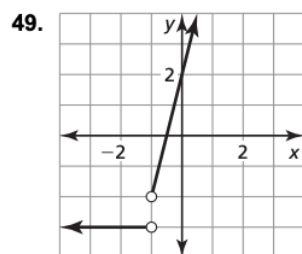**40.** $y - 5 = -(x - 1)$ **41.** $y + 7 = \dfrac{7}{2}(x + 3)$

42. $y + 6 = -2x$ **43.** no correlation

44. negative correlation   **45.** not arithmetic

46. arithmetic, -4 **47.** arithmetic, -6

48.

domain: all real number, range: $y < 4$

49.

domain: $x \neq -1$, range: $y = -3$ or $y > -2$

50. $(3, -2)$ **51.** $(0, 4)$ **52.** $(3, -2)$

53. a. truck driver A: $y = 7x + 50$, truck driver B:
$y = 2x + 175$

b. $(25, 225)$; From $0 \le x < 25$ miles truck driver
A is cheaper, at 25 miles both truck drivers
charge the same amount, and after 25 miles truck
driver B is cheaper.

54. $(2, 1)$ **55.** $(7, 6)$ **56.** $(4, 1)$

57. three $5 bags and four $3 bags

58. $(6, -6)$ **59.** $(-4, -4)$ **60.** $(-6, 0)$

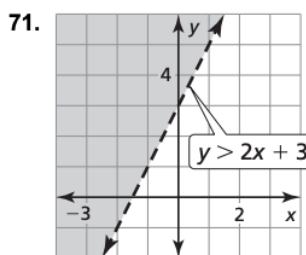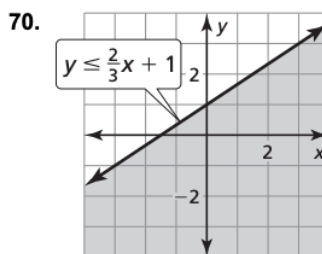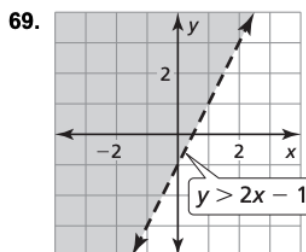**61.** 8 students per van and 22 students per bus

62. infinitely many solutions; same slope and same
y-intercept

63. no solution; same slope but different y-intercepts

64. one solution; different slopes
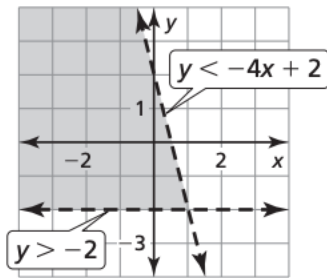
65. $x = 1$ **66.** $x = -7$

67. $x = -4, x = -1$ **68.** $x = -1, x = 5$

69.

$y > 2x - 1$

70.
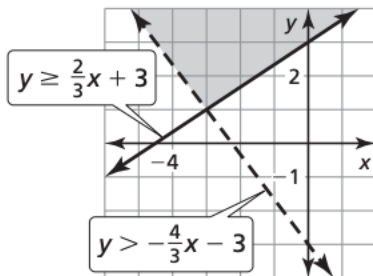

$y \le \dfrac{2}{3}x + 1$

71.

$y > 2x + 3$

72. no; It would weigh 1200 pounds, which is 200
pounds over the weight limit of the truck.

Answers

73.

Graph with $y < -4x + 2$ (dashed line) and $y > -2$ (dashed horizontal line).

74.

Graph with $y \geq \frac{2}{3}x + 3$ (solid line) and $y > -\frac{4}{3}x - 3$ (dashed line).

75.

Graph with $y < \frac{3}{2}x + 3$ (dashed line) and $y \leq \frac{2}{3}x - 2$ (solid line).