

## Factoring Trinomials of the form

$$ax^2 + bx + c$$

### Method 1: Using Trial-and-Error

1. First terms should have a product of  $ax^2$ .
2. Last terms should have a product of  $c$ .
3. The sum of the 'inner' and 'outer' products should equal  $bx$ . If not, got back to steps 1 and 2 and try a different combination, until step 3 checks.

### Method 1: Product/Sum Method

1. Write the trinomial in form  $ax^2 + bx + c = 0$ .  
Find a pair of numbers whose product is  $ac$  and whose sum is  $b$ . Call these numbers  $r$  and  $s$ .
2. Rewrite the trinomial as a sum of 4 terms,  
 $ax^2 + rx + sx + c = 0$ . Use the 'grouping' method of factoring .
  - a) Group the 1<sup>st</sup> two terms together and factor out a GCF.
  - b) Group the last two terms together and factor out a GCF so that the binomial factor is the same as a factor from the 1<sup>st</sup> term terms.
  - c) Factor out the group GCF and write the second factor.