Solution

LINEAR EQUATIONS IN TWO VARIABLES

Class 09 - Mathematics

Section A

1.
(b) a = b = 0
Explanation:
a = b = 0

2.
(b) 1.x + 0.y = 7
Explanation:
The equation x = 7 in two variables can be written as exactly 1.x + 0.y = 7
because it contain two variable x and y and coefficient of y is zero as there is no term containing y
in equation x = 7

3. **(a)** (2, 2)
Explanation:
When we put x=2 in the given equation,
Then, y = (3×2) – 4
y =6–4 = 2, so point is (2, 2)satisfied the given equation,
Hence point (2, 2) will lie on the line y = 3x - 4

4.
(d) many
Explanation:
Because one point can be solution of many equations. So many equations can be pass from one point.

5.
(d) only one
Explanation:
only one because if a line is passing through two points then that two points are solution of a single linear equation so only one line passes over two given points.

6.
(b) Infinitely many solutions
Explanation:
Given equation is 2x - 5y = 7
There is no given value of x and y so we can take any values.
For every value of x, we get a corresponding value of y and vice-versa.
Therefore, it has infinitely many solutions.

7. **(a)** Infinitely many
Explanation:
There are many linear equations in ‘x’ and ‘y’ can be satisfied by x = 1, y = 2
for example
x + y = 3 x - y =-1
2x + y =4
and so on there are infinte number of examples

8. **(a)** y = kx

Explanation:

let force applied be y and accleration produced be x

The force applied on a body is directly proportional to the acceleration produced on it.

$y \alpha x$

$y = kx$

where k is proportionality constant

9. **(a)** y = 5x + 3

Explanation:

Taxi fare for first kilometer = ₹8

Taxi fare for subsequent distance = ₹5

Total distance covered = x

Total fare = y

Since the fare for first kilometer = ₹8

According to problem, Fare for (x - 1) kilometer = 5(x - 1)

So, the total fare y = 5(x - 1) + 8

⇒ y = 5(x - 1) + 8

⇒ y = 5x – 5 + 8

⇒ y = 5x + 3

Hence, y = 5x + 3 is the required linear equation.

10.

(d) Infinitely many solutions

Explanation:

3x - y = x-1

y = 3 x - x +1

y = 2 x + 1

This is linear equation of two variable. If we take any random value of x and solve y corresponding value of x . We will get infinite many solutions.

11. **(a)** y = 5x

Explanation:

y = 5x

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at x = 1

y = 5.1 = 5

y = 5

(1,5)

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at x = 2

y = 5.2 = 10

y = 10

(2,10)

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at x = 3

y = 5.3 = 15

y = 15

(3,15)

12. **(a)** y = 0

Explanation:

Since x-axis is a parallel to itself at a distance 0 from it. Let P (x,y) be any point on the x-axis. Then clearly, for all position of P, we shall have the same ordinate 0 or, y = 0. Therefore, the equation of x-axis is y = 0.

13.

(c) 3

Explanation:

If (-2, 5) is a solution of 2x + my = 11

then it will satisfy the given equation

2 .(-2)+5 m=11

-4+5 m=11

5 m=11+4

5 m=15

$m = \frac{15}{5} = 3$

m=3

14.

(d) many solutions

Explanation:

y = 2x - 7

Has many solution because for different value of x we have different value of y for example.

At x = 1

y = 2 (1) - 7

y = 2 - 7

y = -5

at x = 2

y = 2(2) - 7

y = 4 - 7

y = -3

So we can say for many value of x there is many value of y.

15.

(d) (1 ,1)

Explanation:

y = x, ⇒ both the coordinates are the same. Hence (1, 1) is correct option.

16.

(b) 2x + y = 160

Explanation:

Let the cost of apples be ₹x per Kg and cost of grapes be ₹y per Kg. The cost of 2 kg of apples and 1 kg of grapes on a day was found to be ₹160.

So the equation will be

2x + y = 160

17. **(a)** ad – bc = 0

Explanation:

The given system of equations has a non – trivial solution if: $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = 0 \Rightarrow ad - bc = 0$.

