

FACTORING TRINOMIALS

$x^2 + bx + c$

Trinomials in the form _____ can be factored easily once you find

- _____ that both
- _____ and
- _____.

Example 1: Factor $x^2 + 5x + 6$



- **Step 1:** Find all the factors of 6 (**pairs** of numbers that multiply together to get +6)
- **Step 2:** Add the factor pairs together to see which one equals +5
- **Step 3:** Write the factors, including the signs, inside the brackets
- **Step 4:** Check your answer by expanding the factors using FOIL

THIS IS CALLED THE PRODUCT – SUM METHOD

Example 2: Factor $x^2 - 9x + 20$

From now on, when you factor a trinomial, choose two numbers that _____ to equal the **middle** number and _____ to equal the **last** number.

Example 3:

Factor $x^2 - 5x - 6$

Factor $m^2 - 8m + 12$

Factor $x^2 - x - 12$

Factor $x^2 + 10x + 16$

Example 4:

Factor $2x^2 + 2x - 12$

Factor $3x^2 + 18x + 27$

Example 5:

A rectangle has an area represented by the trinomial $x^2 + 4x - 21$.

a) Factor the trinomial to find expressions for the dimensions of the rectangle.

b) Calculate the actual dimensions if $x = 50$ cm