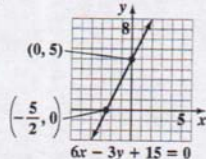


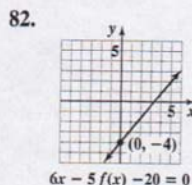
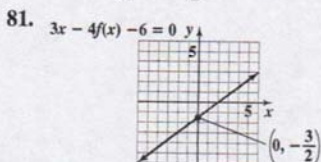
AA18 Answers to Selected Exercises

72.



73. $m = -\frac{a}{b}$; falls 74. $m = -\frac{b}{a}$; falls 75. undefined slope; vertical 76. $m = \frac{a}{b}$; rises

77. $m = -\frac{A}{B}$; $b = \frac{C}{B}$ 78. $m = \frac{A}{B}$; $b = \frac{C}{B}$ 79. -2 80. -6

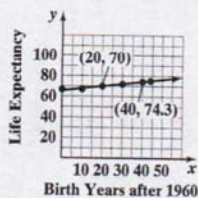


81. $3x - 4f(x) - 6 = 0$ 82. 83. 5 84. -3
85. m_1, m_3, m_2, m_4 86. b_2, b_1, b_4, b_3

87. a. $y - 31.1 = 0.78(x - 10)$ or $y - 38.9 = 0.78(x - 20)$ b. $f(x) = 0.78x + 23.3$ c. 54.5%

88. a. $y - 45.2 = 0.65(x - 10)$ or $y - 51.7 = 0.65(x - 20)$ b. $f(x) = 0.65x + 38.7$ c. 61.45%

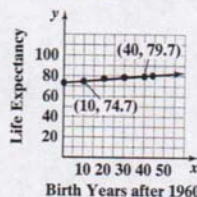
89. a & b. Life Expectancy for United States Males, by Year of Birth; $E(x) = 0.215x + 65.7$



c. 78.6 yr

90. Answers will vary due to rounding.

a & b. Life Expectancy for United States Females, by Year of Birth; $E(x) = 0.17x + 72.9$ or $E(x) = 0.17x + 73$



c. 83.1 yr or 83.2 yr

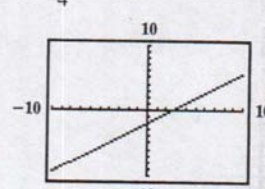
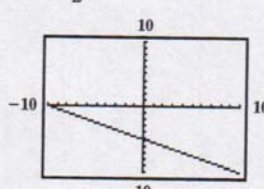
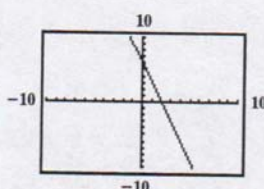
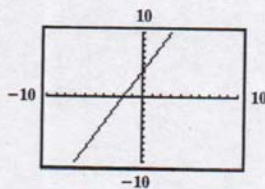
91. Answers will vary; an example is $y = -2.3x + 255$, where x is the percentage of adult females who are literate and y is under-five mortality per thousand; Predictions will vary.

100. $m = 2$

101. $m = -3$

102. $m = -\frac{1}{2}$

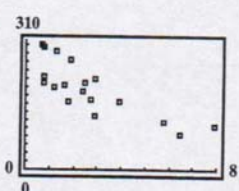
103. $m = \frac{3}{4}$



104. a.

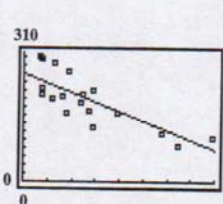
x	y
2.5	211
3.9	167
⋮	⋮
2.7	172

b.



c. $a = -22.96876741$
 $b = 260.5633751$
 $r = -0.8428126855$

d.