18. **(a)** 4

Explanation:

Given, (4, 19) is a solution of the equation *y*=*ax*+3

=19 = 4a + 3

= a = 4

19.

(c) Natural numbers

Explanation:

There is only one pair i.e., (1, 1) which satisfies the given equation but in positive real numbers, real numbers and rational numbers there are many pairs to satisfy the given linear equation. Hence, unique solution is possible only in case of Natural numbers.

20.

(c) (0, 12)

Explanation:

We have, $4x + y = 12$

Since, the line meets y-axis i.e., $x = 0$

Now, $4 \times 0 + y = 12 \Rightarrow y = 12$

$\therefore$ Required point is (0, 12).

21.

(c) many

Explanation:

There are infinite many eqution which satisfy the given value $x = 2$, $y = 3$

for example

$x + y = 5$

$x - y = -1$

$3x - 2y = 0$

etc.......

22.

(b) (3,0)

Explanation:

$2x + 3y = 6$ meets the X-axis.

Put $y = 0$,

$2x + 3(0) = 6$

$x = 3$

Therefore, graph of the given line meets X-axis at (3, 0).

23.

(d) 1st quadrant

Explanation:

The positive solutions of the equation $ax + by + c = 0$ always lie in the 1st quadrant

Because in 1st quadrant both x and y have positive value.

24. **(a)** $2x – 5y = 0$

Explanation:

In linear equation power of variable x and y should be 1 and here, the given linear equation has two variable x and y.

25. **(a)** intersecting or coincident

Explanation:

intersecting or coincident

26.

(b) (1, -2)

Explanation:

Solution of the equation $3x – 2y = 7$ is (1, -2) as it satisfy the given equation

$3x – 2y = 7$

$\Rightarrow 3(1) - 2(-2) = 7$

$\Rightarrow 3 + 4 = 7$

LHS = RHS

27.

(d) $y = \frac{3x+10}{5}$

Explanation:

5y - 3x - 10 = 0

5y - 3x = 10

5y = 10 + 3x

y = $\frac{10+3x}{5}$

28.

(c) a $\neq$ 0 and b $\neq$0

Explanation:

A linear equation in two variables is of the form ax + by + c = 0 as a and b are cofficient of x and y
so if a = 0 and b = 0 or either of one is zero in that case the equation will be one variable or their will be no equation respectively.
therefore when a $\neq$ 0 and b $\neq$ 0 then only the equation will be in two variable

29.

(d) 2x – y = 12

Explanation:

x = 5 and y = -2 is the solution of the linear equation 2x – y = 12

2x - y = 12

LHS = 2x - y

2.5 - (-2)

10 + 2

12

RHS = 12

LHS = RHS

It means that x = 5 and y = -2 is the solution of the linear equation 2x - y = 12.

30.

(b) $x = \frac{3y+5}{2}$

Explanation:

$$2x - 3y - 5 = 0$$
$$2x = 3y + 5$$
$$x = \frac{3y + 5}{2}$$

31.

(c) A is true but R is false.

Explanation:

($\frac{-3}{2}$, k) is a solution of 2x + 3 = 0

$2 \times \left(-\frac{3}{2}\right) + 3$ = -3 + 3 = 0

($\frac{-3}{2}$, k) is the solution of 2x + 3 = 0 for all values of k.

Also ax + b = 0 can be expressed as a linear equation in two variables as ax + 0·y + b = 0.

32.

(c) A is true but R is false.

Explanation:

Every linear equation has degree 1.

2x + 5 = 0 and 3x + y = 5 are linear equations. So, both have degree 1.

33. **(a)** Both A and R are true and R is the correct explanation of A.

Explanation:

Putting (1, 1) in the given equation, we have

L.H.S = 1 + 1 = 2 = R.H.S

L.H.S = R.H.S

Hence (1, 1) satisfy the x + y = 2. So it is the solution of x + y = 2.

34. **(a)** Both A and R are true and R is the correct explanation of A.

Explanation:

Both A and R are true and R is the correct explanation of A.

35.

(c) A is true but R is false.

