

105. $g = \frac{\mu s v^2}{R}$ 107. False. See Example 7 on page 137.

109. 6, -4 111. ± 15 113. $a = 9, b = 9$

115. $a = 4, b = 24$ 117. $\frac{25}{6x}$ 119. $\frac{-3z^2 - 2z + 4}{z(z + 2)}$

121. 11

Section 1.7 (page 150)

Vocabulary Check (page 150)

1. solution set 2. graph 3. negative
4. solution set 5. double 6. union

1. $-1 \leq x \leq 5$. Bounded 3. $x > 11$. Unbounded

5. $x < -2$. Unbounded

7. b 8. f 9. d 10. c 11. e 12. a

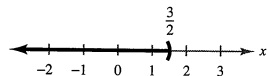
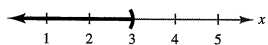
13. (a) Yes (b) No (c) Yes (d) No

15. (a) Yes (b) No (c) No (d) Yes

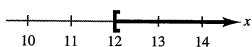
17. (a) Yes (b) Yes (c) Yes (d) No

19. $x < 3$

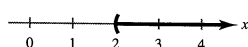
21. $x < \frac{3}{2}$



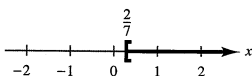
23. $x \geq 12$



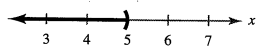
25. $x > 2$



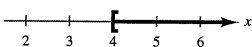
27. $x \geq \frac{2}{7}$



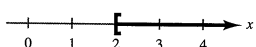
29. $x < 5$



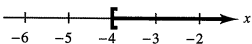
31. $x \geq 4$



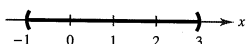
33. $x \geq 2$



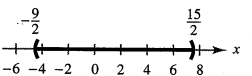
35. $x \geq -4$



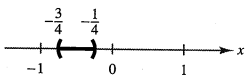
37. $-1 < x < 3$



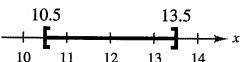
39. $-\frac{9}{2} < x < \frac{15}{2}$



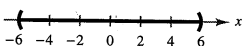
41. $-\frac{3}{4} < x < -\frac{1}{4}$



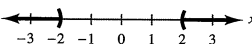
43. $10.5 \leq x \leq 13.5$



45. $-6 < x < 6$



47. $x < -2, x > 2$

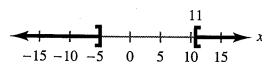


49. No solution

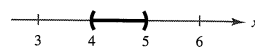
51. $14 < x < 26$

53. $x < -\frac{3}{2}, x > 2$

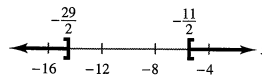
55. $x \leq -5, x \geq 11$



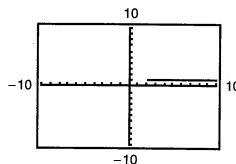
57. $4 < x < 5$



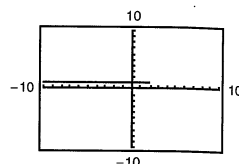
59. $x \leq -\frac{29}{2}, x \geq -\frac{11}{2}$



61.



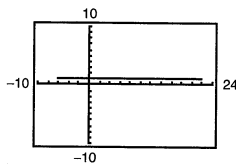
63.



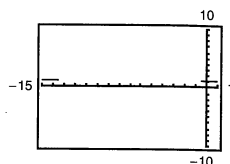
$x > 2$

$x \leq 2$

65.



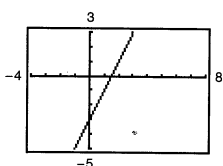
67.



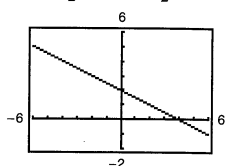
$-6 \leq x \leq 22$

$x \leq -\frac{27}{2}, x \geq -\frac{1}{2}$

69.



71.



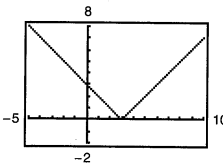
(a) $x \geq 2$

(a) $-2 \leq x \leq 4$

(b) $x \leq \frac{3}{2}$

(b) $x \leq 4$

73.



(a) $1 \leq x \leq 5$

(b) $x \leq -1, x \geq 7$

75. $[5, \infty)$ 77. $[-3, \infty)$ 79. $(-\infty, \frac{7}{2}]$

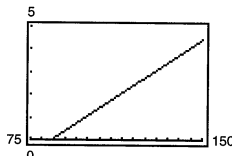
81. All real numbers within eight units of 10 83. $|x| \leq 3$

85. $|x - 7| \geq 3$ 87. $|x - 12| < 10$

89. $|x + 3| > 4$ 91. $x > 6$ 93. $r > 3.125\%$

95. $x \geq 36$ 97. $134 \leq x \leq 234$

99. (a) (b) $x \geq 129$



101. (a) $1 \leq t \leq 10$ (b) $t > 16$

103. 106.864 square inches \leq area ≤ 109.464 square inches

105. Might be undercharged or overcharged by \$0.10

Vocabulary Check (page 161)

