

# 6.3

## Square Root Simplification

### • Example 1

Simplify.

(a)  $\sqrt{8}$

Since we are taking square roots, we factor the radicand in search of any perfect squares.

$$8 = 4 \times 2 = 2^2 \times 2$$

Next, we use the properties of like radicals and simplify.

$$\begin{aligned}\sqrt{8} &= \sqrt{2^2 \times 2} \\ &= \sqrt{2^2} \times \sqrt{2} \\ &= 2\sqrt{2}\end{aligned}$$

(b)  $\sqrt{24}$

$$24 = 4 \times 6 = 2^2 \times 6$$

$$\begin{aligned}\sqrt{24} &= \sqrt{2^2 \times 6} \\ &= \sqrt{2^2} \times \sqrt{6} \\ &= 2\sqrt{6}\end{aligned}$$

### • • • CHECK YOURSELF 1

Simplify.

1. a.  $\sqrt{18}$       b.  $2\sqrt{3}$

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### • • • CHECK YOURSELF ANSWER

1. (a)  $3\sqrt{2}$  ; (b)  $2\sqrt{3}$ .

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# 6.3 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_

Simplify.

1.  $\sqrt{75}$

2.  $\sqrt{50}$

3.  $\sqrt{32}$

4.  $\sqrt{45}$

5.  $\sqrt{500}$

6.  $\sqrt{96}$

7.  $\sqrt{20}$

8.  $\sqrt{63}$

9.  $\sqrt{288}$

10.  $\sqrt{54}$

11.  $\sqrt{80}$

12.  $\sqrt{162}$