Explanation:

If (3, 1) lies on the graph of x - 2y = 1

For x - 2y = 1, (3, 1) is a solution as 3 - 2 $\times$ 1 = 1

36.

(b) Both A and R are true but R is not the correct explanation of A.

Explanation:

Through a point infinite lines can be drawn. Through (2, 14) infinite number of lines can be drawn. Also a line has infinite points on it hence a linear equation representing a line has infinite solutions.

Section B

37. πx + y = 9

⇒ y = 9 – πx

Put x = 0, we get y = 9 – π(0) = 9 – 0 = 9

put x = 1, we get y = 9 – π(1) = 9 – π

Put x = –1, we get y = 9 – π(–1) = 9 + π

Put x = $\frac{9}{\pi}$, we get $y = 9 - \pi\left(\frac{9}{\pi}\right) = 9 - 9 = 0$

∴ Four solutions are (0, 9), (1, 9 – π), (–1, 9 + π) and $\left(\frac{9}{\pi}, 0\right)$.

38. We need to express the linear equation $x - \frac{y}{5} - 10 = 0$ in the form ax + by + c = 0 and indicate the values of a, b and c.

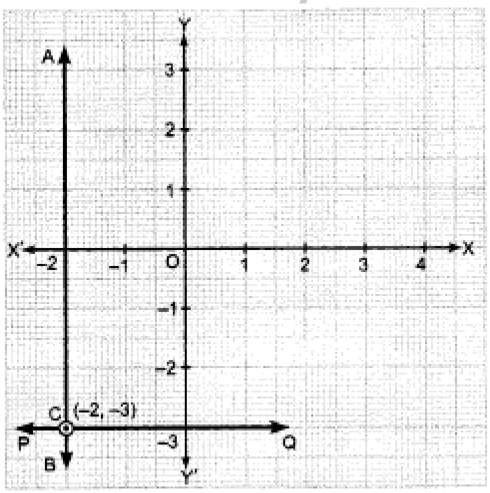
$x - \frac{y}{5} - 10 = 0$ can also be written as $1 \cdot x - \frac{y}{5} - 10 = 0$.

We need to compare the equation $1 \cdot x - \frac{y}{5} - 10 = 0$ with the general equation ax + by + c = 0, to get the values of a, b and c.

Therefore, we can conclude that $a = 1, b = -\frac{1}{5}$ and $c = -10$

39. AB⇒x=-2

PQ⇒y=-3



Point of intersection of AB and PQ is $C(-2, -3)$.

40. 2(x – 1) + 3y = 4

⇒ 2x – 2 + 3y = 4

⇒ 2x + 3y = 4 + 2
⇒ 2x + 3y = 6
⇒ 3y = 6 – 2x
⇒ $y = \frac{6-2x}{3}$
Put x = 0, then $y = \frac{6-2(0)}{3} = 2$
Put x = 3, then $y = \frac{6-2(3)}{3} = 0$
Put x = 6, then $y = \frac{6-2(6)}{3} = -2$
Put x = –3, then $y = \frac{6-2(-3)}{3} = 4$
∴ (0, 2), (3, 0), (6, –2) and (–3, 4) are the four solutions of the equation 2(x – 1) + 3y = 4.

41. We need to express the linear equation $2x = -5y$ in the form ax + by + c = 0 and indicate the values of a, b and c.
$2x = -5y$ can also be written as $2x + 5y + 0 = 0$.
We need to compare the equation $2x + 5y + 0 = 0$ with the general equation ax + by + c = 0, to get the values of a, b and c.
Therefore, we can conclude that $a = 2, b = 5$ and $c = 0$

42. 2x – 3y + 7 = 8
For x = 2, y = 1
L.H.S. = 2x – 3y + 7
= 2(2) – 3(1) + 7
= 4 – 3 + 7 = 8
= R.H.S.
∴ x = 2, y = 1 is a solution of 2x – 3y + 7 = 8

43. $2x + 3y = 9.3\bar{5}$
We need to express the linear equation $2x + 3y = 9.3\bar{5}$ in the form ax + by + c = 0 and indicate the values of a, b and c.
$2x + 3y = 9.3\bar{5}$ can also be written as $2x + 3y - 9.3\bar{5} = 0$.
We need to compare the equation $2x + 3y - 9.3\bar{5} = 0$
with the general equation ax + by + c = 0, to get the values of a, b and c.
Therefore, we can conclude that a = 2, b = 3 and c = $-9.3\bar{5}$

