

# Factoring General Trinomials

These have 3 Terms

Ex.)  $x^2 + 10x + 16$

\* Always look for a GCF.  
Factor it out if possible.

\* Setup an empty pair of parentheses - I think of this as "reverse FOIL!"

\* Need two #'s that multiply to last term (16) and sum to the middle term (10x)

Brainstorm:  $8 \times 2 = 16$ ,  $8 + 2 = 10$

$$x^2 + 10x + 16$$

$$(x + 8)(x + 2)$$

ADD up      multi to

Ex.)  $x^2 + 5x + 6$

$(x + 2)(x + 3)$

Ex.)  $y^2 + 2y - 15$

$(y + 5)(y - 3)$

Ex.)  $x^2 + 8x + 15$

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

Ex.)  $x^2 + 3x - 18$

$(x + 6)(x - 3)$

Ex.)  $x^2 - 7x + 12$

$(x - 3)(x - 4)$

$$\text{Ex.) } 2x^2 + 12x + 16$$

$$2(x^2 + 6x + 8)$$

$$2(x + 4)(x + 2)$$

$$\text{Ex.) } x^2 - 4x - 9$$

$$( \quad )( \quad )$$

prime

$$\text{Ex.) } x^2 - 7x + 12$$

$$(x - 4)(x - 3)$$

$$\text{Ex.) } 10y^2 + 23y + 12$$

$$(5y + 4)(2y + 3)$$

~~$$(5y + 6)(2y + 2)$$~~