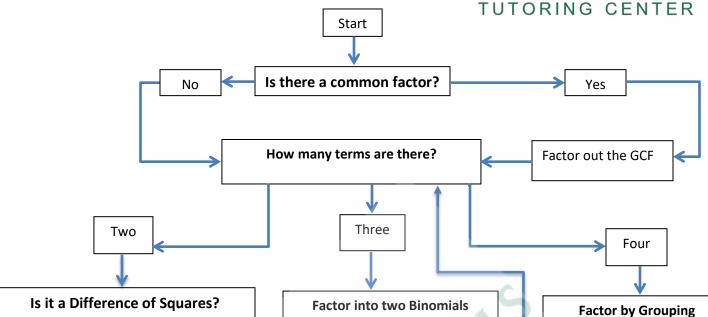
Factoring Flow Chart





$$A^2 - B^2 = (A - B)(A + B)$$

Examples:

$$x^2 - 25 = (x - 5)(x + 5)$$

$$9x^2 - 64 = (3x - 8)(3x + 8)$$

Is it a Difference of Cubes?

$$A^3 - B^3 = (A - B)(A^2 + AB + B^2)$$

Examples:

$$x^3 - 27 = (x - 3)(x^2 + 3x + 9)$$

$$8x^3 - 125 = (2x - 5)(4x^2 + 10x + 25)$$

Is it a Sum of Cubes?

$$A^3 + B^3 = (A + B)(A^2 - AB + B^2)$$

Examples:

$$x^3 + 64 = (x + 4)(x^2 - 4x + 16)$$

$$125x^3 + 1 = (5x + 1)(25x^2 - 5x + 1)$$

Examples:

$$x^2 - 4x - 21 = (x - 7)(x + 3)$$

$$10x^2 + 11x + 3 = (2x + 1)(5x + 3)$$

again?

Example: 6ab + 2b + 9a + 3

$$= (6ab + 2b) + (9a + 3)$$

$$= 2b(3a+1) + 3(3a+1)$$

$$=(3a+1)(2b+3)$$

By Difference of Squares

Example: $x^2 - 10x + 25 - y^2$

$$\underbrace{x^2 - 10x + 25}_{Perfect\ square} - y^2$$

$$=(x-5)^2-y^2$$

$$=(x-5-y)(x-5+y)$$

 $A^3 + B^3 = (A + B)(A^2 - AB + B^2)$ Check each factor. Can it be factored

If the answer is **YES**, repeat the process.

Yes

If the answer is NO, write the final answer as a product of all the factors and the GCF.

Crafton Hills College Tutoring Center Updated 4/2016