44. 2x+3y=7
For x = 2, y = 1
L.H.S. = 2x + 3y
= 2(2) + 3(1)
= 4 + 3 = 7
= R.H.S.
∴ x = 2, y = 1 is a solution of 2x + 3y = 7

45. Let the length be x and breadth be y.
∴ Area of the rectangle $= xy$
When length is $x - 3$ and breadth is $y + 4$, then the area will increase by 9 sq. units
$\therefore (x-3)(y+4) = xy + 9$
$\Rightarrow xy + 4x - 3y - 12 = xy + 9$
$\Rightarrow 4x - 3y - 12 = 9$
$\Rightarrow 4x - 3y = 21$

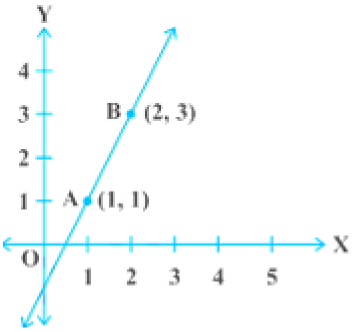
46. Put x = 1 and y = 1 in given equation, we get
x – 2y = 1 – 2(1) = 1 – 2 = –1, which is not 4.
∴ (1, 1) is not a solution of given equation.

47. 5x+3y=14
For x = 2, y = 1
L.H.S. = 5x + 3y = 5(2) + 3(1)
= 10 + 3 = 13
$\neq$ R.H.S.
∴ x = 2, y = 1 is not a solution of 5x + 3y = 14

48. We need to express the linear equation 5 = 2x in the form ax + by + c = 0 and indicate the values of a, b and c.
5 = 2x can also be written as -2x + 0·y + 5 = 0.

We need to compare the equation $-2x + 0 \cdot y + 5 = 0$ with the general equation ax + by + c = 0, to get the values of a, b and c.
Therefore, we can conclude that a = -2, b = 0 and c = 5

49. From the table, we get two points A (1,1) and B (2,3) which lie on the graph of the linear equation Obviously,
the graph will be a straight line so we first plot the points A and B and join them as shown in the fig
from the fig we see that the graph cuts the x axis at the point $\left(\frac{1}{2}, 0\right)$ an and y - axis at the point (0, -1)



50. Let cost of pen Rs x and cost of a pencil be Rs. y.
According to statement of the question, we have
$x = 2\frac{1}{2}y$
⇒ 2x = 5y or 2x - 5y = 0

51. For x = 2, y = 1
x + y + 4 = 0
L.H.S. = x + y + 4
= 2 + 1 + 4 = 7
≠ R.H.S
∴ x = 2, y = 1 is not a solution of x + y + 4 = 0.

52. x + y + 4 = 0
For x = 2, y = 1
L.H.S. = x + y + 4
= 2 + 1 + 4 = 7
≠R.H.S.
∴ x = 2, y = 1 is not a solution of x + y + 4 = 0.

53. Given, -4*x* +3*y* =12 .....(1)
Put value of x = 0 in equation (1), we get
⇒ 0 + 3y = 12
⇒ y = 4
Thus, **x = 0 and y = 4 is a solution**
put value of y = 0 in equation (1), we get
⇒ -4x + 0 = 12
⇒ x = -3
Thus, **x = -3 and y = 0 is a solution**

54. We need to express the linear equation $-2x + 3y = 6$ in the form ax + by + c = 0 and indicate the values of a, b and c.
$-2x + 3y = 6$ can also be written as $-2x + 3y - 6 = 0$.
We need to compare the equation $-2x + 3y - 6 = 0$ with the general equation ax + by + c = 0, to get the values of a, b and c.
Therefore, we can conclude that $a = -2, b = 3$ and $c = -6$

55. x – y = 0
⇒ y = x
Put x = 0, then y = 0
Put x = 1, then y = 1
Put x = 2, then y = 2
Put x = 3, then y = 3
∴ (0, 0), (1, 1), (2, 2) and (3, 3) are the four solutions of the equation x – y = 0.

