Property — **Dividing Radical Expressions**

If $\sqrt[n]{a}$ and $\sqrt[n]{b}$ are real numbers and $b \neq 0$, then $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$.

They must have the same index

$$\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}.$$

You can do the roots first then simplify the fraction

OR

You can reduce the fraction first then do the root.

Simplify. Assume that all variables are positive.

$$\frac{\sqrt{24x^5y^{13}}}{\sqrt{3xy^4}} = \sqrt{\frac{24x^5y^{13}}{3xy^4}}$$

Since I don't see perfect squares under the radicals I'll reduce the fraction first then do the square root.

$$= \sqrt{8x^4y^9}$$

$8 = 4 \cdot 2$

$$= 2x^2y^4\sqrt{2y}$$

Simplify. Assume that all variables are positive.

$$\sqrt{\frac{36d}{16d^8}} = \frac{\sqrt{36d}}{\sqrt{16d^8}}$$

Since I see perfect squares under the radicals I'll do the square roots first then reduce the fraction.

$$= \frac{6\sqrt{d}}{4d^4}$$

$$= \frac{3\sqrt{d}}{2d^4}$$

Simplify. Assume that all variables are positive.

$$\frac{\sqrt{48x^9y^8}}{\sqrt{2x^6y^3}} = \sqrt{\frac{48x^9y^8}{2x^6y^3}}$$

Since I don't see perfect squares under the radicals I'll reduce the fraction first then do the square root.

$$= \sqrt{24x^3y^5}$$

$24 = 4 \cdot 6$

$$= 2xy^2\sqrt{6xy}$$

Simplify. Assume that all variables are positive.

$$\sqrt[3]{\frac{64m^4n^{12}}{125a^9b^{24}}} = \frac{\sqrt[3]{64m^4n^{12}}}{\sqrt[3]{125a^9b^{24}}}$$

Since I see perfect cubes under the radicals I'll do the cube roots first then reduce the fraction.

$$= \frac{4mn^4\sqrt[3]{m}}{5a^3b^8}$$

Simplify. Assume that all variables are positive.

$$\frac{\sqrt[3]{5a^7b^2}}{\sqrt[3]{40a^2b^{11}}} = \sqrt[3]{\frac{a^5}{8b^9}}$$

Since I don't see perfect cubes under the radicals I'll reduce the fraction first then do the cube root.

$$= \frac{a\sqrt[3]{a^2}}{2b^3}$$

You can now finish Hwk #34

Sec 7-2 **Due Monday**

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Problems 14-16, 19, 21, 25, 26, 44, 45