

## Section 7.2: Simplifying Radical Expressions

## Objectives:

- ✦ Use the Product and Quotient Rules for Radicals to simplify radical expressions.
- ✦ Use rationalization techniques to simplify radical expressions.
- ✦ Use the Pythagorean Theorem in application problems.

$$\sqrt{64x^3}$$

$$\sqrt{648}$$

$$\sqrt[3]{(-64)x^2y^5}$$

$$\sqrt[3]{24x^3y^5}$$

## ① EXAMPLE

Simplify these rational expressions.

$$a) \sqrt{75}$$

$$b) \sqrt{162}$$

$$c) \sqrt{72x^3y^2}$$

$$d) \sqrt{0.0027}$$

## ② EXAMPLE

Simplify these rational expressions.

a)  $\sqrt{18x^4}$

b)  $\sqrt[3]{81}$

c)  $\sqrt[5]{486x^7}$

d)  $\sqrt{\frac{18x^2}{w^6}}$

e)  $\sqrt[5]{128u^4v^7}$

## ③ EXAMPLE

Rationalize the denominator.

a)  $\sqrt{\frac{1}{3}}$

b)  $\sqrt{\frac{4}{x^3}}$

c)  $\frac{10}{\sqrt[3]{6}}$

d)  $\sqrt[3]{\frac{9}{25}}$

$$e) \sqrt[3]{\frac{20x^2}{9y^4}}$$

$$f) \frac{5}{\sqrt{8x^5}}$$