Section 1.4b Quadratic Equations

# Objective 4: Solving Quadratic Equations Using the Quadratic Formula

By solving the general quadratic equation using a method called completing the square, we obtain **the quadratic formula** which can be used to solve *any* quadratic equation.

**The Quadratic Formula:** The solution to the quadratic equation  is given by the formula.

# Objective 5: Using the Discriminant to Determine the Type of Solutions of a Quadratic Equation

Given a quadratic equation of the form, the expression  is called the **discriminant**. Knowing the value of the discriminate can help us determine the number and nature of the solutions to a quadratic equation.

**The Discriminant:** Given a quadratic equation, the expression

 is called the **discriminant**.

If, then the quadratic equation has two real solutions.

 If, then the quadratic equation has two non-real solutions.

 If, then the quadratic equation has exactly one real solution.