

3. page 389 # 3-51 x 3

$$\sqrt{x+3} = 5$$

$$(\sqrt{x+3})^2 = 5^2$$

$$x+3 = 25$$

$$x = 22$$

$$9. \frac{3(x-2)^{3/4}}{3} = \frac{24}{3}$$

$$((x-2)^{3/4})^4 = (8)^4$$

$$(x-2)^3 = 4096$$

$$\sqrt[3]{(x-2)^3} = \sqrt[3]{4096}$$

$$x-2 = 16$$

$$x = 18$$

$$15. \sqrt{11x+3} - 2x = 0$$

$$\sqrt{11x+3} = 2x$$

$$(\sqrt{11x+3})^2 = (2x)^2$$

$$11x+3 = 4x^2$$

$$0 = 4x^2 - 11x - 3$$

$$0 = (4x+1)(x-3)$$

$$x = -\frac{1}{4} \quad x = 3$$

$$\begin{array}{r} -12 \\ -12 \end{array} \begin{array}{r} 1 \\ -11 \end{array}$$

	x	-3
4x	4x ²	-12x
1	x	-3

check

$$\sqrt{11\left(-\frac{1}{4}\right)+3} - 2\left(-\frac{1}{4}\right) = 0$$

$$\sqrt{-2.75+3} + \frac{1}{2} = 0$$

$$\sqrt{.25} + \frac{1}{2} = 0$$

$$\frac{1}{2} + \frac{1}{2} \neq 0$$

$-\frac{1}{4}$ is extraneous

$$\sqrt{11(3)+3} - 2(3) = 0$$

$$\sqrt{33+3} - 6 = 0$$

$$\sqrt{36} - 6 = 0$$

$$6 - 6 \leq 0$$

3 is a solution

$$21. \sqrt{3x} = \sqrt{x+6}$$

$$(\sqrt{3x})^2 = (\sqrt{x+6})^2$$

$$3x = x + 6$$

$$2x = 6$$

$x = 3$ is a solution

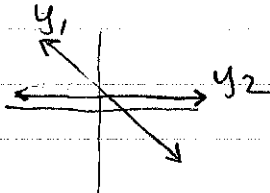
check: $\sqrt{3(3)} = \sqrt{3+6}$

$$\sqrt{9} = \sqrt{9}$$

$$3 \leq 3$$

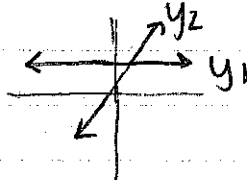
33a. $y_1 = \sqrt{5} - x$

$$y_2 = 1$$



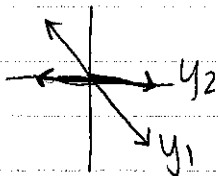
b. $y_1 = \sqrt{5}$

$$y_2 = x + 1$$



c. $y_1 = \sqrt{5} - x - 1$

$$y_2 = 0$$



they all intersect at the same x coordinate.
the linear equations have different y -intercepts

36. $\sqrt{2x-1} - 3 = 0$

$$(\sqrt{2x-1})^2 = (3)^2$$

$$2x - 1 = 9$$

$$2x = 10$$

$x = 5$ is a solution

check: $\sqrt{2(5)-1} - 3 = 0$

$$\sqrt{10-1} - 3 = 0$$

$$\sqrt{9} - 3 = 0$$

$$3 - 3 = 0$$

Answers for Lesson 7-5, pp. 388–390 Exercises

1. 16 2. 1 3. 22 4. 4
 5. 23 6. $\frac{2}{3}$ 7. 3, -13 8. 29, -25
 9. 18 10. 78 11. 8 12. 0
 13. 30.6 ft 14. 4 in. 15. 3 16. 1
 17. -3, -4 18. 9 19. 1 20. 1
 21. 3 22. -2 23. 1 24. 6
 25. 2 26. -2 27. 5 28. -3
 29. 5

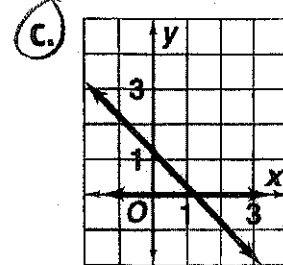
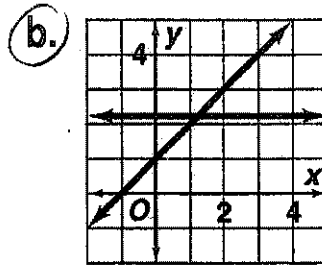
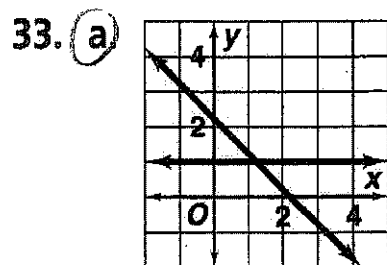
30. -2

31. $s = \sqrt{A}$; $4\sqrt{2}$ m, or about 5.7 m

32. a. $s = \frac{\sqrt{2\sqrt{3}A}}{3}$

b. about 8.8 in.

c. about 15.2 in.



d. The graph of each pair consists of two straight lines, one of which is horizontal. They intersect at different points, but these points have the same x -value, about 1.236.

34. 8 35. 4 36. 5 37. 23
 38. 1 39. $5.0625 \frac{81}{16}$ 40. 6.5 41. 9, -7
 42. $\frac{81}{16}$ 43. 9 44. 2 45. -1, -6
 46. 2 47. 7 48. 25 49. 10

51. $\frac{5}{4}$

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Answers for Lesson 7-5, pp. 388–390 Exercises (cont.)

50. -1 51. $\frac{5}{4}$ 52. $d = \frac{v^2}{64}$

53. Answers may vary. Sample: $\sqrt{x-3} = \sqrt{3x+5}$

54. 1 55. 2 56. 0

57. **Plan 1:** Use a calculator to evaluate $\sqrt{2} + 2$ and store the result as x . Evaluate $\sqrt{x+2}$ and store the result as x . Continue this procedure about seven times until it becomes clear that the values are approaching 2. **Plan 2:** The given equation is equivalent to $x = \sqrt{2+x}$. Solve this equation to find that $x = 2$.

58. a. A counterexample is $a = 3, b = -3$.

b. A counterexample is $a = -5, b = 3$.

59. 12 60. 79 61. $\frac{5}{4}$ 62. $\frac{1}{25}$

63. 27 64. 2 65. 16 66. 125

67. $6\sqrt{2}$ 68. $8\sqrt{5}$ 69. $3\sqrt[3]{2}$ 70. $\frac{1}{3}$

71. 128 72. 25 73. 2 74. $\frac{1}{10^6}$

75. 7 76. 210 77. 60 78. 1680

79. 24 80. 10 81. 21 82. 1

83. 6 84. 7 85. $3, 4$ 86. $3, 5$

87. $-5, -4$ 88. $-2, -\frac{2}{3}$ 89. $-\frac{1}{3}, -\frac{4}{3}$ 90. $-2, -\frac{3}{4}$