CLASS 10

# PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

## INTRODUCTION AND GRAPHICAL METHOD TO SOLVE LINEAR

### **EQUATION OF TWO VARIABLE**

#### EXERCISE

- **Q.1**  $\frac{x}{3} + \frac{x}{4} = 8, x = 12$
- **Q.2** (4x + 7) 2 = 3x + 1, x = -4
- **Q.3**  $\frac{5x+4}{4} \frac{3x-2}{2} = 5, x = \frac{1}{2}$
- **Q.4** For each of the following, state the quadrant in which the point lies.
  - (i) (3, 3) (ii) (-3, 2) (iii) (2, -4)
  - (iv) (-1, -2) (v) (-5, -5) (vi) (5, 3).
- **Q.5** Express x in terms of y, given that 3x + 4y = 6. Check whether the point (3, 2) is on the given line.
- **Q.6** Express y in terms of x, given that 2x 5y = 7. Check whether the point (-3, -2) is on the given line.
- **Q.7** Draw the graph of the equation 3x + 4y = 14 and check whether x = 1 and y = 2 is a solution or not.

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**Q.8** Solve the following system of equations graphically. Also, find out the points, where these lines meet the y-axis.

(i) 
$$x + 2y - 7 = 0$$
  $2x - y + 1 = 0$ 

- (ii) 2x + y = 8 x + 1 = 2y
- (iii) 2x + 3y = 12 2y 1 = x
- **Q.9** Draw the graphs of the following systems of equations, state whether it is consistent (dependent), consistent (independent) or inconsistent :
  - (i) x + y = 7 2x 3y = 9
  - (ii) 2x + 4y = 7 3x + 6y = 10
  - $(iii)2x + 3y 12 = 0 \qquad 2x + 3y 6 = 0$
  - (iv)3x 5y + 4 = 0 9x = 15y 12
  - (v) x + 3y = 1 2x + 6y = 2
  - (vi)x + 4y = 7 2x y = 5
- **Q.10** Given the linear equation 2x + 3y 8 = 0, write another linear equation in two variables such that the geometrical representing of the pair so formed is :
  - (i) intersecting lines
  - (ii) parallel lines
  - (iii) coincident lines

# **ANSWER KEY**

- **1.** No
- **2.** Yes
- **3.** No
- 4. (i) Ist (ii) IInd (iii) IVth
  (iv) IIIrd (v) IIIrd (vi) Ist
- 5. (i)  $x = \frac{6-4y}{3}$ , (ii) No
- 6. (i)  $y = \frac{2x-7}{5}$  (ii) No
- **7.** Not
- 8. (i) x = 1, y = 3,  $\left(0, \frac{7}{2}\right)$ , (0, 1)

(ii) x = 3, y = 2, (0, 8), 
$$\left(0, \frac{1}{2}\right)$$

(iii)x = 3, y = 2, (0, 4), 
$$\left(0, \frac{1}{2}\right)$$

- 9. (i) Consistent (independent) with unique solution
  - (ii) Inconsistent
  - (iii) Inconsistent

(iv)Consistent (dependent) with infinitely many solutions

(v) Consistent (dependent) with infinitely many solutions

(vi)Consistent (dependent) with unique solution

**10.** (i) 3x - 2y - 8 = 0

(ii) 4x + 6y - 22 = 0

(iii) 6x + 9y - 24 = 0