Factor $(5x - 7y)^2 - 25$ completely.

Simplify the radical expression: $\sqrt{\dfrac{8}{50}}$

Check In!!!

If you are the only child, would you rather have a brother or a sister?

If you have siblings, do you prefer having a brother or a sister?

Radicals
Add/Sub and Mult.

There are three important rules when adding and subtracting radicals.

Rule #1 - When adding or subtracting two radicals, you must **simplify the radicands first**.

What is the radicand of: $3\sqrt{5}$

Look at $\sqrt{180} + 7\sqrt{20}$.

What do you notice about the expression?

Let's Take: $\sqrt{180} + 7\sqrt{20}$

In order to add these radicals, you must simplify each radical if it can be simplified.

Simplify $\sqrt{180}$:

Then simplify $7\sqrt{20}$:

Rewrite the expression as simplified radicals:

Rule #2 - In order to add or subtract two radicals, they must have the **same radicand**.

This is similar to saying that the two radicals must be "like terms".

$$\sqrt{180} + 7\sqrt{20} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

Do they have the same radicand?

If they do, then simply add the coefficients and leave the radical.

If there are no common radicands, then it is simpified.

Can these radicals be added/subtracted?

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

$$4\sqrt{5} - \sqrt{5}$$

$$22\sqrt{7} - 22\sqrt{6}$$

$$10\sqrt{11} + 24\sqrt{11}$$

Rule #3: When adding or subtracting, you only add the coefficients. The radicands stay the same.

$$4\sqrt{7} + 10\sqrt{7} = (4 + 10)\sqrt{7} = 14\sqrt{7}$$

Notice: The radicand stays 7!

Simplify the following:

a) $17\sqrt{8} + 5\sqrt{44}$

b) $20\sqrt{3} - 4\sqrt{27}$
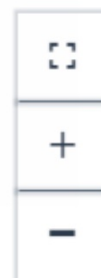
c) $2\sqrt{15} + 7\sqrt{15}$

RECAP: RULES

The Rules for Adding and Subtracting Radicals

Rule #1 - When adding or subtracting two radicals, you must *simplify the radicands first*.

Rule #2 - In order to add or subtract two radicals, they must have the *same radicand*.

Rule #3 - When adding or subtracting two radicals, *you only add the coefficients*. The radicand remains the same.

Simplify.

a) $10\sqrt{19} - 7\sqrt{17}$

b) $8\sqrt{7} - 12\sqrt{7}$

c) $3\sqrt{6} + 5\sqrt{24}$

YOUR TURN:

$$\sqrt{45} + \sqrt{20} + \sqrt{5} - \sqrt{125}$$

$$\sqrt{48} - \sqrt{3} + \sqrt{75}$$

The __distributive property__ applies to radicals as it does to any other quantity.

Simplify:

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

$3\sqrt{2}(9\sqrt{2}-7)$

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

$(2-\sqrt{5})(3\sqrt{3}-\sqrt{10})$

Review Rationalizing Denominator:

a) $\dfrac{\sqrt{2x}}{\sqrt{4y}}$

b) $\dfrac{\sqrt{8x^3}}{\sqrt{2x^5}}$

ACTIVITY TIME

1. First, go to this website and play the game:
https://www.quia.com/rr/628289.html
(When you beat the game, let me know!)

2. Once you're finished, please go to the Material station and pick up the next activity (Row Game). Pick a partner and start working immediately.

3. Start working on the HW.

Exit Ticket

1) $\sqrt{125n}$

2) ~~$\sqrt{216v}$~~

#2. -(8x)⁰

3) $\sqrt{512k^2}$

4) ~~$\sqrt{512m^3}$~~

#4. (4y²)³