APTITUDE - BASIC EQUATIONS

Linear equations in two variables

An equations of the form $ax + by + c = 0$, where a, b, $c \subset R$ and $a \neq 0$, $b \neq 0$ and x, y are variables, is called a linear equation in two variables.

Solution: Any pair of values of x and y which satisfy the equation $ax + by + c = 0$, is called its solution.

Consistent and inconsistent system of linear Equations

A system consisting of two simultaneous linear equations is said to be:

- Consistent, if it has at least one solution.

- Inconsistent, if it has no solution.

Conditions for Solvability

The system of equation $a_1x + b_1y + c_1 = 0$, $a_2x + b_2y + c_2 = 0$ has

- A unique solution, if $a_1/a_2 \neq b_1/b_2$;

- An infinite number of solutions, if $a_1/a_2 = b_1/b_2 = c_1/c_2$;

- No solution, if $a_1/a_2 = b_1/b_2 \neq c_1/c_2$;

Homogeneous system of equations

The system of equations $a_1x + b_1y = 0$; $a_2x + b_2y = 0$ has

- Only solution $x = 0$, $y = 0$ when $a_1/a_2 \neq b_1/b_2$;

- An infinite number of solutions when $a_1/a_2 = b_1/b_2$

Solved Examples

Solved Examples