Howdy!!!!

Coach Watson

FOA

Find your seat

*Pencil

List all the possibilities to multiply to 80:

1, 80
2, 40

4, 20
5, 16
8, 10

What are ways to get the following:

$2x^2$ $3x^2$ $5x^2$ $8x^2$

$2x \cdot x$ $3x \cdot x$ $5x \cdot x$ $4x \cdot 2x$

$8x \cdot x$

Algebra 1 Unit 7: Quadratic Expressions Notes

g. $x^2 + 17x + 70$

$(x + 10)(x + 7)$ $7x$ $10x$ $17x$

$(x \quad 35)(x \quad 2)$

$(x \quad 70)(x \quad 1)$

h. $4x^2 + 32x + 28$

$4(x^2 + 8x + 7)$

$4(x + 7)(x + 1)$

i. $x^2 + 12x + 36$

$(x + 6)(x + 6)$ $6x$ $6x$ $12x$

j. $5x^2 + 32x + 35$

$(5x + 7)(x + 5)$ $25x$ $7x$ $32x$

k. CHALLENGE: $10x^2 + 21x + 8$

$(5x + 8)(2x + 1)$ $5x$ $16x$ $21x$

l. CHALLENGE: $4x^2 + 12x + 5$

Algebra 1 Unit7: Quadratic Expression Practice

Day 5 – Factor Trinomials (+, +) **Name:** _____

Practice Assignment **Date:** _____ **Block:** _____

Review: **Subtract** $(5x^2 - 3x + 2) - (8x^2 + 4x - 1)$

Factor the expressions:

1. $x^2 + 16x + 64$

2. $3x^2 + 19x + 6$

3. $2x^2 + 16x + 32$

4. $x^2 + 6x + 9$

5. $5x^2 + 36x + 7$

6. $2x^2 + 26x + 60$

7. $7x^2 + 22x + 16$

8. $x^2 + 6x + 8$

9. $2x^2 + 21x + 10$

10. Determine the values of *k* and *n*.

a. $(x + 4)(x + k) = x^2 + nx + 24$

b. $(x + k)(x + 1) = x^2 + nx + 5$

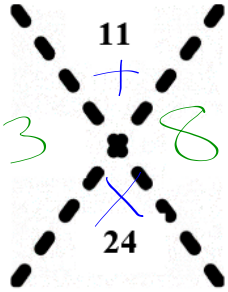
c. $(x + 5)(x + n) = x^2 + 8x + n$

Todays Notes

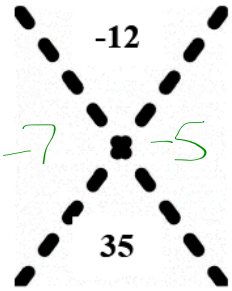
Day 6 – Factor Polynomials (-, +)

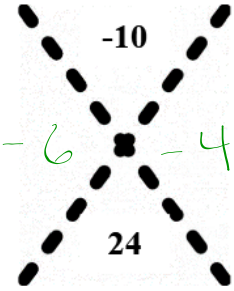
Puzzle: For each of the diamonds below, you need to figure out what two numbers multiply to get the bottom number and add to get the top number.

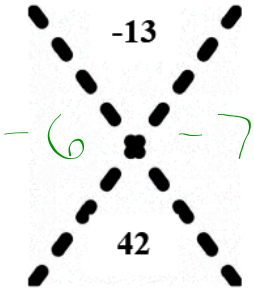
Example:

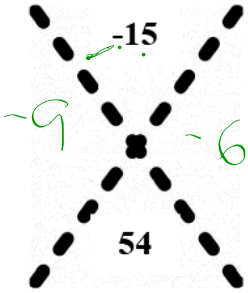


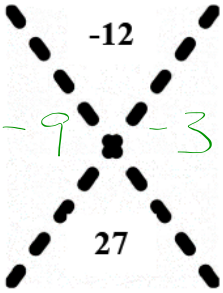
Multiply to 24	Add to 24	
1 x 24	1 + 24 = 25	NO
2 x 12	2 + 12 = 14	NO
3 x 8	3 + 8 = 11	YES
4 x 6	4 + 6 = 10	NO

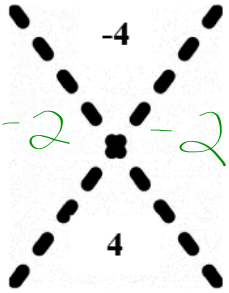












What are some patterns you noticed?

