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CLASS: VIII

SUB.: MATHS

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Algebraic Expressions:

Algebraic Expressions:

Any expression containing constants, variables, and the operations like addition, subtraction, etc. is called as an algebraic expression.

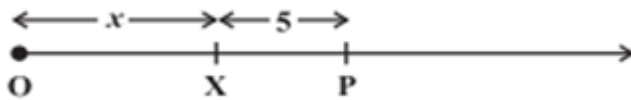
Example: $5x$, $2x - 3$, $x^2 + 1$, etc.

Relation between number line and expression:

For any given expression of the form $(a + b)$, where a is variable and b is constant then the value of this expression will always lie at b units after the point a on the number line.

Example 1: The following figure shows a number line drawn for the expression $x + 5$.

Here, X



represents the variable x which is unknown.

Thus, the final point will definitely be at 5 units from X which is denoted by P.

1. Term: A term is either a single number or variable and it can be combination of numbers and variable. They are usually separated by different operators like $+$, $-$, etc.

Example 1: Some examples of terms are y , 5 , $2x$, etc.

Example 2: Consider an expression $6x - 7 = 2$.

Then, the terms in this expression are $6x$, -7 and 2 .

Example 3: Identify the terms for $0.7a - 1.2b + 0.5ab$.

Solution: The terms for given expression are $0.7a$, $-1.2b$ and $0.5ab$.

2. Factors: Factors can be product of numbers or number and variable.

Example 1: Term $7x$ is made of two factors 7 and x .

Example 2: Number 6 is made of two factors 2 and 3, 1 and 6.

3. Coefficient The number multiplied to variable is called as coefficient.

Example 1: The coefficient of the term $2x$ will be 2.

Example 2: The coefficient of the term $5ab$ will be 5.

Example 3: Identify the coefficients for $0.7a - 1.2b + 0.5ab$.

Solution: The coefficients for the given expression are 0.7, -1.2 and 0.5.

4. Monomials: The expressions which have only one term are called as monomials.

Example: 10 , $3x$, $5xy$, $2x^2$, etc. are some monomials.

5. Binomials: The expressions which have two terms are called as binomials.

Example: $x + 10$, $3x + 1$, $a + b$, $7x^2 + y^2$ etc. are some binomials.

6. Trinomials: The expressions which have three terms are called as trinomials.

Example: $2x + y + 10$, $3y + 3x$, $a + b + c$, $7x^2 + y^2 + 7$ etc. are some trinomials.

7. Polynomials: The expression which contains one or more terms with non-zero coefficient is called a polynomial. A polynomial can have any number of terms.

Example 1: 10 , $a + b$, $7x + y + 5$, $w + x + y + z$, etc.

Example 2: Classify following polynomials into monomials, binomials, trinomials or others:

(a) $a + b$ (b) 7 (c) $ab + bc + cd + da$ (d) $5x - 5y + 13xy$

Solution: (a) Binomial (b) Monomial (c) Polynomial (d) Trinomial

8. Like terms: The terms which have same variables are known as like terms.

Example: $5x$ and $7x$; $2xy$ and $3yx$; $4x^2$, $7x^2$, $9x^2$ and x^2 ; etc. are some like terms.

9. Unlike terms: The terms which do not have the same variables are known as unlike terms.

Example: $5x$ and $7y$; $2xy$ and $3ax$; $4x^2$, $7y^2$ and $9z^2$; etc. are some unlike terms.