

- Polynomials consisting of 1, 2 and 3 degrees are known as linear, quadratic and cubic polynomials.
- **Quadratic Polynomial:** A quadratic polynomial is of the form  $ax^2 + bx + c$ , with real coefficients, where  $a, b, c$  are real numbers with  $a$  not equal to zero.
- **Roots of a Quadratic Polynomial:** A quadratic polynomial can have maximum 2 zeros while a cubic polynomial can have 3.
- **Sum of Roots of a Quadratic Polynomial:**  $\alpha + \beta = -b/a$ , where  $\alpha$  and  $\beta$  are the zeroes of the quadratic polynomial  $ax^2 + bx + c$ .
- **Product of roots of a quadratic polynomial:**  $\alpha\beta = c/a$ . where  $\alpha$  and  $\beta$  are the zeroes of the quadratic polynomial  $ax^2 + bx + c$ .
- **Sum of Roots of a Cubic Polynomial:** If the zeroes of the cubic polynomial  $ax^3 + bx^2 + cx + d$ , are  $\alpha, \beta, \gamma$  then, sum of its roots is:  $\alpha + \beta + \gamma = -b/a$  And product of its roots is:  $\alpha\beta + \beta\gamma + \gamma\alpha = c/a$ ,  $\alpha\beta\gamma = -d/a$