What's Going On?

Checking In Yesterday's Assignment

Minds on Multiplying Two Binomials

Action! **FOIL**ed by The **Grid**

Consolidation Kicking it Up Some Notches?

Learning Goal - I will be able to perform simple operations with polynomials.

Yesterday's "Assignment"

I am going to post the solutions to the assignment I left for you yesterday.

Please CIRCLE your mistakes and explain to yourself what you did wrong.

I forgot...
I accidentally...

1. Evaluate $-3x^2 - 2xy + 4y^2 - xy^3$ for $x = 3$ and $y = -1$.

$$= -3(3)^2 - 2(3)(-1) + 4(-1)^2 - (3)(-1)^3$$

$$= -3(9) - 2(-3) + 4(1) - 3(-1)$$

$$= -27 + 6 + 4 + 3$$

$$= -14$$

$$2. \text{Simplify} \frac{100x^2y^5z^3}{-25xy^5z}$$

We don't
need to
write
exponents
of 1.

$$= -4x^{2-1}y^{5-5}z^{3-1}$$

Anything to the
exponent zero is
just 1!
(So... it disappears!)

$$= -4x^1y^0z^2$$

$$= -4xz^2$$

3. Simplify $-2a(a + 3ab - b^2) + 6b(2a - ab + b)$

3. Simplify $-2a(a + 3ab - b^2) + 6b(2a - ab + b)$

$$= -2a^2 - 6a^2b + 2ab^2 + 12ab - 6ab^2 + 6b^2$$

like terms!

$$= -2a^2 - 6a^2b - 4ab^2 + 12ab + 6b^2$$

Minds on

Multiplying two Binomials

Expand and Simplify.

$$(x + 4)(x + 3) = x^2 + 7x + 12$$

Minds on

Multiplying two Binomials

Expand and Simplify.

$$(x - 3)(x + 5) = x^2 + 2x - 15$$

Minds on

Multiplying two Binomials

Expand and Simplify.

$$(x - 6)(x - 5) = x^2 - 11x + 30$$

Minds on

Multiplying two Binomials

What's the Pattern?

$$(x + 4)(x + 3) = x^2 + 7x + 12$$

$$(x - 3)(x + 5) = x^2 + 2x - 15$$

$$(x - 6)(x - 5) = x^2 - 11x + 30$$

Multiply the first value in each set of brackets together.

Multiply the first value in the first set of brackets by the second value in the second set of brackets.

Multiply the second value in the first set of brackets by the first value in the second set of brackets.

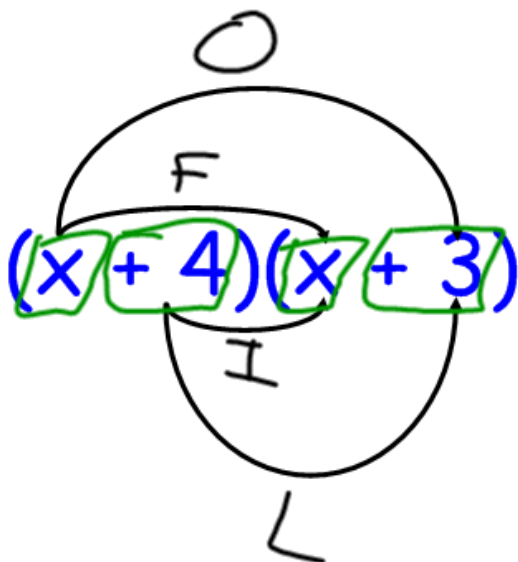Multiply the last value in each set of brackets together.

$$(x)(x) + (x)(3) + (4)(x)$$
$$+ (4)(3)$$

$$= x^2 + 3x + 4x + 12$$

$$= x^2 + 7x + 12$$

Action!

FOIL ed!!!

$$(x + 4)(x + 3)$$

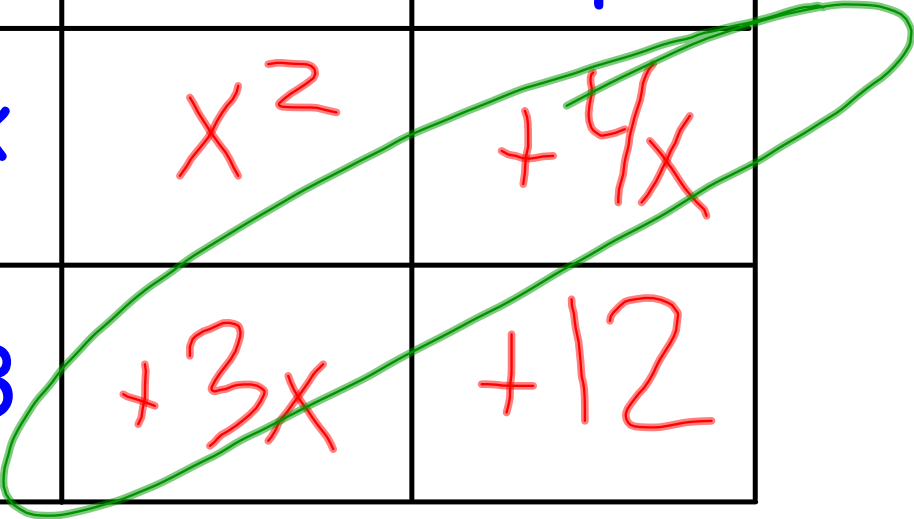**F**irst
Outside
Inside
Last

Action!

$$(x + 4)(x + 3)$$

$$\begin{array}{cccc} \mathbf{F} & \mathbf{O} & \mathbf{I} & \mathbf{L} \end{array}$$

$$= (x)(x) + (x)(+3) + (+4)(x) + (+4)(+3)$$

$$= x^2 + 3x + 4x + 12$$

$$= x^2 + 7x + 12$$

Action!

by The Grid

$$(x + 4)(x + 3)$$

	x	$+4$
x	x^2	$+4x$
$+3$	$+3x$	$+12$

Action!

