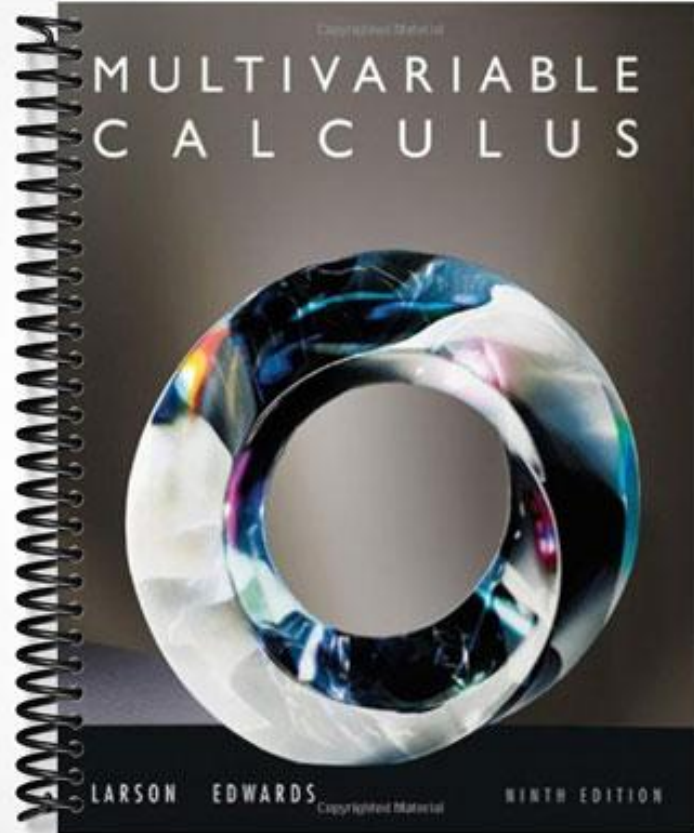


SOLUTIONS MANUAL



APPENDIX C

Appendix C.1 (page C8)

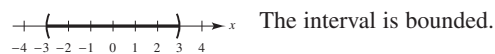
1. Rational 3. Irrational 5. Rational 7. Rational

9. Rational 11. $\frac{4}{11}$ 13. $\frac{11}{37}$

15. (a) True (b) False (c) True (d) False

(e) False (f) False

17. x is greater than -3 and less than 3 .

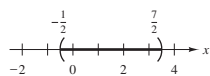


19. x is no more than 5 .

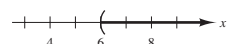


21. $y \geq 4, [4, \infty)$ 23. $0.03 < r \leq 0.07, (0.03, 0.07]$

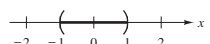
25. $x \geq \frac{1}{2}$ 27. $-\frac{1}{2} < x < \frac{7}{2}$



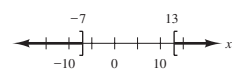
29. $x > 6$



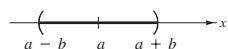
31. $-1 < x < 1$



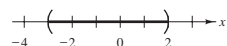
33. $x \geq 13, x \leq -7$



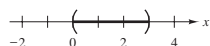
35. $a - b < x < a + b$



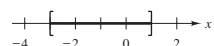
37. $-3 < x < 2$



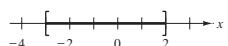
39. $0 < x < 3$



41. $-3 \leq x \leq 1$



43. $-3 \leq x \leq 2$



45. $4, -4, 4$ 47. (a) $-51, 51, 51$ (b) $51, -51, 51$

49. $|x| \leq 2$ 51. $|x - 2| > 2$

53. (a) $|x - 12| \leq 10$ (b) $|x - 12| \geq 10$

55. 1 57. (a) 14 (b) 10

59. $x \geq 36$ units 61. $x \leq 41$ or $x \geq 59$

63. (a) $\frac{355}{112} > \pi$ (b) $\frac{22}{7} > \pi$ 65. b

67. False; the reciprocal of 2 is $\frac{1}{2}$, which is not an integer.

68. True 69. True 70. False; $|0| = 0$.

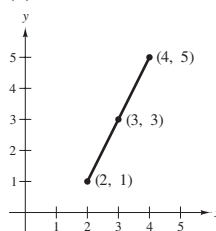
71. True 72. True 73. Proof

75. Proof 77. Proof 79. Proof

81. $|-3 - 1| > |-3| - |1|$
 $|3 - 1| = |3| - |1|$

Appendix C.2 (page C15)

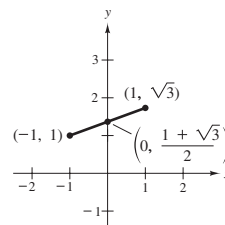
1. (a)



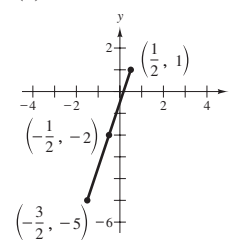
(b) $2\sqrt{5}$

(c) $(3, 3)$

5. (a)



3. (a)



(b) $2\sqrt{10}$

(c) $(-\frac{1}{2}, -2)$

(b) $8\sqrt{8 - 2\sqrt{3}}$

(c) $(0, \frac{1 \pm \sqrt{3}}{2})$

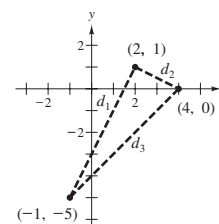
7. Quadrant II 9. Quadrants I and III

11. Right triangle:

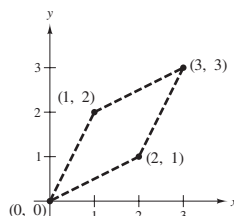
$$d_1 = \sqrt{45}, d_2 = \sqrt{5}$$

$$d_3 = \sqrt{50}$$

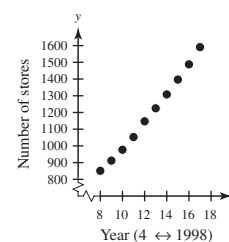
$$(d_1)^2 + (d_2)^2 = (d_3)^2$$



13. Rhombus: the length of each side is $\sqrt{5}$.



15.



17. $d_1 = 2\sqrt{5}, d_2 = \sqrt{5}, d_3 = 3\sqrt{5}$

Collinear, because $d_1 + d_2 = d_3$.

19. $d_1 = \sqrt{2}, d_2 = \sqrt{13}, d_3 = 5$

Not collinear, because $d_1 + d_2 > d_3$.

21. $x = \pm 3$ 23. $y = \pm \sqrt{55}$

$$25. \left(\frac{3x_1 + x_2}{4}, \frac{3y_1 + y_2}{4} \right) \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$\left(\frac{x_1 + 3x_2}{4}, \frac{y_1 + 3y_2}{4} \right)$$

27. c 28. b 29. a 30. d 31. $x^2 + y^2 - 9 = 0$

33. $x^2 + y^2 - 4x + 2y - 11 = 0$