

$$x = 6 + 3$$

$$x = 9$$

$$x = 6 - 3$$

$$x = 3$$

❖ **Word Problem:-**

To solve the word problem, procedure followed is as under,

- ✓ Read the problem, carefully and note down the important points.
- ✓ Observe, what are the unknowns or what is to find?
- ✓ Take unknown as variable 'x'.
- ✓ Form an equation as per the question
- ✓ Solve the formed equation for unknown.

Q No. 3:- Choose the correct option:

1. Linear equations have the power of the variable as  
(a) 0 (b) 1 (c) 2 (d) -1
2. If  $-y = -7 + 1$ , value of  $y$  is  
(a) 7 (b) 8 (c) -6 (d) 6
3. If 5 times a number increased by 4 is 39, the number is  
(a) 9 (b) 7 (c) 11 (d) 5
4. The solution of  $4m - 4 = 2m + 6$  is  
(a)  $m = 4$  (b)  $m = 6$  (c)  $m = 5$  (d)  $m = 7$
5. If  $4a = \frac{1}{2}$ , then the value of  $a$  is  
(a) 0 (b) 1 (c) 8 (d)  $\frac{1}{8}$
6. If  $\frac{b}{3} + \frac{b}{5} = 8$ , value of  $b$  is  
(a) 16 (b) 15 (c) 64 (d) -8
7. If  $5(a - 3) - 4(a - 2) = 0$ , then the value of  $a$  is  
(a) 7 (b) 5 (c) 4 (d) -3
8. If  $\frac{5x}{6} + \frac{3x}{4} = \frac{19}{12}$ , then the value of  $x$  is  
(a) 4 (b) 2 (c) 3 (d) 1
9. If  $p - \frac{p}{2} = \frac{9}{2}$ , then the value of  $p$  is  
(a) 9 (b) 8 (c) 7 (d) 6
10. The sum of three consecutive even numbers is 42. The numbers are  
(a) 10,12,14 (b) 12,14,16  
(c) 14,16,18 (d) 16,18,22

## CHAPTER : 2 LINEAR EQUATION IN ONE VARIABLE

- ❖ **Linear Equation in one variable:-** An equation which can be expressed in the form of  $ax + b = 0$ , where  $a$  and  $b$  are two integers,  $x$  is a variable and has only one solution.
  - ❖ For example,  $5x + 2 = 7$  is a linear equation having single variable in it. Therefore, this equation has only one solution, which is  $x = 1$
  - ❖ **Equation:-** An equation is a condition on a variable such that two expressions in the variable should have equal value.
    - ✓ The value of the variable for which the equation is satisfied is called the solution of the equation.
    - ✓ An equation remains the same if the LHS and the RHS are interchanged.
- In case of the balanced equation, if we
- (i) Add the same number to both the sides, or
  - (ii) Subtract the same number from both sides, or
  - (iii) Multiply both sides by the same number, or
  - (iv) Divide both sides by the same number, the balance remains undisturbed i.e. the value of the LHS remains equal to the value of RHS.

For Example

(a)  $x - 3 = 6$   
**Sol:- Adding 3 with both sides**  
 $x - 3 + 3 = 6 + 3$   
 $x + 0 = 9$   
 $x = 9$

(b)  $x + 3 = 6$   
**Sol:- Subtracting 3 from both sides**  
 $x + 3 - 3 = 6 - 3$   
 $x + 0 = 3$   
 $x = 3$

(c)  $\frac{x}{5} = 3$   
**Sol:- Multiplying 5 with both sides**  
 $\frac{x}{5} \times 5 = 3 \times 5$   
 $x \times 1 = 15$   
 $x = 15$

(d)  $6x = 36$   
**Sol:- Dividing both sides by 6**  
 $\frac{6x}{6} = \frac{36}{6}$   
 $x = 6$

- ❖ **Transposing :-** Transposing means moving to the other side. Transportation of a number has the same effect as adding same number to (or subtracting the same number from) both sides of the equation. When you transport a number from one side of the equation to the other side, you change its sign.

