	M	ltir	dvi	na	an	4 C)iv/i	din	a [220	lica	Jc.					
	Tuesda	ILIL ıy, Apri) 1 y 1 12, 20	11 9	2:35 P		ועוע	uII	ıg r	tac	IICa	115					

Multiplying and Dividing Radicals

This is very similar to how you would treat x and y. x^2 and x^3 . We look for things the same...

$$2x+x=3x$$
 but $2x+y=2 \times 4y$
 $x^{2}(x)=y^{3}$ but $x^{2}(y)=y^{2}$

Let's do this but with radicals instead of x,y.



$$2\sqrt{3} \cdot 4\sqrt{6}$$

Here are the steps that we always want to follow:

- Simplify
- 2. Multiply

$$\Rightarrow a\sqrt{b} \cdot c\sqrt{d} = ac\sqrt{bd}$$

- 3. Simplify
 - > Nothing can come out of the radical.
 - ➤ No radicals in the denominator.

$$3\sqrt{5} \cdot 2\sqrt{72}$$

$$3(2)\sqrt{5(72)} \rightarrow 6\sqrt{360} \rightarrow 6\sqrt{36(10)}$$

$$2\sqrt{36\sqrt{10}}$$

$$3\sqrt[3]{2x} \cdot 7\sqrt[3]{5x^{2}}$$

$$2\sqrt[3]{9} \times (5x^{2})$$

$$2\sqrt[3]{9} \times (5x^{2})$$

$$2\sqrt[3]{9} \times (5x^{2})$$

$$= \sqrt[3]{2 \cdot 7 \cdot 2}$$

$$= \sqrt[3]{2 \cdot 7 \cdot 2}$$

$$= \sqrt[3]{2 \cdot 7 \cdot 2}$$

$$2\sqrt{6}(\sqrt{5} - 2\sqrt{10})$$

$$2\sqrt{6}(5) - 2(2)\sqrt{6(10)}$$

$$2\sqrt{3}0 - 4\sqrt{60}$$

$$4\sqrt{60}$$

$$6\sqrt{60}$$

Dividing radicals works the same way. We can follow the same steps as above. Just divide instead.

$$\frac{2\sqrt{20}}{8\sqrt{5}} = \frac{1}{4}\sqrt{\frac{20}{5}} = \frac{1}{4}\sqrt{\frac{4}{5}}$$

$$= \frac{2}{4} = \frac{1}{2}$$

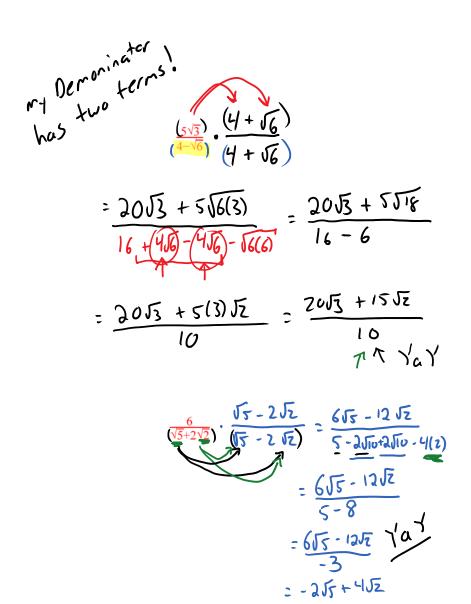
$$\frac{\sqrt{24x^2}}{\sqrt{3x}} = \sqrt{\frac{24x^2}{3x}} = \sqrt{8x} = 2\sqrt{2x}$$

If we get a radical in the denominator, we have to ditch that Rationalize the denominator:

$$\sqrt{15}$$
 = .6455 \neq 1.441
 $\frac{5}{2\sqrt{3}}$. $\frac{5}{\sqrt{3}}$ = $\frac{5\sqrt{3}}{2(3)}$ = $\frac{5\sqrt{3}}{6}$

If there is more than just one term in the denominator, we need to bring out the **conjugate!**

Example:



HW: pg 289 #1abcd,2,3,4,5ab,6,8ab,9ab,10