

Warm Up

$$1) \quad x^2 - 9x = -14$$

$$x^2 - 9x + 14 = 0$$

$$(x-2)(x-7) = 0$$

$$x-2=0$$

$$+2 \quad +2$$

$$x=2$$

$$x-7=0$$

$$+7 \quad +7$$

$$x=7$$

$$\begin{array}{r} 14 \\ \cdot \\ -2 \quad -7 \\ + \\ -9 \end{array}$$

$$2) \quad x^2 + 8x = 65$$

$$x^2 + 8x - 65 = 0$$

$$(x+13)(x-5) = 0$$

$$x+13=0$$

$$-13 \quad -13$$

$$x-5=0$$

$$+5 \quad +5$$

$$x=-13$$

$$x=5$$

$$\begin{array}{r} -65 \\ \cdot \\ 13 \quad -5 \\ + \\ 8 \end{array}$$

Homework Questions?

Self Scoring Scale

4- I can *summarize* the concepts and explain it to others.

3- I can *apply* the concepts to answer questions correctly.

2- I can *apply* the concepts but with some *mistakes*.

1- I *need help* to know how to apply the concepts.

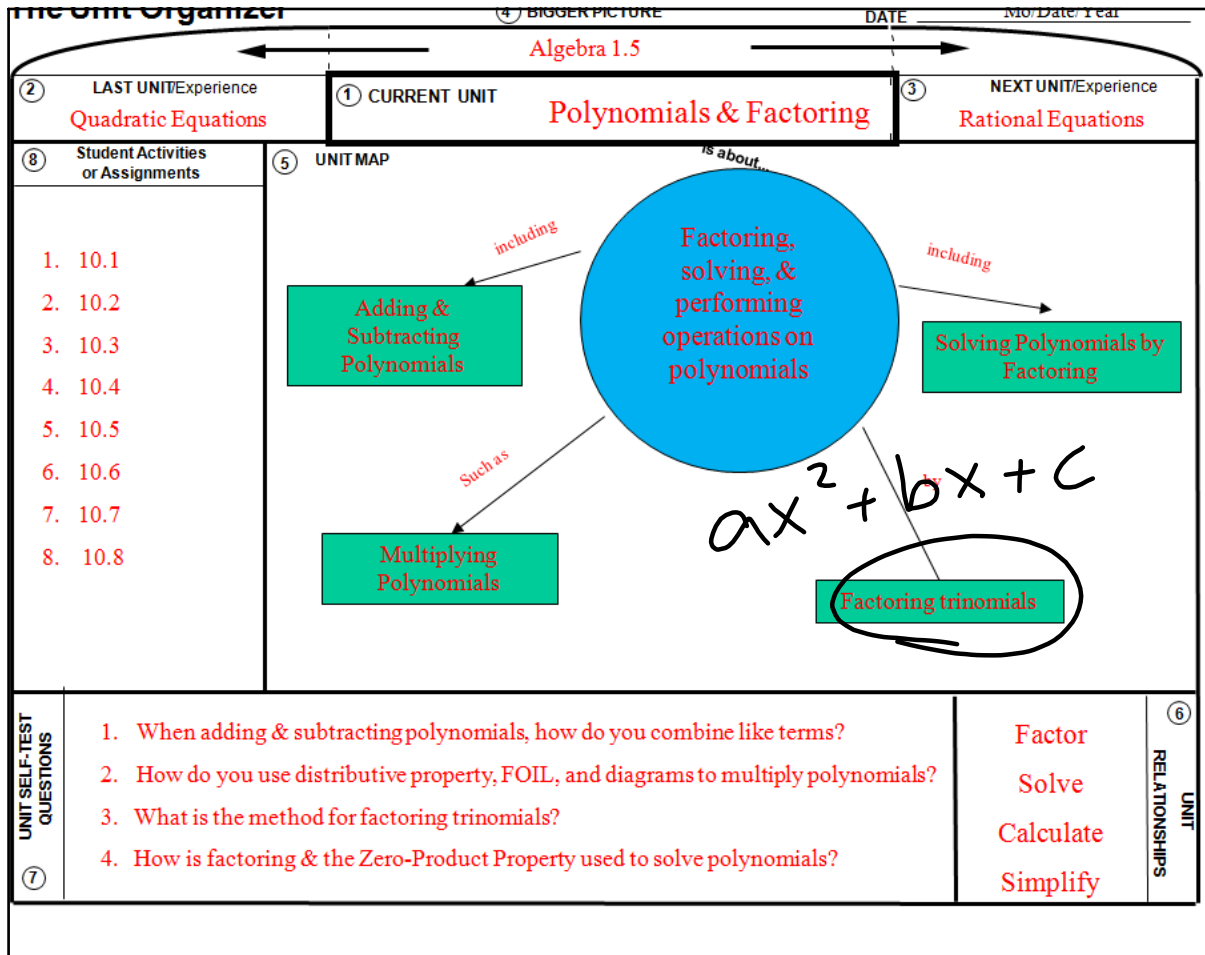
0- I *can't* apply the concepts even with help.

