

Vocabulary

Factor by grouping: Used when there are four terms and NO GCF

Factor by difference of squares: Used when there are two PERFECT SQUARE terms, NO GCF, and a subtraction

$$(5x^2 - 7)(3x - 1)$$

$$(5x - 3)(5x + 3)$$

$$15x^3 - 5x^2 - 21x + 7$$

$$25x^2 - 15x + 15x - 9$$

cancel

$$25x^2 - 9$$

EXAMPLE 1: Factor by Grouping

$$\frac{(15x^3 + 35x^2)}{5x^2} \frac{(-9x + 21)}{3}$$

$$5x^2(3x+7) \quad 3(3x+7)$$

$$(5x^2+3)(3x+7)$$

PARENTHESES MUST TOUCH ONE ANOTHER SINCE IT IS A DISTRIBUTIVE!

- 1) NO GCF! PAIR UP BINOMIALS IN PARENTHESES
- 2) TAKE GCF OUT OF EACH PARENTHESES
- 3) THE TWO BINOMIALS SHOULD BE EXACTLY THE SAME. IF NOT YOU DID YOUR GCF WRONG.
- 4) WRITE FINAL ANSWER AS (GCF1 + GCF2)(COMMON BINOMIAL)

EXAMPLE 2: Factor by Grouping

$$\frac{(2x^3 + x^2)}{x^2} \frac{(-8x - 4)}{-4}$$

$$x^2(2x+1) - 4(2x+1)$$

$$(x^2-4)(2x+1)$$

- 1) PAIR UP BINOMIALS
- *2) SINCE THE SECOND BINOMIAL IS A NEGATIVE YOUR GCF MUST BE NEGATIVE THAT WAY WHEN YOU TAKE OUT YOUR NEGATIVE YOUR BINOMIALS WILL MATCH UP

EXAMPLE 3: Difference of Squares (D.O.S)

$$x^2 - 16$$

4

$$(x+4)(x-4)$$

TO USE D.O.S. FOLLOW THESE QUESTIONS?

- 1) NO GCF ✓
- 2) 2 TERMS ✓
- 3) PERFECT SQUARES ✓
- 4) SUBTRACTION ✓

WRITE FINAL ANSWER AS (a+b)(a-b) ONE - PARENTHESES AND ONE SAME SAME + PARENTHESES

EXAMPLE 3: Difference of Squares

$$16x^2 - 49$$

4x 7

$$(4x+7)(4x-7)$$