

# LINEAR EQUATION IN ONE VARIABLE

An equation is a statement in which two algebraic expressions are equal.  
Ex:  $4x - 3 = 5$  here  $x$  is variable and  $3, 5$  are constants

An equation which occurs with one variable of first degree is called a linear equation in one variable. Ex  $x + 5 = 0$

An equation which occurs with two variables of first degree is called a linear equation in two variable. Ex  $xy + 1 = 0$

- x A linear equation has only one solution, which is called its root .
- x An equation remains unaltered on:
  - 1) Adding the same number to both sides of it.
  - 2) Subtracting the same number from both sides of it.
  - 3) Multiplying both sides of it by the same number.
  - 4) Dividing both sides of it by the same number.

## SOLVING A LINEAR EQUATION

- (i) • Simplifying all brackets, fractions, etc., if required
- (ii) • Bring all the terms containing the variables on one side and all the constant terms on the other side.
- (iii) • Solve the equation, obtained in step(2) , to get the value of its variable.

## TO SOLVE PROBLMES BASED ON LINEAR EQUATION

- ❖ Read the problem carefully and find out the given and the unknown.
- ❖ Assume the variable (unknown) as  $x$ .
- ❖ According to the problem, set up two equations in terms of  $x$  and the known values
- ❖ Solve the equation to obtain the value of unknown.

### NOTE

- Consecutive integers, natural numbers and the whole numbers are taken as  $x, x+1, x+2, \dots$

# LINEAR EQUATION IN ONE VARIABLE

- ❖ Consecutive even integers, natural numbers and the whole numbers differ by 2 and so are taken as  $x, x+2, x+4, \dots$
- Consecutive odd integers, natural numbers and the whole numbers also differ by 2 and so are taken as  $x, x+2, x+4, \dots$
- Consecutive multiples of 3 in integers, natural numbers and the whole numbers also differ by 3 and so are taken as  $x, x+3, x+6, \dots$
- Speed = Distance Travelled / Time Taken
- Dividend = (Quotient  $\times$  Divisor) + Remainder