105. does not make sense 106. does not make sense 107. does not make sense 108. makes sense 109. false 110. false

111. true 112. false 113. coefficient of x : -6; coefficient of y : 3 114. coefficient of x : 1; coefficient of y : -2 116. $E = 2.4M - 20$

118. $y = 2x + 7$ or $f(x) = 2x + 7$ 119. $4x - y - 17 = 0$ 120. 5

Section 2.4

Check Point Exercises

1. $y - 5 = 3(x + 2)$; $y = 3x + 11$ or $f(x) = 3x + 11$ 2. a. 3 b. $3x - y = 0$ 3. $m \approx 0.25$; The number of men living alone increased at a rate of 0.25 million per year. The rate of change is 0.25 million men per year. 4. a. 1 b. 7 c. 4 5. 0.01 mg per 100 ml per hr

Exercise Set 2.4

1. $y - 2 = 2(x - 4)$; $y = 2x - 6$ or $f(x) = 2x - 6$ 2. $y - 4 = -2(x - 3)$; $y = -2x + 10$ or $f(x) = -2x + 10$

3. $y - 4 = -\frac{1}{2}(x - 2)$; $y = -\frac{1}{2}x + 5$ or $f(x) = -\frac{1}{2}x + 5$ 4. $y - 2 = \frac{1}{2}(x + 1)$; $y = \frac{1}{2}x + \frac{5}{2}$ or $f(x) = \frac{1}{2}x + \frac{5}{2}$

5. $y + 10 = -4(x + 8)$; $y = -4x - 42$ 6. $y + 7 = -5(x + 2)$; $y = -5x - 17$ 7. $y + 3 = -5(x - 2)$; $y = -5x + 7$

8. $y - 2 = -3(x + 4)$; $y = -3x - 10$ 9. $y - 2 = \frac{2}{3}(x + 2)$; $2x - 3y + 10 = 0$ 10. $y - 3 = \frac{3}{2}(x + 1)$; $3x - 2y + 9 = 0$

11. $y + 7 = -2(x - 4)$; $2x + y - 1 = 0$ 12. $y + 9 = 7(x - 5)$; $7x - y - 44 = 0$

13. 3 14. 6 15. 10 16. 7 17. $\frac{1}{5}$ 18. $\frac{1}{7}$

19. $f(x) = 5$ 20. $f(x) = 6$ 21. $f(x) = -\frac{1}{2}x + 1$ 22. $f(x) = -\frac{1}{3}x + \frac{13}{3}$ 23. $f(x) = -\frac{2}{3}x - 2$ 24. $f(x) = -\frac{1}{4}x - 6$

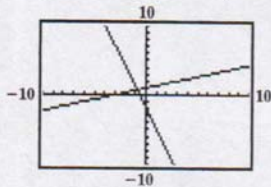
25. $P(x) = -1.2x + 47$ 26. $P(x) = 1.3x + 23$ 27. 137; There was an average increase of approximately 137 discharges per year.

28. -132; There was an average decrease of approximately 132 discharges per year. 29. a. 142 b. overestimates by 5 discharges per year

30. a. -96 b. underestimates by 36 discharges per year

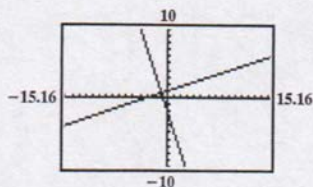
37. a. The product of their slopes is -1 .

b. ; no



c.

; The lines now appear to be perpendicular.



38. makes sense

39. makes sense

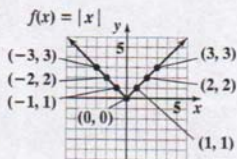
40. does not make sense

41. makes sense

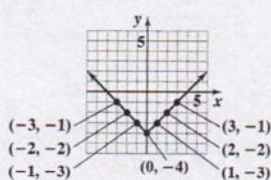
42. $\frac{B}{A}$

43. $-\frac{3}{7}$

44. a.

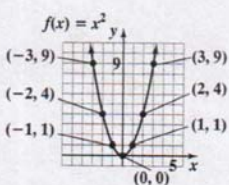


b.

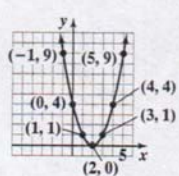


c. The graph in part (b) is the graph in part (a) shifted down 4 units.

