

Answers for 4.9

For use with pages 304–307

4.9 Skill Practice

1. *Sample answer:*

$$3x^2 - 2x + 5 > 0,$$

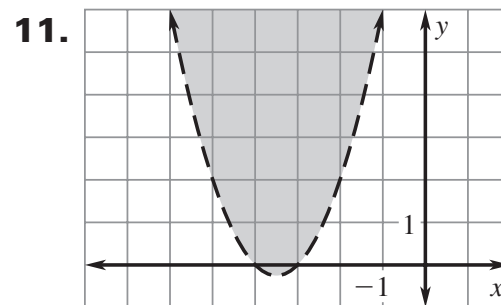
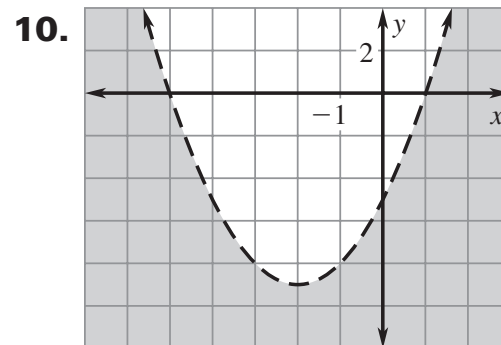
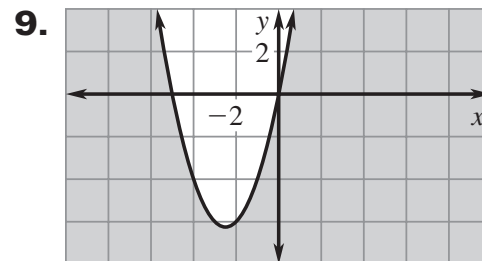
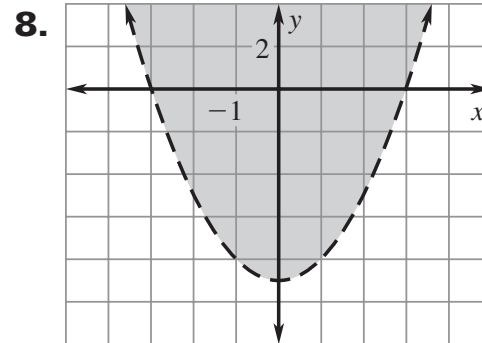
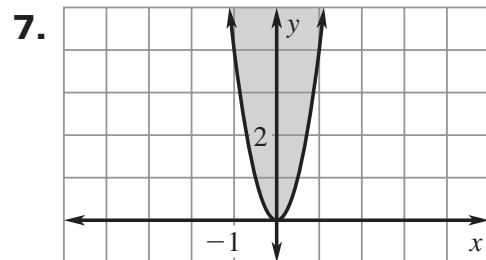
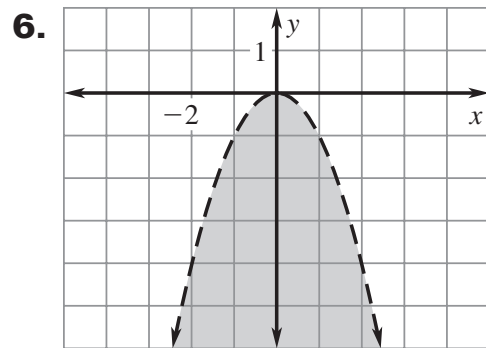
$$y \geq x^2 + 4x - 8$$

2. Table: make a table of values and find where the outputs are less than 0; graph: draw the graph of the function and find where the graph is below the x -axis; algebraically: factor the expression and test points on a number line between the critical x -values to find where it satisfies the inequality.

