

**LESSON 13.6 Skills Practice**

Name \_\_\_\_\_ Date \_\_\_\_\_

**Could It Be Groovy to Be a Square?  
Approximating and Rewriting Radicals**

**Vocabulary**

Choose the word that best completes each statement.

square root	positive (principal) square root	radicand
negative square root	extract the square root	radical expression

1. When solving certain quadratic equations, it is necessary to \_\_\_\_\_ from both sides of the equation.
2. Every positive number has both a(n) \_\_\_\_\_ and a(n) \_\_\_\_\_.
3. The \_\_\_\_\_ is the expression enclosed within a radical symbol.
4. A number  $b$  is a(n) \_\_\_\_\_ of  $a$  if  $b^2 = a$ .
5. An expression involving a radical symbol is called a(n) \_\_\_\_\_.

**Problem Set**

Rewrite each radical by extracting all perfect squares.

1.  $\sqrt{25}$   
 $\sqrt{25} = \pm 5$
2.  $\sqrt{144}$
3.  $\sqrt{400}$
4.  $\sqrt{12}$
5.  $\sqrt{32}$
6.  $\sqrt{45}$

7.  $\sqrt{300}$

8.  $5\sqrt{54}$

Determine the approximate value of each radical expression to the nearest tenth.

9.  $\sqrt{7}$

$2.6^2 = 6.76$

$2.7^2 = 7.29$

$\sqrt{7} \approx 2.6$

10.  $\sqrt{37}$

11.  $\sqrt{96}$

12.  $\sqrt{27}$

13.  $\sqrt{109}$

14.  $\sqrt{405}$

Solve each quadratic equation. Approximate the roots to the nearest tenth.

15.  $x^2 = 40$

$x^2 = 40$

$\sqrt{x^2} = \pm\sqrt{40}$

$x = \pm\sqrt{40}$

$6.3^2 = 39.69$

$6.4^2 = 40.96$

$\sqrt{40} \approx \pm 6.3$

$x \approx \pm 6.3$

The roots are approximately 6.3 and  $-6.3$ .

16.  $m^2 = 68$

Name \_\_\_\_\_ Date \_\_\_\_\_

17.  $t^2 = 15$

18.  $x^2 = 83$

19.  $(x - 5)^2 = 22$

20.  $(x + 8)^2 = 29$

Solve each quadratic equation. Rewrite the roots in radical form.

21.  $x^2 = 48$

22.  $x^2 = 52$

$$x^2 = 48$$

$$\sqrt{x^2} = \pm\sqrt{48}$$

$$x = \pm\sqrt{48}$$

$$x = \pm\sqrt{16 \cdot 3}$$

$$x = \pm\sqrt{16} \cdot \sqrt{3}$$

$$x = \pm 4\sqrt{3}$$

The roots are  $4\sqrt{3}$  and  $-4\sqrt{3}$ .

23.  $x^2 = 27$

24.  $x^2 = 175$

25.  $(12 - x)^2 = 8$

26.  $(x + 20)^2 = 80$