

# Factoring Trinomials where $a=1$ :

Trinomial: Polynomial expression with 3 terms  
 $ax^2+bx+c$

ΣX) NO # in front of  $x^2$ , so  $a=1$   
 $x^2+5x+4$

Step 1: Multiply  $a$  &  $c$  values (nickname: "headphones")

$$\textcircled{1}x^2+5x+\textcircled{4}$$

Step 2: Find 2 numbers that multiply to the integer from Step 1 and add to the "b" term.

Mult. to 4	Add to 5
2 · 2	4 ← NO
<u>4 · 1</u>	5 ← YES!

Step 3: Use those 2 integers to "bust" the "b" value.

$$x^2+5x+4$$
$$x^2+4x+1x+4$$

Step 4: Now you have 4 terms. So we can factor by grouping!

$$x^2 + 4x + 1x + 4$$

$$x(x+4) + 1(x+4)$$

Final answer

$$(x+1)(x+4)$$

★ When a trinomial has an "a" value of 1, it is okay to use the shortcut of finding 2 integers that multiply to "c" value & add to "b" value and then writing as factors.

$$x^2 + \overset{A}{5}x + \overset{M}{4}$$

4 & 1 add to 5 & multiply to 4  
so the factored form is...

$$(x+4)(x+1)$$