45. a.

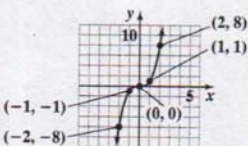


b.

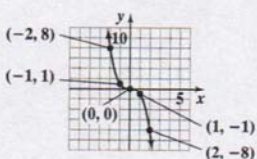


c. The graph in part (b) is the graph in part (a) shifted to the right 2 units.

46. a.



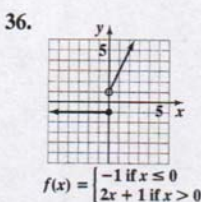
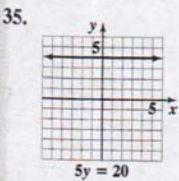
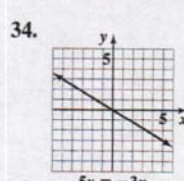
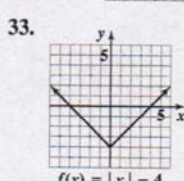
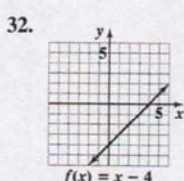
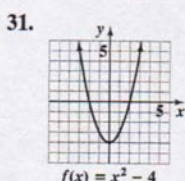
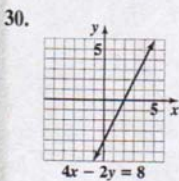
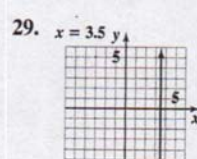
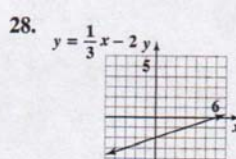
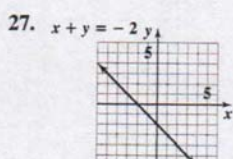
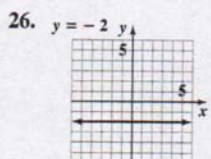
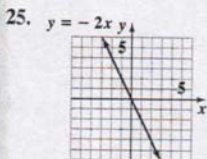
b.



c. The graph in part (b) is the graph in part (a) reflected across the y-axis.

Mid-Chapter 2 Check Point

1. not a function; domain: $\{1, 2\}$; range: $\{-6, 4, 6\}$ 2. function; domain: $\{0, 2, 3\}$; range: $\{1, 4\}$ 3. function; domain: $\{x|-2 \leq x < 2\}$ or $[-2, 2)$; range: $\{y|0 \leq y \leq 3\}$ or $[0, 3]$ 4. not a function; domain: $\{x|-3 < x \leq 4\}$ or $(-3, 4]$; range: $\{y|-1 \leq y \leq 2\}$ or $[-1, 2]$
 5. not a function; domain: $\{-2, -1, 0, 1, 2\}$; range: $\{-2, -1, 1, 3\}$ 6. function; domain: $\{x|x \leq 1\}$ or $(-\infty, 1]$; range: $\{y|y \geq -1\}$ or $[-1, \infty)$
 7. y is a function of x . 8. y is not a function of x . 9. No vertical line intersects the graph in more than one point. 10. $(-\infty, \infty)$
 11. $(-\infty, 4]$ 12. -6 and 2 13. 3 14. $(-\infty, -2)$ 15. $(-2, \infty)$ 16. -2 17. 4 18. 3 19. -7 and 3 20. -6 and 2
 21. $(-6, 2)$ 22. negative 23. neither 24. -1



37. a. $f(-x) = -2x^2 - x - 5$; neither b. $-4x - 2h + 1, h \neq 0$ 38. a. 30 b. 50
 39. $f(x) = -2x - 5$ 40. $f(x) = 2x - 3$ 41. $f(x) = 3x - 13$
 42. $f(x) = -\frac{5}{2}x - 13$ 43. The lines are parallel.
 44. a. 0.16 b. 0.16; 0.16; minute of brisk walking 45. 2