For Example  $x - 3 = 6$

(b)  $x + 3 = 6$

**Sol:- Transpose (-3) from LHS to RHS**

**Sol:- Transpose (+3) from LHS to RHS**

Q No. 2:- Choose the correct option:

- Which of the following is the standard form of  $-\frac{36}{24}$ ?  
(a)  $-\frac{3}{2}$                       (b)  $\frac{3}{2}$                       (c)  $\frac{2}{3}$                       (d)  $-\frac{2}{3}$
- A rational number between  $-\frac{1}{2}$  and  $\frac{1}{2}$  is  
(a)  $-\frac{3}{4}$                       (b)  $\frac{3}{4}$                       (c) 1                      (d) None of these
- $(a + b) + c = a + (b + c)$  is \_\_\_\_\_ property.  
(a) Closure                      (b) Associative                      (c) Commutative                      (d) Distributive
- The reciprocal of  $-\frac{6}{7}$  is  
(a)  $\frac{6}{7}$                       (b)  $-\frac{7}{6}$                       (c)  $-\frac{6}{7}$                       (d)  $\frac{7}{6}$
- \_\_\_\_\_ does not have a reciprocal  
(a) 1                      (b) 2                      (c) 0                      (d) -1
- The additive inverse of  $\frac{8}{-17}$  will be  
(a)  $\frac{8}{17}$                       (b)  $\frac{17}{8}$                       (c)  $-\frac{8}{17}$                       (d)  $-\frac{17}{8}$
- The additive identity for rational number is :  
(a) 1                      (b) -1                      (c) 0                      (d) None of these
- Which of the following is the Multiplicative identity for rational number?  
(a) 1                      (b) 0                      (c) -1                      (d) None of these
- A number which can be put in the form of  $\frac{p}{q}$  where p and q are integers and  $q \neq 0$  is  
(a) Natural Number                      (b) Whole Number  
(c) Integers                      (d) Rational Number
- Which of the following is neither a positive nor a negative rational numbers?  
(a) 0                      (b) 1                      (c) -1                      (d) None of these

**CHAPTER :1 Rational Numbers**

- ❖ **Rational Number:-** A number which can be put in the form of  $\frac{p}{q}$ , ( $q \neq 0$ ) where  $p$  and  $q$  are integers  
e.g.  $\frac{2}{3}, \frac{1}{2}, -\frac{2}{3}, \dots$  etc
- ❖ **Standard form of Rational Number:-** A rational number  $\frac{p}{q}$  is said to be in standard form if  $p$  and  $q$  are integers having no common divisor other than 1.
- ❖ Every positive rational number is greater than 0.
- ❖ Every negative rational number is less than 0.
- ❖ Rational numbers are closed under addition, subtraction multiplication and division (provided divisor is not zero)
- ❖ Commutative of addition is true for natural numbers, whole numbers and integers. It is also true for rational numbers.
- ❖ Associative of addition is true for natural numbers whole numbers and integers. It is true for rational numbers.
- ❖ **Additive inverse :-** For every rational number  $p/q$ , there exists a rational number  $(-p/q)$  such that  $(P/q) + (-p/q) = 0$ ,  $-p/q$  is called the additive inverse of  $p/q$ .

Q No. 1:- Fill in the blanks:-

- (i) The reciprocal of -5 is \_\_\_\_\_
- (ii) The numbers \_\_\_\_\_ and \_\_\_\_\_ are their own reciprocals.
- (iii) Zero has \_\_\_\_\_ reciprocal.
- (iv) The reciprocal of a positive rational number is \_\_\_\_\_
- (v) The product of two rational numbers is always a \_\_\_\_\_
- (vi) Reciprocal of  $\frac{1}{x}$ , where  $x \neq 0$  is \_\_\_\_\_