Multiplying two Binomials

Using FOIL

1. Multiply the **first** term of each polynomial together.

2. Multiply the **outside** term of each polynomial together.

3. Multiply the **inside** term in each of each polynomial together.

4. Multiply the **last** term of each polynomial together.

5. Collect like terms and simplify.

Action!

Multiplying two Binomials

Using The Grid Method

1. Place both terms from the first polynomial along the top of the grid.

2. Place both terms from the second polynomial along the side of the grid.

3. Where each row and column meet, multiply the terms together.

4. Collect like terms and simplify.

Trying it Out

Pg. 131 #1

a) (x + 1)(x + 5)

e) (x - 4)(x - 3)

i) (x - 6)(x + 3)

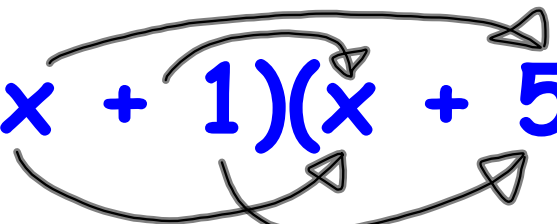Try each question (**by yourself**) *then* check with a partner.

Use FOIL or the Grid

Action!

Trying it Out

FOIL

a) $(x + 1)(x + 5)$

$$= (x)(x) + (x)(5) + (1)(x) + (1)(5)$$

$$= x^2 + 6x + 5$$

Action!

Trying it Out

a) $(x + 1)(x + 5)$

The Grid

	x	+ 1
x	x^2	x
+5	5x	5

$$= x^2 + 6x + 5$$

Action!

Trying it Out

FOIL

e) (x - 4)(x - 3)

$$= x^2 - 3x - 4x + 12$$

$$= x^2 - 7x + 12$$

Action!

Trying it Out

e) (x - 4)(x - 3)

The Grid

	x	-4
x	x^2	$-4x$
-3	$-3x$	$+12$

$$= x^2 - 7x + 12$$

Action!

Trying it Out   **FOIL**

i) (x - 6)(x + 3)

$$= x^2 + 3x - 6x - 18$$

$$= x^2 - 3x - 18$$

Action!

Trying it Out

i) (x - 6)(x + 3)

The Grid

	x	-6
x	x^2	$-6x$
$+3$	$+3x$	-18

$$= x^2 - 3x - 18$$

Not 100% yet?

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$$(8-x)(3+x)$$

$$= 24 + 8x - 3x - x^2$$

$$= 24 + 5x - x^2$$

$$= -x^2 + 5x + 24$$

Consolidation

Kicking it Up a Notch?

$(4x - 3)(7 - 9x)$

$$= 28x - 36x^2 - 21 + 27x$$

$$= -36x^2 + 28x + 27x - 21$$

$$= -36x^2 + 55x - 21$$

The terms are in descending order of x.

Using FOIL

1. Multiply the **first** term of each polynomial together.

2. Multiply the **outside** term of each polynomial together.

3. Multiply the **inside** term in each of each polynomial together.

4. Multiply the **last** term of each polynomial together.

5. Collect like terms and simplify.

Consolidation

Kicking it Up a Notch?

$(4x - 3)(7 - 9x)$

$$= -36x^2 + 55x - 21$$

Using The Grid Method

1. Place both terms from the first polynomial along the top of the grid.

2. Place both terms from the second polynomial along the side of the grid.

3. Where each row and column meet, multiply the terms together.

4. Collect like terms and simplify.

Need more Practice?

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Consolidation

Kicking it Up Another Notch?

$$-2(3x + 6)(-2x - 3)$$

$$= -2\left[-6x^2 - 9x - 12x - 18\right]$$
like!

$$= -2\left[-6x^2 - 21x - 18\right]$$

$$= 12x^2 + 42x + 36$$

Using FOIL

1. Multiply the **first** term of each polynomial together.

2. Multiply the **outside** term of each polynomial together.

3. Multiply the **inside** term in each of each polynomial together.

4. Multiply the **last** term of each polynomial together.

5. Collect like terms and simplify.

6. Multiply **each term** of the **new trinomial** by the constant!

Consolidation

Kicking it Up Another Notch?

Using The Grid Method

-2(3x + 6)(-2x - 3)

1. Place both terms from the first polynomial along the top of the grid.

2. Place both terms from the second polynomial along the side of the grid.

3. Where each row and column meet, multiply the terms together.

4. Multiply each term in the grid by the constant.

5. Collect like terms and simplify.

$$= -2(-6x^2 - 21x - 18)$$
$$= 12x^2 + 42x + 36$$

You should do these...

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...definitely do these ones:
(c,f,g,h)

Consolidation

Kicking it Up **<u>One Final</u>** Notch?

$$8(2x + 5)(x - 3) - 3(4x - 3)(7 - x)$$

-split into two parts. repeat the process from previous slide

like

$$= 8(2x^2 - 6x + 5x - 15)$$

$$-3(28x - 4x^2 - 21 + 3x)$$

like

$$= 8(2x^2 - x - 15) - 3(31x - 4x^2 - 21)$$

$$= 16x^2 - 8x - 120 - 93x + 12x^2 + 63$$

$$= 28x^2 - 101x - 57$$

You should do these...

Page 137 #5

...definitely do these ones:
(c,f,g,h)

Consolidation

Homework

Pg. 137

1-3 (at your discretion)

4,5 (at least c, f, g, h)

8 (check your answers)

11 (test worthy)

reassigned to Monday