Math2: Factoring Flow Chart

You must **ALWAYS** try to factor out the **GCF** first

If you have TWO terms:

1) Difference of 2 squares
2) Sum of 2 squares

(1) $a^2 - b^2 = (a + b)(a - b)$

(EX) $x^2 - 49 = (x - 7)(x + 7)$

(2) $a^2 + b^2 = PRIME$

(EX) $x^2 + 25 = PRIME$

If you have THREE terms:

1) UNFOIL
2) Divide, Reduce & Slide

(1)

$x^2 + 6x + 8 = (x + 2)(x + 4)$

$x^2 - 5x + 6 = (x - 2)(x - 3)$

$x^2 + x - 12 = (x + 4)(x + 3)$

$x^2 - 5x - 14 = (x + 2)(x - 7)$

(2)

$2x^2 - 5x - 12$

$x^2 - 5x - 24$

$(x + 3)(x - 8)$

$\left(x + \frac{3}{2}\right)\left(x - \frac{8}{2}\right)$ DRS

$(2x + 3)(x - 4)$

If you have FOUR terms:

1) First, group by 2's
2) Remove GCF from each group
3) Look for matching parenthesis
4) Answer:
   (matching factor)(leftovers)

$2xy + 8x + 3y + 12$

$(2xy + 8x) + (3y + 12)$

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

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

REMINDERS:

1) Did I check for a GCF???
2) Can I factor anymore???
3) Order of parentheses does not matter.
4) Equations must $= 0$ before factoring.