

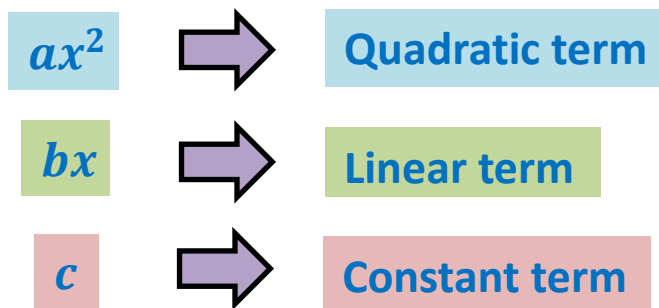
# The Quadratic Formula and the Discriminant

 Guided Notes

A **quadratic equation** is of the form:

$$ax^2 + bx + c = 0$$

Where,  $a \neq 0$ .



## Quadratic Formula

The quadratic formula can be used to find the solutions of a quadratic equation  $ax^2 + bx + c = 0$ .

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

**Problem 1:** Find all the solutions of the quadratic equation  $2x^2 + 5x - 4 = 0$ .

# The Quadratic Formula and the Discriminant

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## Discriminant of a Quadratic Equation

The discriminant of a quadratic equation  $ax^2 + bx + c = 0$  is the value of  $b^2 - 4ac$ .

The value of the discriminant can predict the type and the number of solutions of a quadratic equation.

Value of $b^2 - 4ac$	Number of solutions	Type of solutions
Positive	2	Real
Zero	1	Real
Negative	2	Complex

**Problem 2:** Find the discriminant of the quadratic equation  $2x^2 + 5x - 4$  and tell the number and type of solutions this equation has.