Review and Connect: Multiply the following together:

a. $(x - 4)(x - 3)$ b. $(2x - 1)(x - 2)$ c. $(3x - 5)(x - 6)$ d. $(x - 5)^2$

You probably noticed that the only way to multiply to a positive number, but end up with a negative sum, you had to multiply two negative numbers together. This generates a specific pattern we can use when factoring:

$$x^2 - bx + c = (\qquad)(\qquad)$$

Example 1: Factor $x^2 - 9x + 18$

General Steps	Examples
1. Check to see if the polynomial has a greatest common factor. 2. Set up two empty sets of parenthesis below the polynomial. 3. The first numbers must multiply together to equal the first term, ax^2. ( )( ) 4. The second numbers must multiply together to equal the last term **c**. ( )( ) 5. Multiply the outside terms and then the inside terms. When those terms are added together, they should equal the middle term, ***b***. ( )( ) 6. Check your answer by multiplying the two binomials together.	**$x^2 - 9x + 18$** $(x \quad 9)(x \quad 2)$ $2x$ $9x$ X $(x - 3)(x - 6)$ $-6x$ $-3x$ $-9x$ $(x \quad 18)(x \quad 1)$

Example 2: Factor $5x^2 - 54x + 40$

General Steps	Examples
1. Check to see if the polynomial has a greatest common factor. 2. Set up two empty sets of parenthesis below the polynomial. 3. The first numbers must multiply together to equal the first term, ax^2. ( )( ) 4. The second numbers must multiply together to equal the last term **c**. ( )( ) 5. Multiply the outside terms and then the inside terms. When those terms are added together, they should equal the middle term, ***b***. ( )( ) 6. Check your answer by multiplying the two binomials together.	**$5x^2 - 54x + 40$** $(5x - 4)(x - 10)$ $-50x$ $-4x$ $-54x$ $(5x \quad 2)(x \quad 20)$ $(5x \quad 8)(x \quad 5)$ $(5x \quad 40)(x \quad 1)$

Example 3: Factor $10x^2 - 72x + 14$

General Steps	Examples
1. Check to see if the polynomial has a greatest common factor. 2. Set up two empty sets of parenthesis below the polynomial. 3. The first numbers must multiply together to equal the first term, ax^2. ( )( ) 4. The second numbers must multiply together to equal the last term **c**. ( )( ) 5. Multiply the outside terms and then the inside terms. When those terms are added together, they should equal the middle term, ***b***. ( )( ) 6. Check your answer by multiplying the two binomials together.	$\frac{10x^2}{2} - \frac{72x}{2} + \frac{14}{2}$ $2(5x^2 - 36x + 7)$ $2(5x \quad 7)(x \quad 1)$ $2(5x - 1)(x - 7)$ $5x$ $7x$ 12 $-35x$ $-1x$ $-36x$

Practice

Directions: Factor each of the following trinomials.

a. $x^2 - 10x + 24$

$(x-6)(x-4)$

$-6x$
$-4x$
$-10x$ ✓

b. $5x^2 - 33x + 18$

$(5x-3)(x-6)$

$-30x$
$-3x$
$-33x$

c. $7x^2 - 13x + 6$

$(7x-6)(x-1)$

$-7x + -6x = -13x$

d. $2x^2 - 18x + 36$

$\frac{2}{2} \quad \frac{2}{2} \quad \frac{2}{2}$

$x^2 - 9x + 18$

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

$-6x$
$-3x$
$-9x$

Additional Practice

Odds and 10

Algebra 1 Unit7: Quadratic Expression Practice

Day 6 – Factor Trinomials (-, +)
Practice Assignment

Name: _____
Date: _____ **Block:** _____

Factor the expressions:

1. $x^2 - 6x + 5$

2. $7x^2 - 45x + 18$

3. $x^3 - 9x^2 + 18x$

$x(x^2 - 9x + 18)$

4. $x^2 - 8x + 16$

5. $2x^2 - 19x + 45$

6. $4x^2 - 40x + 96$

7. $3x^2 - 25x + 28$

8. $x^2 - 12x + 27$

9. $5x^2 - 35x + 50$

10. Which of the following b values makes the trinomial $x^2 + bx + 18$ not factorable?

A. -11
B. -9
C. 7
D. 19