3. C

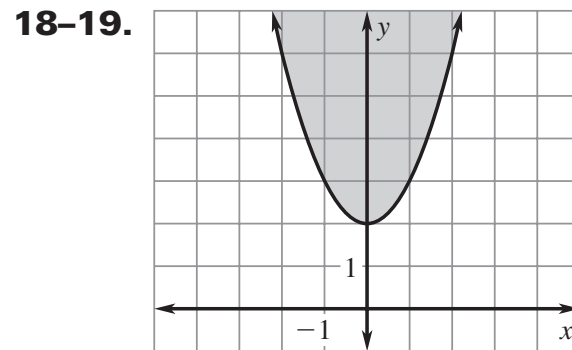
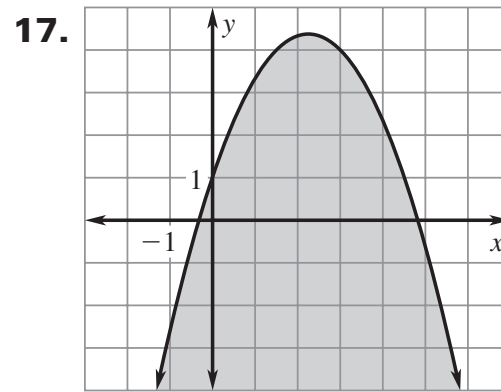
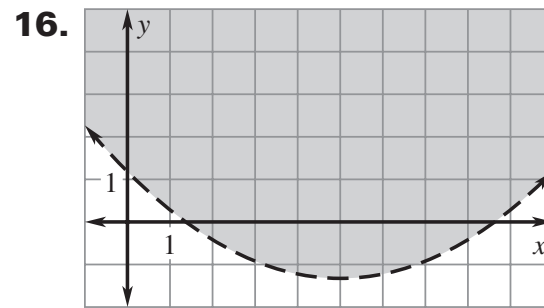
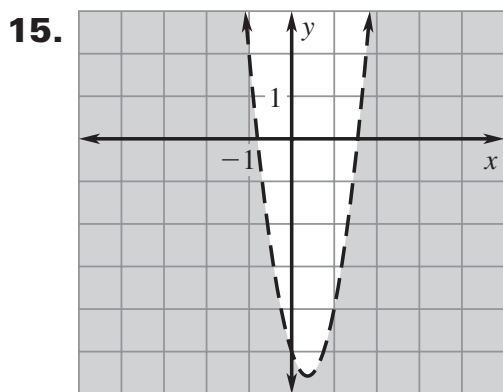
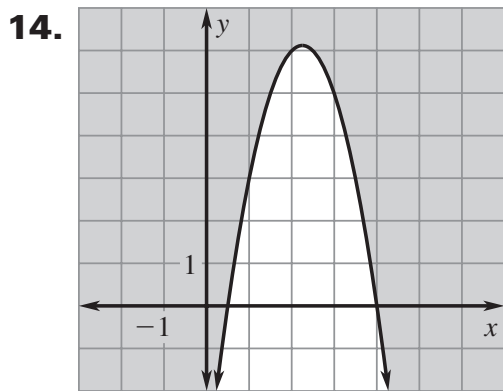
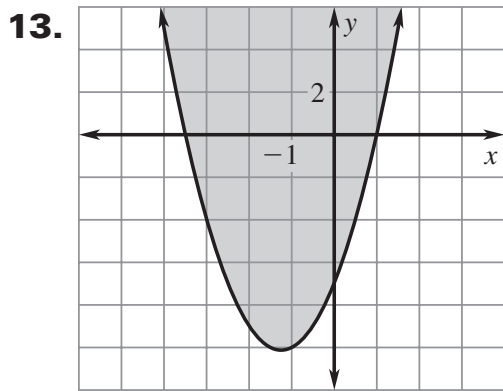
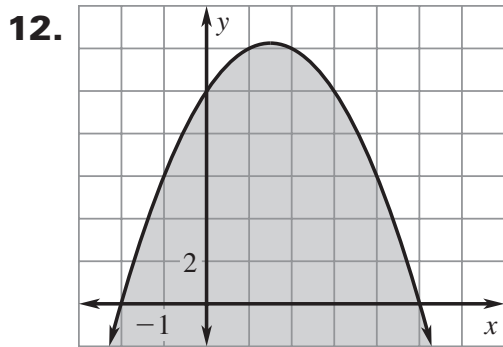
4. A

