# CHAPTER – 4

# LINEAR EQUATION IN TWO VARIABLE

# INTRODUCTION

- AN EQUATION OF FORM $ax + by + c = 0$, where a, b and c are real numbers, such that a and b are not both zero, is called a linear equation in two variable.
- A linear equation in two variables has infinite many solutions.
- The graph of every liner equation in two variables is a straight line.
- $x = 0$ is the equation of the y - axis and $y=0$ is the equation of the x – axis.

- The graph of x = a is a straight line parallel to the y – axis.
- The graph of y = b is a straight line parallel to the x – axis.
- An equation of the type y = mx represents a line passing through the origin.
- Every point on the graph of a linear equation in two variables is a solution of the linear equation. Moreover, every solution of the linear equation is a point on the graph of the linear equation.

# Introduction

- A simple linear equation is an equality between two algebraic expressions involving an unknown value called the variable. In a linear equation the exponent of the variable is always equal to 1. The two sides of an equation are called Right Hand Side (RHS) and Left-Hand Side (LHS). They are written on either side of equal sign.

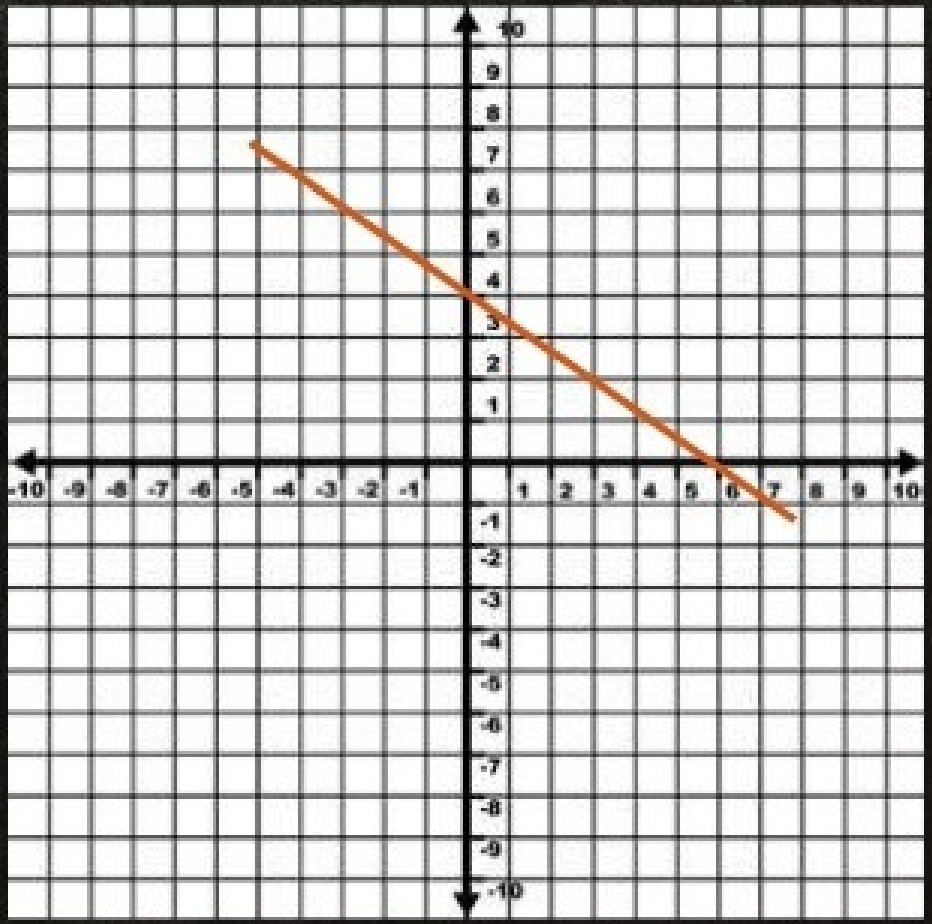
| Equation | LHS | RHS |
|---|---|---|
| $4x + 3 = 5$ | $4x + 3$ | 5 |
| $2x + 5y = 0$ | $2x + 5y$ | 0 |
| $-2x + 3y = 6$ | $-2x + 3y$ | 6 |

# Graph of a linear equation in two variables

Graph of a linear equation is representation of the linear equation .

Observations on a graph

Every point whose coordinates satisfy the equation lies on the line. Every point on the line gives a solution of the equation. Any point, which does not lie on the line is not a solution of equation.



X+2Y=6