L2 – Common Factoring Unit 3
MPM2D
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_____ a polynomial is the OPPOSITE of expanding

Expanding → Multiplying

Factoring → Dividing

To factor a polynomial, remove the greatest common factor as the first factor, then _____ each term by the greatest common factor to obtain the second factor.

A greatest common factor is the greatest number and/or variable that is a factor (divides evenly into) of all terms in a set.

Part 1: Monomial Common Factor

Example 1: Factor each of the following expressions

a) $-5x + 20$

b) $8x^2 - 7x$

c) $25x^6 + 15x^4$

d) $21x^4y^3 - 28x^2y^5 + 7xy^3$

e) $4x^2y^3 + 10x^4y^2 - 12x^3y^2$

f) $8x^3 - 6x^2y^2 + 4x^2y$

Part 2: Binomial Common Factor and Factoring by Grouping

A greatest common factor is not necessarily a monomial.

Example 2: Factor each of the following expressions

a) $3x(y+1)+7(y+1)$ **b)** $2x(x-3)-5(x-3)$

c) $5x(x^2+2x+7)-4(x^2+2x+7)$

Some polynomials do not have a common factor but can be factored by _____. When factoring by grouping:

1) group pairs of terms with a common factor (always separate groups with an addition sign)
2) remove a common factor from each group
3) factor the common binomial (or other type of polynomial) from the expression

Example 3: Factor each of the following expressions

a) $ac+bc+ad+bd$ **b)** $9x^2+15x+3x+5$