POLYNOMIAL

Polynomials are algebraic expressions that consists of variables & coefficients.

Variables are sometimes called INDETERMINATES.

A polynomial $p(x)$ in one variable x is an algebraic expression in x of the form

$$p(x) = a_n x^n + a_{n-1} x^{n-1} + \ldots + a_2 x^2 + a_1 x + a_0$$

where $a_0, a_1, a_2 \ldots$ are constants & $a_n \neq 0$.

$a_0, a_1, a_2, \ldots a_n$ are respectively the coefficient of $x^0, x, x^2, \ldots x^n$ & n is called DEGREE OF POLYNOMIAL

POLYNOMIAL

MONOMIAL
A polynomial of one term is called Monomial.

BINOMIAL
A polynomial of two terms is called Binomial.

TRINOMIAL
A polynomial of three terms is called Trinomial.

Degree of polynomial is the highest of the degrees of the polynomial's monomials (individual terms) with non-zero coefficients.

DEGREE OF POLYNOMIAL

LINEAR POLYNOMIAL
A polynomial of degree one is called Linear polynomial.

QUADRATIC POLYNOMIAL
A polynomial of degree two is called Qudratic polynomial.

CUBIC POLYNOMIAL
A polynomial of degree three is called cubic polynomial.

A real number 'a' is a zero of a polynomial $p(x)$ if $p(a)=0$. In this case, a is also called a root of the equation $p(x)=0$

FACTOR THEOREM : $(x-a)$ is a factor of the polynomial $p(x)$, if $p(a)=0$
Also, if $(x-a)$ is a factor of $p(x)$, then $p(a)=0$.

IMPORTANT FORMULAS

$$[a+b+c]^2 = a^2 + b^2 + c^2 + 2[ab+bc+ca]$$

$$[a+b]^3 = a^3 + b^3 + 3ab[a+b]$$

$$[a-b]^3 = a^3 - b^3 - 3ab[a-b]$$