5. B



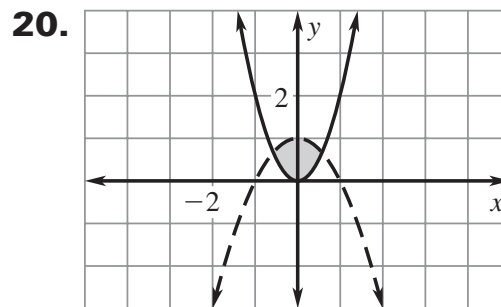
Answers for 4.9 *continued*
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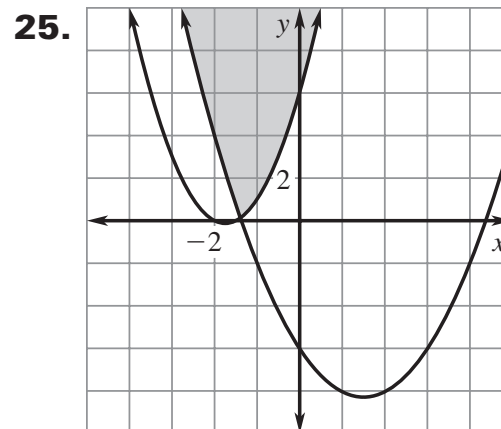
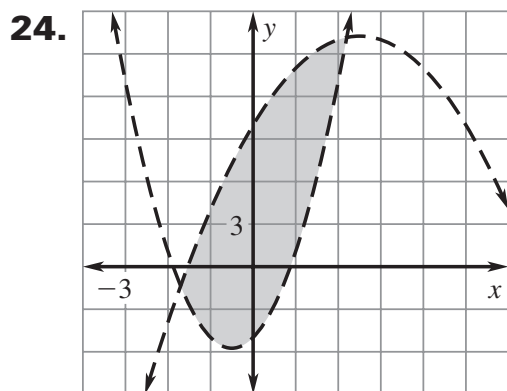
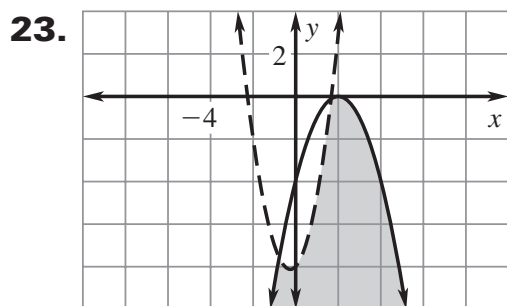
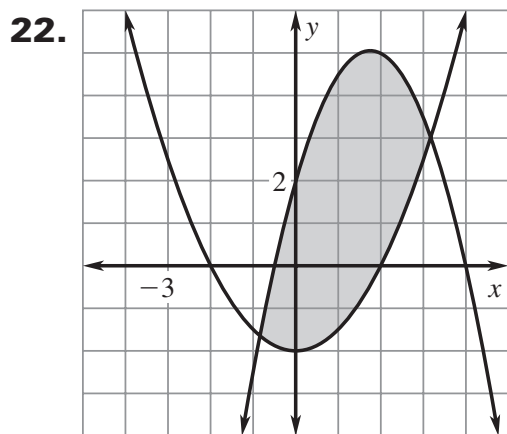
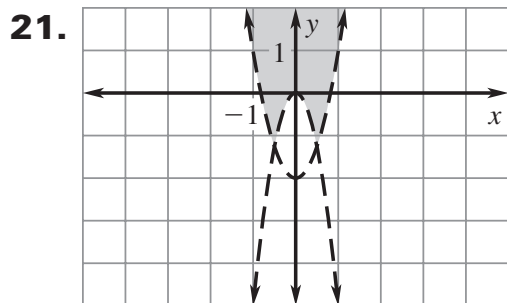


18. The graph should be a solid line.

19. The inside of the graph should be shaded.



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26. $0 < x < 5$ **27.** $x < -3$ or $x > 1$

28. $-5 \leq x \leq 2$ **29.** $x \leq -2$ or $x \geq 4$

30. $5 < x < 10$ **31.** $2 < x < 8$

32. $x < -2$ or $x > 6$

33. $-1 \leq x \leq 3$ **34.** $x \leq -2$ or $x \geq 5$

35. $0 < x < 6$ **36.** $-7 \leq x \leq -1$

37. $x < 0.59$ or $x > 3.4$

38. $x < -5.4$ or $x > -0.55$

39. $-2 \leq x \leq 1.3$

40. $-2.3 < x < 0.59$

41. $0.67 \leq x \leq 2.5$

42. $0.26 \leq x \leq 7.7$

43. $-1.2 < x < 3.7$

44. A **45.** B

46. $-2.5 < x < 2.5$

47. $-9 < x < -1$

48. $x \leq 4$ or $x \geq 7$

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49. $x < -\frac{2}{3}$ or $x > 5$

50. $-\frac{1}{2} \leq x \leq 3$

51. $x \leq -3.5$ or $x \geq 1.5$

52. $x \leq -1$ or $x \geq 0.75$

53. $-0.27 \leq x \leq 1.5$

54. $-0.19 < x < 3.5$

55. $-2.8 \leq x \leq -0.72$

56. $0.07 < x < 4.9$

57. $x < -0.46$ or $x > 1.8$

58. **a–d.** Check students' work.

