**Grouping or “ac” Method for Factoring Trinomials**

When factoring trinomials of the form $ax^2 + bx + c$:

1. Obtain the grouping number “ac”.
2. Find the factor pair of the grouping number whose sum is $b$.
3. Use those two factors to write $bx$ as the sum of two terms.
4. Factor by grouping.

**Example 1:** Factor $2x^2 + 19x + 24$

1. The grouping number $ac = (2)(24) = 48$.

2. Factor pairs of 48:
   - (48)(1), (-48)(-1)
   - (24)(2), (-24)(-2)
   - (16)(3), (-16)(-3)
   - (12)(4), (-12)(-4)
   - (8)(6), (-8)(-6)

   Since $b = 19$, the desired factor pair is 16 and 3.

3. Use 16 and 3 to write $19x$ as the sum of 16$x$ and 3$x$:
   
   $2x^2 + 19x + 24$
   
   $2x^2 + 16x + 3x + 24$

4. Factor by grouping:
   
   $2x^2 + 16x + 3x + 24 = 2x(x + 8) + 3(x + 8)$
   
   $= (x + 8)(2x + 3)$

**Example 2:** Factor $6x^2 + 5x - 4$.

1. The grouping number $ac = (6)(-4) = -24$.

2. Factor pairs of -24:
   - (-24)(1), (24)(-1)
   - (-12)(2), (12)(-2)
   - (-8)(3), (8)(-3)
   - (-6)(4), (6)(-4)

   Since $b = 5$, the desired factor pair is 8 and -3.

3. Use 8 and -3 to write $5x$ as the sum of 8$x$ and -3$x$:
   
   $6x^2 + 5x - 4$
   
   $6x^2 + 8x - 3x - 4$

4. Factor by grouping:
   
   $6x^2 + 8x - 3x - 4 = 2x(3x + 4) - 1(3x + 4)$
   
   $= (3x + 4)(2x - 1)$