



VIDYA BHAWAN, BALIKA VIDYAPITH

Shakti Utthan Ashram, Lakhisarai-811311(Bihar)

(Affiliated to CBSE up to +2 Level)

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Introduction to Algebraic Expressions and Identities

Algebraic Expressions: Algebraic expressions are expressions made of **variables** and **constants** along with mathematical operators.

Algebraic expressions have no sides or equal to sign like algebraic equations.

Examples of algebraic expressions are : $2x+4$, $7y-3+6x$, $3t^2+4t-1$.

Terms: Terms are the individual building blocks of expressions. They add up to form expressions. A term is a product of its factors.

For example, the expression $5xy - 3$, is made up of two terms, $5xy$ and (-3) .

Factors: Factors are those variables or constants, whose product form a term of an expression.

For example, 8 , p and q are the factors of the term $8pq$.

Factors are such that they can not be factorised further.

The product of factors forms a term and the summation of the terms forms an expression.

Coefficients: The numerical factor of a term is called the coefficient of that term.

For the terms, $6y$ and $2xy$, the coefficient of $6y$ is 6 and the coefficient of $2xy$ is 2 .

Like Terms: Like terms are those terms which have same variables raised to the same power. Like terms have same algebraic factors. The numerical coefficient of like terms can be different.

For example, $3x^2y$ and $5x^2y$ are like terms.

Monomial: An expression with only one term is called a monomial.

Examples of monomials: $6x$, $7pq$, x^2y , $9xyz$, $4bc$ etc.

Binomial: An expression which contains two unlike terms is called a binomial.

Examples of binomials: $4y-3z$, x^6-2 , $pq+1$, etc.

Polynomial: Expressions that have more than two terms with non-zero coefficients and variables having non-negative integral exponents are called polynomials.

Examples: $a+b+c+2$, $7xy-8x+2+3y$, $5t^3-7t+k+3$.