Name: _____   Date: _____

Factor Quadratic Expressions

Quadratic Expression	$x^2 + bx + c$	$a^2 - b^2$	$a^2 + 2ab + b^2$ $a^2 - 2ab + b^2$	$ax^2 + bx + c$
Factoring Technique	Find two integers, r and s, with a product of c and a sum of b. Then, write $x^2 + bx + c$ as $(x + r)(x + s)$.	Use the difference of squares pattern. $a^2 - b^2$ $= (a - b)(a + b)$	Use a perfect square trinomial pattern. $a^2 + 2ab + b^2 = (a + b)^2$ or $a^2 - 2ab + b^2 = (a - b)^2$	Find two integers with a product of $a \times c$ and sum of b. Then, break up the middle term and factor by grouping.
Example	For $x^2 + 11x + 18$, $b = 11$ and $c = 18$. The two integers are 9 and 2. $x^2 + 11x + 18$ $= (x + 9)(x + 2)$	$100x^2 - 9$ $= (10x)^2 - 3^2$ $= (10x - 3)(10 + 3)$	$x^2 + 6x + 9$ $= x^2 + 2(x)(3) + 3^2$ $= (x + 3)^2$ $25x^2 - 40x + 16$ $= (5x)^2 - 2(5x)(4) + 4^2$ $= (5x - 4)^2$	For $6x^2 - 11x - 7$, $a \times c = -42$ and $b = -11$. The two integers are 3 and –14. $6x^2 - 11x - 7$ $= 6x^2 + 3x - 14x - 7$ $= (6x^2 + 3x) - (14x + 7)$ $= 3x(2x + 1) - 7(2x + 1)$ $= (2x + 1)(3x - 7)$