Objectives:

~ Factor out a Greatest Common Factor (GCF)

Today, we are going to learn how to UNDO distributing and FOIL.

This is called FACTORING.

Remember the Distributive Property?

$$a(x+y) = ax + ay$$

Well, today, we are going to "**UN**-distribute".

It's called **FACTORING**.

$$ax + ay = a(x+y)$$

Lesson 18: Factoring Day 1

Factors: Factors are numbers/polynomials that are multiplied together to get the whole.

Example:

$3(2) = 6$ ~ 3 and 2 are factors of 6 ~

$$(3x + 1)(x - 5) = 3x^2 - 14x - 5$$

~ (3x +1) and (x-5) are factors of the right side polynomial. ~

Lesson 18: Factoring Day 1

We are going to look for the Greatest Common Factor (GCF) of polynomials.

Let's start off with numbers.

~What is the GCF of 6 and 15?

* NOTE: we can break numbers up into Prime Factorization to help us find the GCF.

We are going to look for the Greatest Common Factor (GCF) of polynomials.

Let's start off with numbers. (Example 2)

~What is the GCF of 48 and 72?

* NOTE: we can break numbers up into Prime Factorization to help us find the GCF.

Lesson 18: Factoring Day 1

Find the GCF:

1. $4x, 12$

2. $6x^3, 12x^2, 15x$

3. $4x^3y^4, 8x^2y^3, 12xy^2$

To UNDO distributing, we take our GCF and divide every term by the GCF and write that common factor on the outside of our parentheses. Then simplify what's left (put all the remaining stuff inside the parentheses).

Ex 4: Factor (un-distribute)

$$12x^2 - 6x^2y + 15xy$$

GCF:

Ex 5: Factor (un-distribute)

$$5k^3p - 3kp^2 + k^3p^5$$

GCF:

Ex 6: Factor (un-distribute)

$$6y^3 - 14y^2 + 10y$$

GCF:

***Factor out* the GCF:** (If the coefficient of the highest degree term is negative, we often want to factor out the negative as part of the GCF.)

Ex 7:

$-8z + 16$

Ex 8:

$-2b^3 + 10b^2 + 8b$

Lesson 18: Factoring Day 1

***Factor out* the GCF:** Sometimes the GCF is a Binomial. Factor the Binomial out.

Ex 9: $4x(x-3)+5(x-3)$

Objectives:

~ Factor out a Greatest Common Factor (GCF)

Can you?

GCF worksheet

Due at the end of Math Lab

Assignment 18

Due at the end of next class