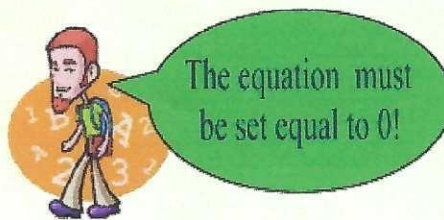


## The Quadratic Formula

**Quadratic Formula:**For  $ax^2 + bx + c = 0$ ,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



The solutions of some quadratic equations,  $ax^2 + bx + c = 0$  ( $a \neq 0$ ), are not rational, and cannot be obtained by factoring. For such equations, the most common method of solution is the quadratic formula.

*Note:* The quadratic formula can be used to solve ANY quadratic equation, even those that can be factored. Be sure you know this very useful formula!!!

**I. Steps:**

- 1) Write the equation in standard form
- 2) Write the Quadratic Formula
- 3) Identify a, b, and c
- 4) Substitute the values in for a, b, and c
- 5) Simplify the expression under the radical sign first
- 6) Simplify the denominator
- 7) Evaluate the square root
- 8) See if you can simplify any of the like terms.
- 9) Separate the two solutions
- 10) Simplify both solutions

**II. Examples:** Solve the following by using the Quadratic Formula

1)  $x^2 + 2x - 15 = 0$

$$2) 2x^2 - 10x = -3$$

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$$3) x^2 - 6x + 13 = 0$$

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$$4) x^2 - 10x + 25 = 0$$