6.3 Simplifying Radicals using Distributive Property
a. I can define like radicals.
b. I can use the Distributive Property to add and subtract radical expressions

p. 10-11	Simplifying Radicals w/Distribution	6.3

Warm-up: Fill in the blanks

p. 10

a (b + c) = $a \cdot b$ **+** $a \cdot c$

Then simplify...

1. $2x(3x + 7)$

$6x^2 + 14x$

2. $4(8x - 2y)$

$32x - 8y$

We have discussed how to multiply radicals...

Product Rule $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{a \cdot b}$

In order to simplify radical expressions by distributing, we must also know how to add and subtract radicals...

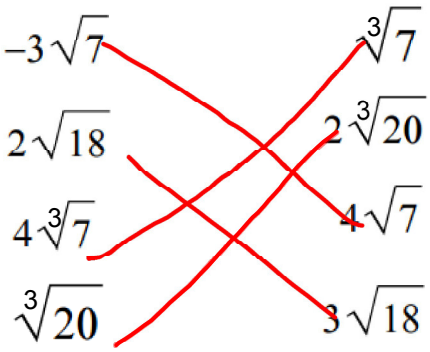
Adding/Subtracting Radicals

p. 10

You can only combine Like Radicals.

Like Radicals have exactly the same index # and radicand, but may have different coefficients.

Practice: Draw a line to match the like radicals



Adding/Subtracting Radicals

p. 10

Combine like radicals as you would other like terms:

- Combine the coefficients.
- Keep the same radical ending

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1) $2\sqrt{5} + 7\sqrt{5} - 3\sqrt{6}$

$9\sqrt{5} - 3\sqrt{6}$

2) $-10\sqrt[3]{2} - 10\sqrt[3]{7} + 1\sqrt[3]{2}$

$-9\sqrt[3]{2} - 10\sqrt[3]{7}$

Let's put it all together... p. 10

Simplify by Distributing

Step 1 - Write as the sum of two products

Step 2 - Simplify the products, if necessary

Step 3 - Combine Like Radicals, if necessary

3) $3\sqrt{5}(\sqrt{2}+2\sqrt{8})$

$3\sqrt{5\cdot 2}+3\cdot 2\sqrt{5\cdot 8}$

$3\sqrt{10}+3\cdot 2\cdot 2\sqrt{10}$

$3\sqrt{10}+12\sqrt{10}$

$15\sqrt{10}$

Simplify the following by Distributing p. 11

4) $3\sqrt{10}(\sqrt{2}+5\sqrt{8})$

$3\sqrt{10\cdot 2}+15\sqrt{10\cdot 8}$

$3\cdot 2\sqrt{5}+15\cdot 2\cdot 2\sqrt{5}$

$6\sqrt{5}+60\sqrt{5}$

$66\sqrt{5}$

Simplify the following by Distributing p. 11

5) $-10\sqrt{5}\left(\sqrt{15}+\sqrt{10}\right)$

$-10\sqrt{5\cdot 15}$ $-10\sqrt{5\cdot 10}$

$5\cdot 3$ $5\cdot 2$

$-10\cdot 5\sqrt{3}-10\cdot 5\sqrt{2}$

$-50\sqrt{3}-50\sqrt{2}$

Simplify the following by Distributing p. 11

6) $-3\sqrt{7}\left(5\sqrt{7}+\sqrt{6}\right)$

Homework

Complete problems #1-4 by tomorrow

#5 - 16 will be completed during class tomorrow

Short Quiz on Thursday