LESSON 12.2

NAME _____ DATE _____

Reteaching with Practice

For use with pages 698–703

GOAL **Add, subtract, multiply, and divide radical expressions**

EXAMPLE 1 Adding and Subtracting Radicals

Simplify the expression $\sqrt{12} + \sqrt{3}$.

SOLUTION

$\sqrt{12} + \sqrt{3} = \sqrt{4 \cdot 3} + \sqrt{3}$ Perfect square factor

$= \sqrt{4} \cdot \sqrt{3} + \sqrt{3}$ Use product property.

$= 2\sqrt{3} + \sqrt{3}$ Simplify.

$= 3\sqrt{3}$ Add radicals having same radicand.

Exercises for Example 1

Simplify the expression.

1. $\sqrt{7} + 3\sqrt{7}$ **2.** $\sqrt{8} - \sqrt{2}$ **3.** $\sqrt{48} + \sqrt{3}$

EXAMPLE 2 Multiplying Radicals

Simplify the expression.

a. $\sqrt{3} \cdot \sqrt{12}$ **b.** $\sqrt{5}(\sqrt{2} + \sqrt{3})$

SOLUTION

a. $\sqrt{3} \cdot \sqrt{12} = \sqrt{36}$ Use product property.

$= 6$ Simplify.

b. $\sqrt{5}(\sqrt{2} + \sqrt{3}) = \sqrt{5} \cdot \sqrt{2} + \sqrt{5} \cdot \sqrt{3}$ Use distributive property.

$= \sqrt{10} + \sqrt{15}$ Use product property.

Exercises for Example 2

Simplify the expression.

5. $\sqrt{3} \cdot \sqrt{6}$ **6.** $\sqrt{10}(2 + \sqrt{2})$