9-3 Factoring Trinomials

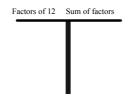
$$x^2 + bx + c$$

To factor quadratic trinomials of the form x + bx + c, find the two integers whose product equals c and whose sum equals b.

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

Example 1: b>0 and c>0 (both are positive)

Factor
$$x^2 + 7x + 12$$

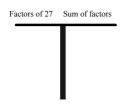


Check: FOIL

Try: Factor $x^2 + 6x + 8$

Example 2: b<0 and c>0 (b is negative & c is positive)

Factor
$$x^2 - 12x + 27$$



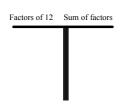
Check: FOIL

Try: $x^{\frac{2}{2}} 10x + 16$

Example 3: b>0 and c<0 (b is positive, c is negative)

Factor $x^2 + 3x - 18$

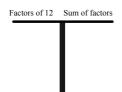
Check: FOIL



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

Example 4: b < 0 and c < 0 (both are negative)

Factor $x^2 - x - 20$



Check: FOIL

Try: Factor $x^2 - 7x - 18$

Solve an Equation by Factoring

Some equations of the form $x^2 + bx + c$ can be solved by factoring then using the <u>Zero Product Property</u>.

Example: Solve $x^2 + 2x = 15$. Check your solutions!

Try: Solve x + 5x = 6.

Check.

Real World Problem:

Catie has a small art studio in her backyard.

She wants to build a new studio that has three times the area of the old studic by increasing the length and the width by the same amount.

What are the new dimensions of the new studio?

