Factoring Polynomials with GCF Method

Find the area.	**Know the lingo.**
$X - 2$ $X + 1$	-The answer to a multiplication problem is called the _____.
	- In multiplication, what is being multiplied together are called _____.
	For example:
	$(x - 2)$ and $(x + 1)$ are the _____ and _____ is the product.
	If we reverse or undo the problem, _____ $= (x - 2)(x + 1)$, then
	we say we have _____ _____ into $(x - 2)(x + 1)$.

When we factor polynomials, we ALWAYS start by looking for a GCF (Greatest Common Factor). A greatest common factor is:

Ladder Method

1. Write the polynomial (ORIGINAL) under the upside down division sign.

2. Find a number that divides evenly into each <u>coefficient and constant.</u>

3. Divide by this common (factor) and keep dividing by other factors until the only that number that divides into each term is 1.

4. Divide by any variables that each term has in common.

5. The GCF is found by multiplying all of the factors together.

6. Place parentheses around the terms at the bottom of the division sign (final Left Overs)

7. Write your answer with the GCF on the outside of the parentheses.

factor | $\dfrac{\text{ORIGINAL}}{\text{factor}}$

factor | $\dfrac{\text{Left Overs}}{factor}$

FACTOR | $\dfrac{\text{Left Overs}}{\text{FACTOR}}$

Left Overs

(factor)(factor)(FACTOR)

GCF (Left Overs)
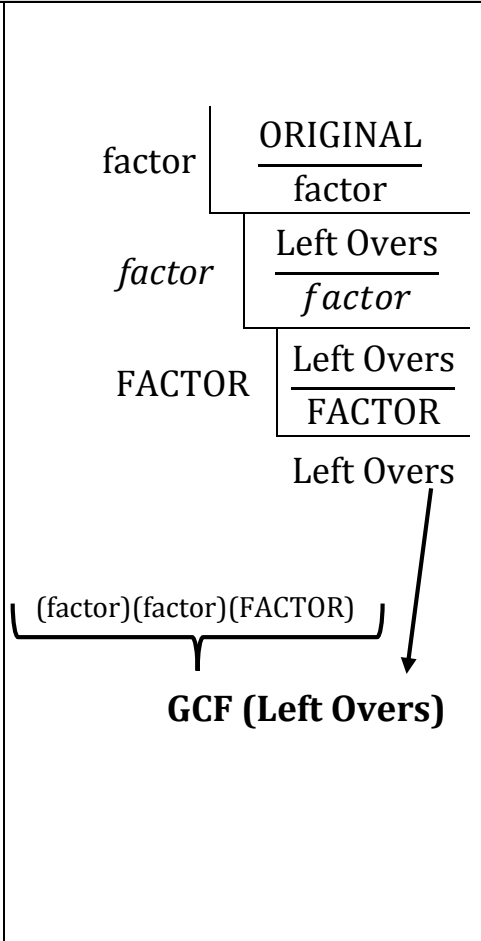
Example: Factor $4x^3 + 2x^2 + 2x$.

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

Factor $8x^2 - 18y^2$.

Factor $x^2y + 2y$.

Factor $18k + 36k^2 + 9k^3$.

Factor $64c^3 - 56c^2 + 88c$.

Factor $18kxy + 4xy + 2k^2xy$.

How do you think you can check to see if your factors are correct?