## Chapter 10 - Radical Expressions & Triangles

Alg 1

# 10-2 Simplifying Radical Expressions

**Radical Expression :** _____

**Radicand :** _____

**Simplest form :** _____

### Product Property of Square Roots

$$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$$

Example: $\sqrt{4 \cdot 25} = \sqrt{4} \cdot \sqrt{25}$

**Example 1 - Simplify Square Roots**

a. $\sqrt{12}$

c. $\sqrt{52}$

b. $\sqrt{90}$

d. $\sqrt{72}$

## Example 2 : Multiplying Square Roots

Find $\sqrt{3} \cdot \sqrt{15}$

Find $\sqrt{2} \cdot \sqrt{24}$

## Example 3 : Simplify a Square Root with Variables

-simplify the numbers
-simplify the variables

Simplify $\sqrt{40x^4y^5z^3}$

Simplify $\sqrt{45a^4b^5c^6}$

## Quotient Property of Square Roots

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

Example $\sqrt{\frac{49}{4}} = \frac{\sqrt{49}}{\sqrt{4}}$

**NEVER LEAVE A RADICAL IN THE DENOMINATOR!!!!!!**

**Example : Rationalizing the Denominator**

Simplify $\frac{\sqrt{10}}{\sqrt{3}}$

$$\frac{\sqrt{12}}{\sqrt{5}}$$

$$\frac{\sqrt{2}}{\sqrt{6}}$$

$$\frac{\sqrt{11y}}{\sqrt{27}}$$

$$\frac{\sqrt{3}}{\sqrt{8}}$$

**Example : Use conjugates to Rationalize the Denominator**

$$\frac{2}{6-\sqrt{3}}$$

$$\frac{3}{5-\sqrt{2}}$$