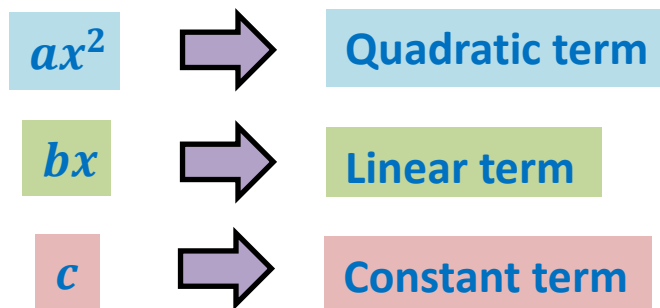


# Solving Quadratic Equations Guided Notes

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

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

Where,  $a \neq 0$ .



Consider the quadratic function  $(x) = ax^2 + bx + c$ ,  $a \neq 0$ .

## Solution By Graphing

Consider the quadratic equation  $(x) = ax^2 + bx + c = 0$ ,  $a \neq 0$ .

If we graph the related quadratic function, the solutions of the quadratic equation are the x values where the graph touches the **x – axis**.

- A quadratic equation can have 2, 1 or 0 real numbered solutions.
- If the graph does not touch the x-axis, there exists no solution for the quadratic equation.

**Problem 1:** Find the solution of the quadratic equation  $x^2 + x - 2 = 0$  by graphing.

# Solving Quadratic Equations

 Guided Notes

## Solution By Square Root

Consider the quadratic equation  $(x) = ax^2 + bx - c = 0$ ,  $a \neq 0$ .

If  $b = 0$  and  $a, c \neq 0$ , then:

$$ax^2 - c = 0$$

$$x^2 = \frac{c}{a}$$

$$x = \pm \sqrt{\frac{c}{a}}$$

**Problem 2:** Find the solutions of the quadratic equation  $12x^2 - 108 = 0$ .