LINEAR EQUATION IN TWO VARIABLES

BASIC INTRODUCTION OF LINEAR EQUATION

EXERCISE

Q.1 Make linear equation by the following statements :

(1) The cost of 2kg of apples and 1 kg of grapes on a day was found to be ₹ 160. After a month, the cost of 4 kg of apples and 2 kg of grapes is ₹ 300. Represent the situation algebraically.

(2) The coach of a cricket team buys 3 bats and 6 balls for ₹ 3900. Later, she buys another bat and 3 more balls of the same kind for ₹1300. Represent this situation algebraically

(3) 10 students of class IX took part in a Mathematics quiz. If the number of girls is 4 more than the number of boys.

(4) Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36 m.

(5) The difference between two numbers is 26 and one number is three times the other.

(6) The larger of two supplementary angles exceeds the smaller by 18 degrees.

(7) A fraction becomes $\frac{9}{11}$, if 2 is added to both the numerator and the denominator. If, 3 is added to both the numerator and the denominator it becomes $\frac{5}{6}$.

(8) Five years hence, the age of Sachin will be three times that of his son. Five years ago, Sachin's age was seven times that of his son.

Q.2 Find five solutions of

(i) $2x + 3y = 6$ (ii) $3x - 2y = 12$ (iii) $7x + y = 15$

Q.3 Find two solutions of

(i) $3x - 7y = 21$ (ii) $8x - 5y = 16$

Q.4 Find five solutions of

(i) $3x = 5$ (ii) $7y = 10$

Q.5 Write the three solutions for each of the following

(i) $x = 9y$

(ii) $x+\sqrt{3}y=6$

(iii) $2x + \pi y = 3.4$

Q.6 Find the solutions of the form $x = a$, $y = 0$ and $x = 0$, $y = b$ for the following equations : $2x + 5y = 10$ and $2x + 3y = 6$. Is there any common solution?

Q.7 Check which of the following are solutions of the equation $2x - y = 6$ and which are not :

(i) $(3, 0)$

(ii) $(0, 6)$

(iii) $(2, -2)$

(iv) $(\sqrt{3}, 0)$

(v) $\left(\frac{1}{2}, -5\right)$

ANSWER KEY

1. (1) $2x + y = 160$ $\quad 4x + 2y = 300$

(2) $3x + 6y = 3900$ $\quad x + 3y = 1300$

(3) $x + y = 10$ $\quad y = x + 4$

(4) $x + y = 36$ $\quad x = 4 + y$

(5) $x - y = 26$ $\quad x = 3y$

(6) $x + y = 180°$ $\quad x = y + 18°$

(7) $11x - 9y = -4$ $\quad 6x - 5y = -3$

(8) $x - 3y = 10$ $\quad x - 7y = -30$

2. (i)

x	3	3/2	0	−3/2	−3
y	0	1	2	3	4

(ii)

x	0	1	2	3	−1
y	−6	−9/2	−3	−3/2	−8

(iii)

x	0	1	2	3	4
y	15	8	1	−6	−13

3. (i)

x	0	7
y	−3	0

(ii)

x	0	2
y	−3.2	0

4. (i)

x	5/3	5/3	5/3	5/3	5/3
y	0	1	2	3	4

(ii)

x	0	1	2	3	4
y	10/7	10/7	10/7	10/7	10/7

5. (i) (0, 0), (9, 1), (18, 2)

(ii) (6, 0), $(6-\sqrt{3}, 1)$, $(6+\sqrt{3}, -1)$

(iii) (1.7, 0), $\left(\frac{3.4+\pi}{2}, -1\right)$, $(1.7 - \pi, -2)$.

6. $x = 5, y = 0$ and $x = 0, y = 2$ are two solutions of $2x + 5y = 10$.

$x = 0, y = 2$ and $x = 3, y = 0$ are two solutions of $2x + 3y = 6$.

Yes, $x = 0, y = 2$ is common solution.

7. (i) Yes

(ii) No

(iii) Yes

(iv) No

(v) Yes