# Algebra 1 Sec 10-7 The Quadratic Formula Spring 2016 Name:

Given a Quadratic Equation in Standard Form: $ax^2 + bx + c = 0$

solutions to this equation can be found using the Quadratic Formula: $\boxed{x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}}$

To use this formula follow these steps:

1. Make sure the equation is written in Standard Form, $ax^2 + bx + c = 0$
2. Find these values: • $-b$ • $b^2 - 4ac$ • $2a$
3. Substitute these values into the formula
4. Calculate this formula first with either the + or –
5. Then calculate a second time using the other sign.

Example: Solve this equation $3x^2 + 8x = 7$ Round to the nearest hundredth.

Rewrite equation into Standard Form: $3x^2 + 8x - 7 = 0$

$\boxed{-b} = -8$ $\boxed{b^2 - 4ac} = (8)^2 - 4(3)(-7) = 148$ $\boxed{2a} = 6$

$x = (-8 + \sqrt{\ }(148))/6 = 0.69$ AND $x = (-8 - \sqrt{\ }(148))/6 = 0.69 - 3.36$

Find all real solutions to the following equations. Round to the nearest hundredth when needed.

1. $2x^2 - 13x + 9 = 0$

2. $8x^2 + 11x = 33$

3. $48x^2 + 168x + 147 = 0$

4. $7x^2 + 3x + 4 = 0$

For the following quadratic equations, find the EXACT solutions using the Quadratic Formula. Instead of rounding the answers simplify the square root and reduce the fraction if possible.

5. $x^2 - 6x + 4 = 0$

6. $3x^2 - 10x + 2 = 0$

7. $x^2 + 7x - 2 = 0$