11.2: Simplifying Radicals

Goals: *****Simplify radicals using the product property
*****Multiply radicals
*****Simplify radicals using the quotient property
*****Rationalize the denominator

Radicals are simplest form when:

1.

Ex: (Not Simplified) **Ex: (Simplified)**

2.

3.

Properties of Radicals

Product Property:

Quotient Property:

Simplify:

Ex: $\sqrt{32}$ **Ex:** $\sqrt{9x^2}$ **Ex:** $\sqrt{24}$

Ex: $\sqrt{25x^2}$

Ex: $\sqrt{48}$

Ex: $\sqrt{36x^4}$

Ex: $\sqrt{25x^3}$

Ex: $\sqrt{6} \cdot \sqrt{6}$

Ex: $\sqrt{3} \cdot \sqrt{6}$

Ex: $\sqrt{3x} \cdot 4\sqrt{x}$

Ex: $\sqrt{7xy^2} \cdot 3\sqrt{x}$

Ex: $\sqrt{7} \cdot \sqrt{7}$

Ex: $3\sqrt{b} \cdot \sqrt{2b^3}$

Ex: $2\sqrt{mn^2} \cdot \sqrt{5m^2}$

Ex: $\sqrt{8y^7}$

Simplify:

Ex: $\sqrt{\frac{16}{25}}$

Ex: $\sqrt{\frac{13}{100}}$

Ex: $\sqrt{\frac{1}{y^2}}$

Ex: $\sqrt{\frac{5}{49}}$

Ex: $\sqrt{\frac{11}{d^4}}$

Rationalizing the denominator:

Ex: $\frac{5}{\sqrt{7}}$

Ex: $\frac{\sqrt{2}}{\sqrt{3b}}$

Ex: $\frac{1}{\sqrt{3}}$

Ex: $\frac{1}{\sqrt{x}}$

Ex: $\frac{3}{\sqrt{2x}}$

Ex: $\frac{7}{\sqrt{6}}$

Ex: $\frac{\sqrt{3}}{\sqrt{5a}}$