56. Since x = 3k + 2 and y = 2k - 1 is a solution of the equation 4x - 3y + 1 = 0,
substituting these values in equation,
we get 4(3k + 2) - 3(2k - 1) + 1 = 0

$\Rightarrow$ 12k + 8 - 6k + 3 + 1 = 0 $\Rightarrow$ 6k + 12 = 0

$\Rightarrow$ 6k = -12 $\Rightarrow$ k = -2

57. For x = 2, y = 1,

L.H.S. = 2x + 5y

= 2(2) + 5(1)

= 4 + 5 = 9

= R.H.S.

∴ x = 2, y = 1 is a solution of 2x + 5y = 9

58. According to the question, given equation is $\frac{2}{3}x + 4y = -7$

$\Rightarrow \frac{2}{3}x = -7 - 4y$

$\Rightarrow 2x = 3(-7 - 4y)$

$\Rightarrow x = \frac{-21-12y}{2}$

Section C

59. 3x + 2y = 6

Put y = 0, we get

3x + 2(0) = 6

⇒ 3x = 6

⇒ $x = \frac{6}{3} = 2$

∴ (2, 0) is a solution.

3x + 2y = 6

put x = 0, we get

3(0) + 2y = 6

⇒ 2y = 6

⇒ $y = \frac{6}{2} = 3$

∴ (0, 3) is a solution.

5x+ 2y = 10

Put y = 0, we get

5x + 2(0) = 10

⇒ 5x = 10

⇒ $x = \frac{10}{5} = 2$

∴ (2, 0) is a solution.

5x + 2y = 10

Put x = 0, we get

5(0) + 2y = 10

⇒ 2y = 10

⇒ $y = \frac{10}{2} = 5$

∴ (0, 5) is a solution.

The given equations have a common solution (2, 0).

60. 2x + 3y = 4

⇒ 3y = 4 – 2x

⇒ $y = \frac{4-2x}{3}$

Put x = 0, then $y = \frac{4-2(0)}{3} = \frac{4}{3}$

put x = 1, then $y = \frac{4-2(1)}{3} = \frac{2}{3}$

Put x = 2, then $y = \frac{4-2(2)}{3} = 0$

Put x = 3, then $y = \frac{4-2(3)}{3} = \frac{-2}{3}$

∴ $(0, \frac{4}{3}), (1, \frac{2}{3}), (2, 0)\ and (3, \frac{-2}{3})$, are the solutions of the equation 2x + 3y = 4.

61. 12x + 5y = 0

⇒ 5y = –12x

⇒ $y = \frac{-12}{5}x$

Put x = 0, then $y = \frac{-12}{5}(0) = 0$

Put x = 5, then $y = \frac{-12}{5}(5) = -12$

Put x = 10, then $y = \frac{-12}{5}(10) = -24$

Put x = 15, then $y = \frac{-12}{5}(15) = -36$

∴ (0, 0), (5, –12), (10, –24) and (15, –36) are the four solutions of the equation 12x + 5y = 0

62. We have the equation as 3x + 2y = 18

In standard form

3x + 2y - 18 = 0

Or 3x + 2y + (-18) =0

But standard linear equation is

ax + by + c = 0

On comparison we get, a = 3, b = 2, c = -18

If (4, 3) lie on the line, i.e., solution of the equation LHS = RHS

∴ 3(4) + 2(3) = 18

12 + 6 = 18

18 = 18

As LHS = RHS, Hence (4, 3) is the solution of given equation.

Again for (1,2)

3x + 2y = 18

∴ 3(1)+2(2)=18

3 + 4 = 18

7 = 18

LHS $\neq$ RHS

Hence (1, 2) is not the solution of given equation.

Therefore (4,3) is the point where the equation of the line 3x + 2y = 18 passes through where as the line for the equation 3x + 2y =18 does not pass through the point (1,2).

