Polynomials 2

General form:-

1. Linear → $ax + b$
2. Quadratic → $ax^2 + bx + c$
3. Cubic → $ax^3 + bx^2 + cx + d$
4. Biquadratic → $ax^4 + bx^3 + cx^2 + dx + e$

Degree → Highest power

Real coefficients

Zero of the Polynomial :- x की वो value जिसे put करने से 0 आ जाए।

Represent the zeroes by :- α (alpha) β (Beta) γ (Gamma)

Relation between the zeroes & coefficients :- (Quadratic) $ax^2 + bx + c$

α β — a b c

coefficients

$S = \alpha + \beta = -\frac{b}{a}$ $\qquad$ $P = \alpha \cdot \beta = \frac{c}{a}$

Relation between the zeros & coefficients :- (Cubic) $ax^3 + bx^2 + cx + d$

$\alpha \ \beta \ \gamma$ $\qquad$ $a \ b \ c \ d$ $\qquad$ coefficient

$S = \alpha + \beta + \gamma = -\frac{b}{a}$ $\qquad$ $S.P. = \alpha\beta + \beta\gamma + \gamma\alpha = \frac{c}{a}$ $\qquad$ $P = \alpha\beta\gamma = -\frac{d}{a}$

Find ? **Quadratic Polynomial** :-

$$K\left(x^2 - Sx + P\right)$$

Find ? **Cubic Polynomial** :-

$$K\left(x^3 - Sx^2 + S.Px - P\right)$$

Division Algorithm for Polynomials :-

$$g(x) \overline{)\, p(x)} \quad q(x)$$

$$r(x)$$

$$p(x) = g(x) \times q(x) + r(x)$$