59. $-0.89 < x < 1.3$

60. $x \leq -2$ or $x \geq -0.75$

61. no solution

62. all reals

63. $x < 0.52$ or $x > 11.5$

64. $x \leq 6.2$ or $x \geq 0.16$

65. $0 \leq x \leq 0.5$

66. $-3.5 < x < 1$

67. no solution

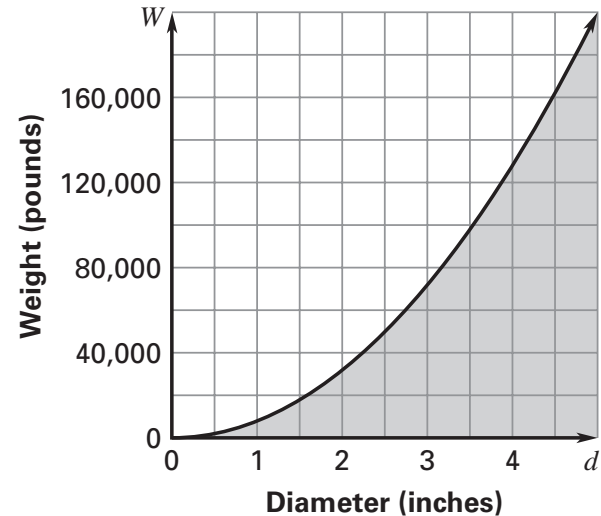
68. *Sample answer:* $x^2 - 3x - 10 > 0$

69. **a.** $10\frac{2}{3}$

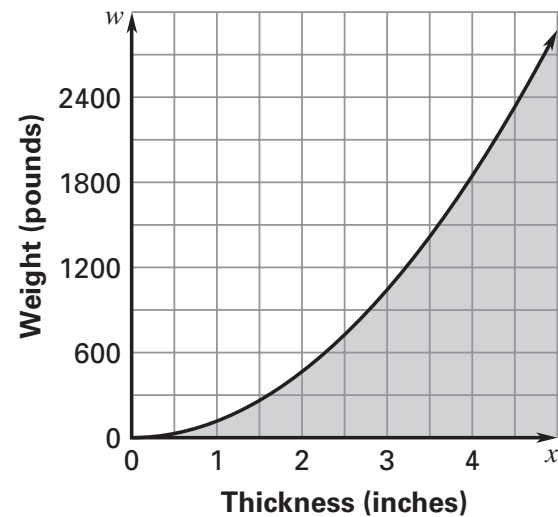
b. about 56

4.9 Problem Solving

70.



71.



72. $55 < x < 447$

73. $37 \leq x \leq 40$; the domain restricts the number of days to less than or equal to 40.

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74. a. $0.0001x^2 - 0.089x - 7 < 0$

b.

x	16	22	28
y	-8.3984	-8.9096	-9.4136

x	34	40	46
y	-9.9104	-10.4	-10.8824

x	52	58
y	-11.3576	-11.8256

x	64	70
y	-12.2864	-12.74

c. *Sample answer:* Restricting the domain to ages ranging from 16 to 70 includes the majority of people who drive.

d. Traffic light; *Sample answer:* The values where audio stimuli is faster than visual stimuli gives negative reaction times. So, a visual stimulus typically creates a faster reaction time than an audio stimulus.

75. a. $-0.054x^2 + 1.43x - 8 < 0$;
 $x \leq 8.0$ or $x \geq 18.5$

b. No; the ball will go over the goal by 1.3 feet.

76. a. Yes; a truck 7 feet wide will have an extra 2.81 inches of clearance.

b. 8 ft

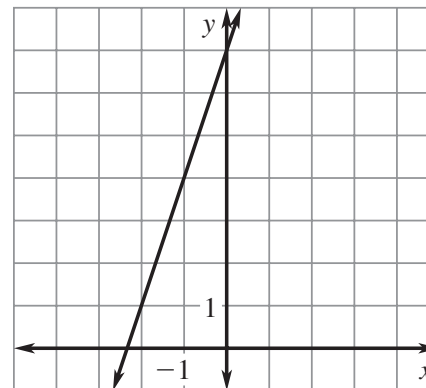
c. 11.2344 ft

77. a. about 18.5 in.

