

**ALLWAYS CHECK**

If you can Factor out a GCF first.

Ex.  $24x^2 + 60x - 36$

1.

2.

3.

4.

**How to factor a simple quadratic of the form**

$x^2 + bx + c$  ( $a = 1$ )

- Write a pair of blank binomials
- List the factors of the "c" term
- Identify which pair of factors could add to the middle term "b"
- Fill in the blanks with those factors

Ex.  $x^2 - 3x - 10$

1.

2.

**How to factor a tougher quadratic of the form**

$ax^2 + bx + c$  ( $a \neq 1$ )

- Multiply "a" and "c"
- List the factors of this number, and identify which pair adds to the "b" term
- Replace the middle term with these 2 terms
- Use parenthesis to group the first 2 terms together and the last 2 together
- "Udistribute" the largest factor from each pair of parenthesis
- The binomials should be the same. "undistributed" them

Ex.  $12x^2 - 16x - 3$

1.

2.

3.

4.

5.

What if I need to solve, but

The equation won't factor?

Use the quadratic formula!!  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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

1.

2.

How to solve an equation by  
factoring

$$ax^2 + bx + c = 0$$

- A. Get all terms to 1 side and arrange them into standard form.
- B. Make the lead coefficient positive
- C. Factor the quadratic side
- D. Set each binomial equal to = 0
- E. Solve for x. You will get 2 answers

Ex.  $-x^2 + 7x = -30$

1.

2.

B. Use these patterns:

Perfect square

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

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

Ex.  $9x^2 + 12x + 4$

1.

2.

Difference of Squares

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

Ex.  $9x^2 - 4$

1.

2.