The AC Method
Factoring Trinomials of the Form $Ax^2 + Bx + C$

Set-up steps:

- Remove all ( ) and combine like terms
- Make squared term (first term) positive
- Put in standard quadratic form: $\mathbf{A}x^2 + \mathbf{B}x + \mathbf{C}$
- Factor out a GCF if possible

Step 1 Find **A•C** $(\mathbf{A}x^2 + \mathbf{B}x + \mathbf{C})$

Step 2 Find 2 factors of the product **A•C** whose algebraic sum is **B.**

- Same sign binomials--correct factors must <u>ADD</u> to B
- Different signs--correct factors must have a <u>*DIFFERENCE*</u> of B

Step 3 Re-write middle term as the algebraic sum of the two correct factors

Step 4 Factor by grouping (we now have four terms)

Example: Factor $\underline{12x^2 + 25x + 12}$ by the A•C Method (need two factors of 144 that add to 25)

A•C = 144
FACTORS:

$12x^2 + 25x + 12$

$12x^2 + 9x + 16x + 12$

$12x^2 + 9x \quad +16x + 12$

$3x(4x + 3) \quad +4(4x + 3)$

$(4x + 3)(3x + 4)$

NOTE: If there is no pair of factors for A•C that works, then the trinomial does NOT factor.