

**Concept and Vocabulary Check:**

1. The square root property states that if  $u^2 = d$ , then  $u = \underline{\hspace{2cm}}$ ,  $d > 0$ .
4. The distance,  $d$ , between the points  $(x_1, y_1)$  and  $(x_2, y_2)$  in the rectangular coordinate system is given by the formula  $d = \underline{\hspace{2cm}}$ .

**Practice Exercises:**

In exercises 1 - 39 odd, solve each quadratic equation using the square root property. Simplify radicals and rationalize denominators when necessary. Describe the solutions using set notation.

1.  $x^2 = 16$

9.  $5x^2 = 20$

3.  $y^2 = 81$

11.  $4y^2 = 49$

7.  $x^2 = 50$

13.  $2x^2 + 1 = 51$

$$17. 5z^2 - 7 = 0$$

$$29. (z - 4)^2 = 18$$

$$19. (x - 3)^2 = 16$$

$$33. x^2 - 6x + 9 = 36$$

$$23. (3x + 2)^2 = 9$$

$$37. x^2 + 2x + 1 = 5$$

$$27. (y + 8)^2 = 11$$

$$39. y^2 - 14y + 49 = 12$$

In exercises 41 - 47 odd, **FIRST DRAW THE TRIANGLE FROM THE BOOK** then use Pythagorean's Theorem to find the missing length of the triangle.

41.

43.

45.

In exercises 49 - 57 odd, find the distance between each pair of points. Express answers in simplified radical form and, if necessary, round to two decimal places.

49. (3, 5) and (4, 1)

53. (6, -1) and (9, 5)

51. (-4, 2) and (4, 17)

55. (-7, -5) and (-2, -1)

57.  $(-2\sqrt{7}, 10)$  and  $(4\sqrt{7}, 8)$

**Practice Plus:**

59. The square of the difference between a number and 3 is 25. Find the numbers.

**Applications:**

67. **COPY The important elements of the picture** from page 628. Use the Pythagorean Theorem to find the length of the ladder. Express your answer in radical form and simplify if possible.

69. A baseball diamond is actually a square with 90 foot sides. Draw a picture. What is the distance from home plate to second base?

71. If the area of a circle is  $36\pi$  square inches, find its radius.

79. A machine produces open boxes using square sheets of metal. The figure illustrates that the machine cuts equal-sized squares measuring 2 inches on a side from the corners and then shapes the metal into an open box by turning up the sides. If each box must have a volume of 200 cubic inches, find the size of the length and width of the open box. Begin by COPYING the figures from the book, page 628.