CHAPTER – 3
LINEAR EQUATION IN TWO VARIABLES

3.1 INTRODUCTION

An equation of the form Ax + By + C = 0 is called a linear equation.

Where A is called coefficient of x, B is called coefficient of y and C is the constant term (free form x & y) A, B, C, $\in$ R [$\in \rightarrow$ belongs, to R $\rightarrow$ Real No.]

But A and B ca not be simultaneously zero.

If A $\neq$ 0, B = 0 equation will be of the form Ax + C = 0. [Line | | to Y-axis]

If A = 0, B $\neq$ 0, equation will be of the form By + C = 0. [Line | | to X-axis]

If A $\neq$ 0, B $\neq$ 0, C = 0 equation will be of the form Ax + By = 0. [Line passing through origin]

If A $\neq$ 0, B $\neq$ C, C $\neq$ 0 equation will be of the form A x + By + C = 0.

It is called a linear equation in two variable because the two unknown (x & y) occurs only in the first power, and the product of two unknown equalities does not occur.

Since it involves two variable therefore a single equation will have infinite set of solution i.e. indeterminate solution. So we require a pair of equation i.e. simultaneous equations.

Standard form of linear equation : (Standard form refers to all positive coefficient)

$a_1x + b_1y + c_1 = 0$ ....(i)

$a_2x + b_2y + c_2 = 0$ ....(ii)

For solving such equations we have three methods.

(i) Elimination by substitution

(ii) Elimination by equating the coefficients

(iii) Elimination by cross multiplication.