Simplifying Radical Expressions

Product Property

- Break #'s down into "Perfect" Square Factors (1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144)

$\sqrt{80}$
$\sqrt{16 \cdot 5}$
$\sqrt{16} \cdot \sqrt{5}$
$4\sqrt{5}$

$\sqrt{50}$
$\sqrt{25 \cdot 2}$
$\sqrt{25} \cdot \sqrt{2}$
$5\sqrt{2}$

$\sqrt{48}$
$\sqrt{4 \cdot 12}$
$\sqrt{4} \cdot \sqrt{12}$
$2\sqrt{12}$
$2\sqrt{4 \cdot 3}$
$2 \cdot \sqrt{4} \cdot \sqrt{3}$
$2 \cdot 2 \cdot \sqrt{3}$
$4\sqrt{3}$

I guess 4 was <u>not</u> the biggest

Quotient Property

$$\sqrt{\frac{16}{25}} = \frac{\sqrt{16}}{\sqrt{25}} = \frac{4}{5}$$

$$\sqrt{\frac{24}{6}} = \sqrt{\frac{4}{1}} = \frac{\sqrt{4}}{\sqrt{1}} = \frac{2}{1} = 2$$

Combined

$\sqrt{48a^2b}$
$\sqrt{48} \cdot \sqrt{a^2} \cdot \sqrt{b}$
$\sqrt{16 \cdot 3} \cdot \sqrt{a^2} \cdot \sqrt{b}$
$4\sqrt{3} \cdot a \cdot \sqrt{b}$
$= 4a\sqrt{3b}$

$$\sqrt{\frac{x^3}{81y^4}} = \frac{\sqrt{x^3}}{\sqrt{81}\sqrt{y^4}} = \frac{x\sqrt{x}}{9y^2}$$

Assignment: Practice B Worksheet