

Factoring and Solving Trinomials

$$y = ax^2 + bx + c$$

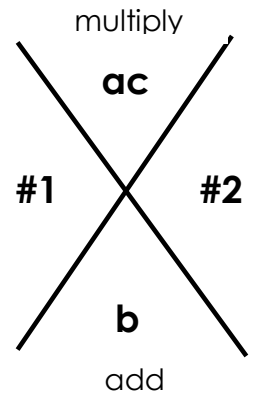
Step 1: Put in standard form and look for GCF

- Is there a negative on the leading coefficient? **If yes, factor it out.**
- Is there a GCF you can factor out? **If yes, factor it out**

Step 2. To fill out the X, the top is the product of ac and the bottom is b-value

Step 3. Use the two numbers on the side of the X as the coefficients to split the b term.

- If the **a=1**, use the two factors to show the finished factored form
- If the **a>1** Factor by grouping



To find the x-intercepts: use the zero product property; set equation equal to zero and solve for x.

Factoring Quadratics when a=1	Factoring Quadratics when a>1	Special Cases
$y = x^2 + 5x + 6$ Factored Form $y = (x + 3)(x + 2)$ x-intercepts $0 = (x + 3)(x + 2)$ $x + 3 = 0 \quad x + 2 = 0$ $x = -3, -2$	$y = 7x^2 + 2x - 5$ Factor by Grouping $y = 7x^2 + 7x - 5x - 5$ $y = 7x(x + 1) - 5(x + 1)$ $y = (7x - 5)(x + 1)$ Factored Form $y = (7x - 5)(x + 1)$ x-intercepts $0 = (7x - 5)(x + 1)$ $7x - 5 = 0 \quad x + 1 = 0$ $x = \frac{5}{7}, -1$	Difference of Two Squares <ul style="list-style-type: none"> • Two terms • Both perfect squares • Minus in the middle $y = x^2 - 25$ Factored Form $y = (x - 5)(x + 5)$
		Square Root Method $y = x^2 - 25$ $0 = x^2 - 25$ $x^2 - 25 = 0$ $x^2 = 25$ $\sqrt{x^2} = \pm\sqrt{25}$ $x = \pm 5$
YOU TRY!!!		
$y = x^2 + 7x + 12$	$y = 2x^2 - 9x + 10$	$y = x^2 - 64$
$y = 2x^2 - 8x + 6$	$y = 3x^2 + 11x + 6$	$y = 2x^2 - 72$