Polynomial expression

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A polynomial expression S(x) in one variable x is an algebraic expression in x term as

$$S(x) = a_n x^n + a_{n-1} x^{n-1} + a_{n-2} x^{n-2} + \cdots \ldots \ldots \ldots + ax + a_0$$

Where $a_n, a_{n-1}, \ldots, a, a_0$ are constant and real numbers and a_n is not equal to zero

Some important points to remember

1) $a_n, a_{n-1}, a_{n-2}, \ldots a_1, a_0$ are called the coefficients for $x^n, x^{n-1}, \ldots x^1, x^0$

2) n is called the degree of the polynomial

3) when $a_n, a_{n-1}, a_{n-2}, \ldots a_1, a_0$ all are zero, it is called zero polynomial

4) A constant polynomial is the polynomial with zero degree, it is a constant value polynomial

5) A polynomial of one item is called monomial, two items binomial and three items as trinomial

6) A polynomial of one degree is called linear polynomial, two degree as quadratic polynomial and degree three as cubic polynomial

Zero's or roots of the polynomial

It is a solution to the polynomial equation S(x)=0 i.e. a number "a" is said to be a zero of a polynomial if S(a) = 0.
If we draw the graph of S(x) =0, the values where the curve cuts the X-axis are called Zeros of the polynomial

a) Linear polynomial has only one root

b) A zero polynomial has all the real number as roots

c) A constant polynomial has no zeros

Remainder Theorem's

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If p(x) is an polynomial of degree greater than or equal to 1 and p(x) is divided by the expression (x-a),then the reminder will be p(a)

Factor's Theorem's

If x-a is a factor of polynomial p(x) then p(a)=0 or if p(a) =0,x-a is the factor the polynomial p(x)