

QUADRATIC EQUATIONS

Quadratic Equation: Any equation which is in the form of $ax^2 + bx + c = 0$.
where $a, b, c \in \mathbb{R}$ and $a \neq 0$ is called a quadratic equation.

Notes:

- * $ax^2 + bx + c = 0$ is also considered as the general form of Q.E
- * $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ are called the two zeroes (or) Roots.
- * $b^2 - 4ac$ is called the 'Discriminant' and it is denoted by Δ (delta) or D , i.e $D = b^2 - 4ac$.
- * 'Nature' of roots is purely based on Discriminant value.
- * If $D = 0$, then the roots are real and equal.
- * If $D > 0$, then the roots are real and unequal.
- * If $D < 0$, then the roots are imaginary (or) complex (or) no real roots.
- * $ax^2 + bx + c = 0$ represents a 'parabola'.