63. The value of c for which the linear equation 2x + cy = 8 has equal values of x and y

i.e., x = y for its solution is

2x + cy = 8 ⇒ 2x + cx = 8 [∴ y = x]

⇒ cx = 8 - 2x

$\therefore\ c = \frac{8-2x}{x}, x \neq 0$

64. y varies of directly as x.

$\Rightarrow\ y \propto x$,

$\therefore\ y = kx$

Substituting y = 12 when x = 4, we get

$12 = k \times 4 \Rightarrow k = 12 \div 4 = 3$

Hence, the required equation is y = 3x.

The value of y when x = 5 is $y = 3 \times 5 = 15$.

65. 2x + 5y = 13

⇒ 5y = 13 – 2x

⇒ $y = \frac{13-2x}{5}$

Put x = 0, then $y = \frac{13-2(0)}{5} = \frac{13}{5}$

Put x = 1, then $y = \frac{13-2(1)}{5} = \frac{11}{5}$

Put x = 2, then$y = \frac{13-2(2)}{5} = \frac{9}{5}$

Put x = 3, then$y = \frac{13-2(3)}{5} = \frac{7}{5}$

∴ $(0, \frac{13}{5}), (1, \frac{11}{5}), (2, \frac{9}{5})\ and\ (3, \frac{7}{5})$ are the solutions of the equation 2x + 5y = 13.

66. 2x – 3y + 7 = 0

⇒ 3y = 2x + 7

⇒ $y = \frac{2x+7}{3}$

Put x = 0, then $y = \frac{2(0)+7}{3} = \frac{7}{3}$

Put x = 1, then $y = \frac{2(1)+7}{3} = 3$

Put x = 2, then $y = \frac{2(2)+7}{3} = \frac{11}{3}$

Put x = 3, then $y=\frac{2(3)+7}{3}=\frac{13}{3}$

$\therefore (0,\frac{7}{3}),(1,3),(2,\frac{11}{3}),(3,\frac{13}{3})$ are the solutions of the equation 2x – 3y + 7 = 0.

67. x + y – 4 = 0

⇒ y = 4 – x

Put x = 0, then y = 4 – 0 = 4

Put x = 1, then y = 4 – 1 = 3

Put x = 2, then y = 4 – 2 = 2

Put x = 3, then y = 4 – 3 = 1

∴ (0, 4), (1, 3), (2, 2) and (3, 1) are the solutions of the equation x + y – 4 = 0

68. i. On x-axis y = 0

$\Rightarrow\ x+2\times 0=8 \Rightarrow\ x=\ 8$

Therefore, the required point is (8, 0).

ii. On y-axis x = 0

$\Rightarrow\ 0+2y=8$

$\Rightarrow\ y=\frac{8}{2}\Rightarrow\ y=4$

Thus, the required point is (0, 4).

69. 5x + 3y = 4

⇒ 3y = 4 – 5x

⇒ y = $\frac{4-5x}{3}$

put x = 0, then y = $\frac{4-5(0)}{3}=\frac{4}{3}$

Put x = 1, then y = $\frac{4-5(1)}{3}=-\frac{1}{3}$

Put x = 2, then y = $\frac{4-5(2)}{3}$ = - 2

Put x = 3, then y = $\frac{4-5(3)}{3}=\frac{-11}{3}$

$\therefore \left(0,\frac{4}{3}\right),\left(1,\frac{-1}{3}\right)$, (2, -2), and $\left(3,\frac{-11}{3}\right)$ are the solutions of the equation 5x + 3y = 4.

70. 2x – 3y + 7 = 0

⇒ 3y = 2x + 7

⇒ $y=\frac{2x+7}{3}$

Put x = 0, then $y=\frac{2(0)+7}{3}=\frac{7}{3}$

Put x = 1, then $y=\frac{2(1)+7}{3}=3$

Put x = 2, then $y=\frac{2(2)+7}{3}=\frac{11}{3}$

Put x = 3, then $y=\frac{2(3)+7}{3}=\frac{13}{3}$

$\therefore (0,\frac{7}{3}),(1,3),(2,\frac{11}{3})\ and\ (3,\frac{13}{3})$ are the solutions of the equation 2x – 3y + 7 = 0.