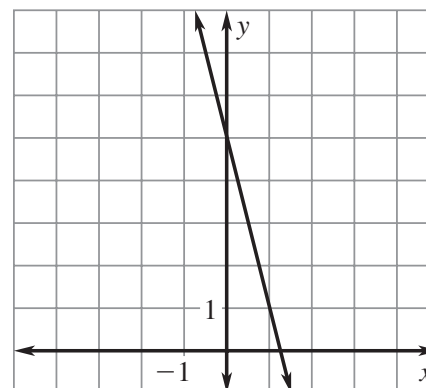
b. Ice cannot hold a negative number of tons, so where the graph is above the x -axis is the x -values where the function gives meaningful results.

4.9 Mixed Review

78.

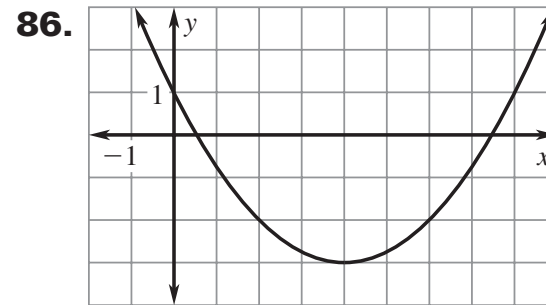
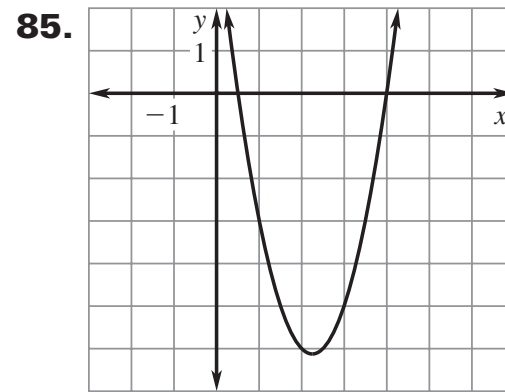
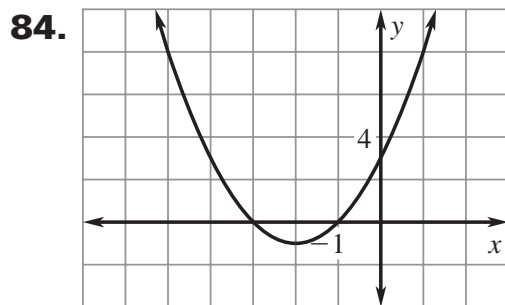
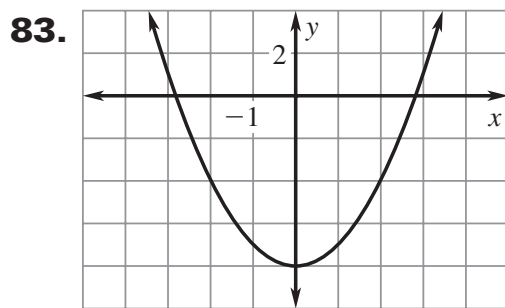
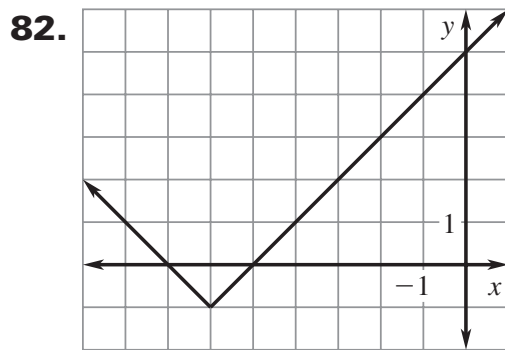
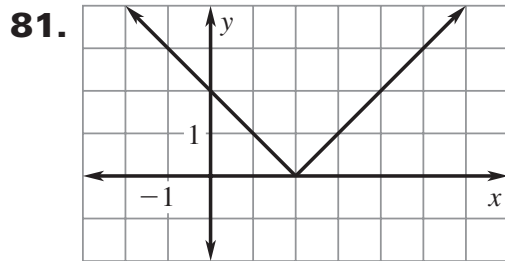
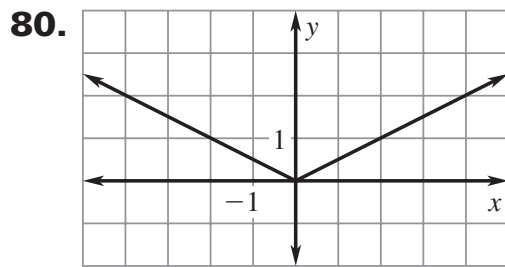


79.



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87. $(2, -1, -3)$

88. $(1, -2, 4)$

89. $(2, -9, 4)$

90. $(1, 4, 3)$

91. $(-6, 2, 9)$

92. infinitely many solutions