10.6 Factoring $ax^2 + bx + c$

Goals:

- Factor trinomials of the form $ax^2 + bx + c$

EQ: How do you factor $2x^2 + 11x + 5$?



Example 1: Factor When a and c Are Prime Numbers

Factor $3x^2 + 22x + 7$.

$1, 3 = 1, 7 \leftarrow \# \text{ by itself}$

w/ "x" term

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

$3x$

$7x$

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

$21x$

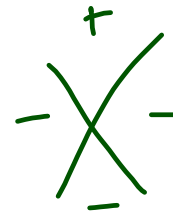
$1x$

✓

Example 2: Factor When a and c Are Not Prime Numbers

Factor $4x^2 - 20x + 9$.

$$\begin{array}{l} 1,4 \\ 2,2 \end{array} = \begin{array}{l} 1,9 \\ 3,3 \end{array}$$



$$(2x - 1)(2x - 9) \quad \checkmark$$

$\underbrace{\hspace{10em}}_{-2x}$
 $\underbrace{\hspace{10em}}_{-18x}$

$$4x^2 - 20x + 9 = (2x - 1)(2x - 9)$$

Try It

1) $7x^2 + 12x + 5$
 $\begin{array}{l} 1,7 \\ 1,5 \end{array}$

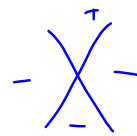
$$(1x + 5)(7x + 1)$$

$\underbrace{\hspace{10em}}_{35x}$
 $\underbrace{\hspace{10em}}_{7x}$

$$(1x + 1)(7x + 5) \quad \checkmark \quad \boxed{(x+1)(7x+5)}$$

$\underbrace{\hspace{10em}}_{7x}$
 $\underbrace{\hspace{10em}}_{5x}$

2) $15x^2 - 13x + 2$
 $\begin{array}{l} 1,15 \\ 3,5 \end{array} \quad \begin{array}{l} 1,2 \end{array}$



$$(1x - 1)(15x - 2)$$

$\underbrace{\hspace{10em}}_{-15x}$
 $\underbrace{\hspace{10em}}_{-2x}$

$$(1x - 2)(15x - 1)$$

$\underbrace{\hspace{10em}}_{-30x}$
 $\underbrace{\hspace{10em}}_{-1x}$

$$(5x - 1)(3x - 2) \quad \checkmark$$

$\underbrace{\hspace{10em}}_{-3x}$
 $\underbrace{\hspace{10em}}_{-10x}$

Summary

EQ: How do you factor $2x^2 + 11x + 5$?

$$1, 2 \quad = \quad 1, 5$$

$$(1x + 1)(2x + 5)$$

Handwritten annotations: blue arcs under $1x$ and $2x$ with labels $2x$ and $5x$ below them.

$$(1x + 5)(2x + 1)$$

Handwritten annotations: a yellow oval around the entire expression, a purple arc under $1x$ and $2x$ with labels $10x$ and $1x$ below them.

$$(x + 5)(2x + 1)$$

Handwritten annotation: a blue box around the expression with a purple arrow pointing to it from the left.

10.6 Day 1 Homework

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(SKIP #29, 30)