71. 9x + 7y = 63

put x = 0, we get

9(0) + 7y = 63

⇒ 7y = 63

⇒$y=\frac{63}{7}=9$

∴ (0, 9) is a solution.

9x + 7y = 63

Put y = 0, we get

9x + 7(0) = 63

⇒ 9x = 63

⇒$x=\frac{63}{9}=7$

∴ (7, 0) is a solution.

x + y = 10

Put x = 0, we get

0 + y = 10

⇒ y = 10

∴ (0, 10) is a solution.

x + y = 10

Put y = 0, we get
x + 0 = 10
⇒ x = 10
∴ (10, 0) is a solution.
The given equations do not have any common solution.

72. 5x + 3y = 15
Put x = 0, we get
5(0) + 3y = 15
⇒ 3y = 15
⇒ $y = \frac{15}{3} = 5$
∴ (0, 5) is a solution.
5x + 3y = 15
Put y = 0, we get
5x + 3(0) = 15
⇒ 5x = 15
⇒ $x = \frac{15}{5} = 3$
∴ (3, 0) is a solution.
5x + 2y = 10
Put x = 0, we get
5(0) + 2y = 10
⇒ 2y = 10
⇒ $y = \frac{10}{2} = 5$
∴ (0, 5) is a solution.
5x + 2y = 10
Put y = 0, we get
5x + 2(0) = 10
⇒ 5x = 10
⇒ $x = \frac{10}{5} = 2$
∴ (2, 0) is a solution.
The given equations have a common solution (0, 5).

73. According to the question x is extra milk and y is the expenditure for the month
If the quantity of extra milk be 'x' and expenditure be Rs. 'y' then the given condition.
y = 20x + 500 (As Rs.500 is the fixed expenditure) ...(i)
Put x = 0 in equation (i)
y = 20(0) + 500 = 0 + 500
y = Rs.500
When no extra milk is taken the expenditure remains Rs.500 same
Put y = 1000 in equation (i)
1000 = 20x + 500
1000 - 500 = 20x
500 = 20x
x = $\frac{500}{20} = 25\text{kg}$
When the 25 kg of milk is taken extra the expenditure increased as Rs.1000
Put x = 2 in equation (i)
y = 20(2) + 500
y = 40 + 500
y = Rs. 540
When the 2 kg of milk is taken extra the expenditure increased by Rs.40 i.e. Rs. 540

x	0	25	2
y	500	1000	540

Section D

74. $\frac{3x+2}{7}+\frac{4(x+1)}{5}=\frac{2}{3}(2x+1)$

$\frac{3x+2}{7}+\frac{4x+4}{5}=\frac{4x+2}{3}$

Taking LCM on LHS

$\frac{5(3x+2)+7(4x+4)}{35}=\frac{4x+2}{3}$

$\Rightarrow \frac{15x+10+28x+28}{35}=\frac{4x+2}{3}$

$\Rightarrow \frac{43x+38}{35}=\frac{4x+2}{3}$

$\Rightarrow 3(43x+38)=35(4x+2)$

$129x+114=140x+70$

$\Rightarrow 129x-140x=70-114$

$\Rightarrow -11x=-44$

$\Rightarrow x=4$

75. Given equation is 3y = 4x

Substituting x = 3 in the given equation,

we get 3y = 4(3) ⇒ 3y = 12 ⇒ y = 4

So, (3, 4) is the solution of the given equation.

Substituting x = -3 in the given equation,

we get 3y = 4(-3) ⇒ 3y = -12 ⇒ y = -4

So, (-3, -4) is the solution of the given equation.

Substituting x = 9 in the given equation,

we get 3y = 4(9) ⇒ 3y = 36 ⇒ y = 12

So, (9, 12) is the solution of the given equation.

Substituting y = 8 in the given equation,

we get 3(8) = 4x ⇒ 4x = 24 ⇒ x = 6

So, (6, 8) is the solution of the given equation.

Substituting y = -8 in the given equation,

we get 3(-8) = 4x ⇒ 4x = -24 ⇒ x = -6

So, (-6, -8) is the solution of the given equation.