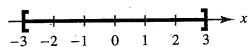
1. critical; test intervals 2. zeros; undefined values
3. $P = R - C$

1. (a) No (b) Yes (c) Yes (d) No

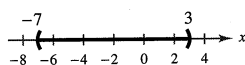
3. (a) Yes (b) No (c) No (d) Yes

5. $2, -\frac{3}{2}$ 7. $\frac{7}{2}, 5$

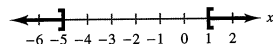
9. $[-3, 3]$



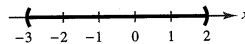
11. $(-7, 3)$



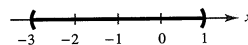
13. $(-\infty, -5] \cup [1, \infty)$



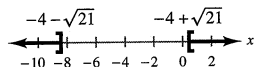
15. $(-3, 2)$



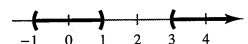
17. $(-3, 1)$



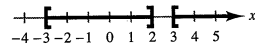
19. $(-\infty, -4 - \sqrt{21}] \cup [-4 + \sqrt{21}, \infty)$



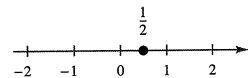
21. $(-1, 1) \cup (3, \infty)$



23. $[-3, 2] \cup [3, \infty)$



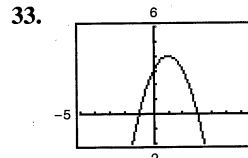
25. $x = \frac{1}{2}$



27. $(-\infty, 0) \cup (0, \frac{3}{2})$

29. $[-2, 0] \cup [2, \infty)$

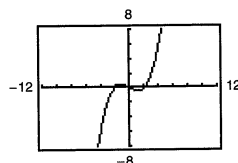
31. $[-2, \infty)$



(a) $x \leq -1, x \geq 3$

(b) $0 \leq x \leq 2$

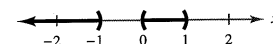
35.



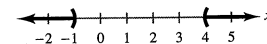
(a) $-2 \leq x \leq 0,$
 $2 \leq x < \infty$

(b) $x \leq 4$

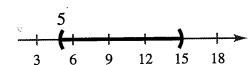
37. $(-\infty, -1) \cup (0, 1)$



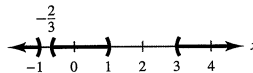
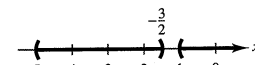
39. $(-\infty, -1) \cup (4, \infty)$



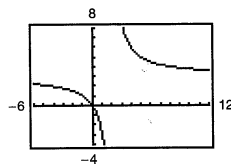
41. $(5, 15)$



43. $(-5, -\frac{3}{2}) \cup (-1, \infty)$



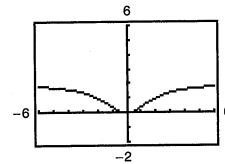
51.



(a) $0 \leq x < 2$

(b) $2 < x \leq 4$

53.



(a) $|x| \geq 2$

(b) $-\infty < x < \infty$

55. $[-2, 2]$ 57. $(-\infty, 3] \cup [4, \infty)$

59. $(-5, 0] \cup (7, \infty)$ 61. $(-3.51, 3.51)$

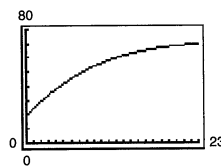
63. $(-0.13, 25.13)$ 65. $(2.26, 2.39)$

67. (a) $t = 10$ seconds (b) $4 \text{ seconds} < t < 6 \text{ seconds}$

69. $13.8 \text{ meters} \leq L \leq 36.2 \text{ meters}$

71. $40,000 \leq x \leq 50,000; 50.00 \leq p \leq 55.00$

73. (a)



(b)

t	24	26	28	30	32	34
C	70.5	71.6	72.9	74.6	76.8	79.6

2011

(c) $t \approx 31$

(d)

t	36	37	38	39
C	83.2	85.4	87.8	90.5

t	40	41	42	43
C	93.5	96.8	100.4	104.4

2016 to 2021

(e) $37 \leq t \leq 41$ (f) Answers will vary.

75. $R_1 \geq 2$ ohms

77. True. The test intervals are $(-\infty, -3), (-3, 1), (1, 4),$ and $(4, \infty)$.

79. $(-\infty, -4] \cup [4, \infty)$ 81. $(-\infty, -2\sqrt{30}] \cup [2\sqrt{30}, \infty)$

83. (a) If $a > 0$ and $c \leq 0$, b can be any real number. If $a > 0$ and $c > 0$, $b < -2\sqrt{ac}$ or $b > 2\sqrt{ac}$.

(b) 0

85. $(2x + 5)^2$ 87. $(x + 3)(x + 2)(x - 2)$ 89. $2x^2 + x$