

CBSE Class 9 Mathemaics
Important Questions
Chapter 4
Linear Equations in Two Variables

2 Marks Questions

1. The cost of a notebook is twice the cost of a pen. Write a linear equation in two variables to represent this statement.

(Take the cost of a notebook to be Rs x and that of a pen to be Rs y).

Ans. Let the cost of a notebook be RS. X .

Let the cost of a pen be Rs y .

We need to write a linear equation in two variables to represent the statement, “Cost of a notebook is twice the cost of a pen”.

Therefore, we can conclude that the required statement will be $x=2y$.

2. Find the value of k , if $x = 2, y = 1$ is a solution of the equation $2x + 3y = k$.

Ans. We know that, if $x=2$ and $y=1$ is a solution of the linear equation $2x + 3y=k$, then on substituting the respective values of x and y in the linear equation $2x + 3y =k$, the LHS and RHS of the given linear equation will not be effected.

$$2(2) + 3(1) = k \Rightarrow k = 4 + 3 \Rightarrow k = 7$$

Therefore, we can conclude that the value of k , for which the linear equation $2x + 3y =k$ has $x = 2$ and $y=1$ as one of its solutions is 7.

3. Give the equations of two lines passing through (2, 14). How many more such lines are there, and why?

Ans. We need to give the two equations of the line that passes through the point (2,14).

We know that infinite number of lines can pass through any given point.



We can consider the linear equations $7x - y = 0$ and $2x + y = 18$.

We can conclude that on putting the values $x=2$ and $y=14$ in the above mentioned linear equations, we get $LHS=RHS$.

Therefore, we can conclude that the line of the linear equations $7x - y = 0$ and $2x + y = 18$ will pass through the point $(2, 14)$.

4. If the point $(3, 4)$ lies on the graph of the equation $3y = ax + 7$, find the value of a .

Ans. We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

We can conclude that $(3,4)$ is a solution of the linear equation $3y = ax + 7$.

We need to substitute $x=3$ and $y=4$ in the linear equation $3y=ax + 7$, to get

$$\begin{aligned}3(4) &= a(3) + 7 \\ \Rightarrow 12 &= 3a + 7 \\ \Rightarrow 3a &= 12 - 7 \Rightarrow 3a = 5 \\ \Rightarrow a &= \frac{5}{3}\end{aligned}$$

Therefore, we can conclude that the value of a will be $\frac{5}{3}$.

5. Which one of the following options is true, and why?

$y=3x+5$ has

(i) a unique solution, (ii) only two solutions, (iii) infinitely many solutions

Ans. We need to the number of solutions of the linear equation $y=3x+5$.

We know that any linear equation has infinitely many solutions.

Justification:

If $x=0$ then $y=3 \times 0 + 5 = 5$.

If $x=1$ then $y= 3 \times 1 + 5 = 8$.

If $x=-2$ then $y=3 \times (-2) + 5 = -1$.

Similarly we can find infinite many solutions by putting the values of x .



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3 Marks Questions

1. Write four solutions for each of the following equations:

(i) $2x + y = 7$

(ii) $\pi x + y = 9$

(iii) $x = 4y$

Ans.(i) $2x + y = 7$

We know that any linear equation has infinitely many solutions.

Let us put $x = 0$

in the linear equation $2x + y = 7$, to get

$$2(0) + y = 7 \Rightarrow y = 7.$$

Thus, we get first pair of solution as $(0, 7)$.

Let us put $x = 2$

in the linear equation $2x + y = 7$, to get

$$2(2) + y = 7 \Rightarrow y + 4 = 7 \Rightarrow y = 3.$$

Thus, we get second pair of solution as $(2, 3)$.

Let us put $x = 4$ in the linear equation

$2x + y = 7$, to get

$$2(4) + y = 7 \Rightarrow y + 8 = 7 \Rightarrow y = -1.$$

Thus, we get third pair of solution as $(4, -1)$.

Let us put $x = 6$ in the linear equation

$2x + y = 7$, to get

$$2(6) + y = 7 \Rightarrow y + 12 = 7 \Rightarrow y = -5.$$

Thus, we get fourth pair of solution as $(6, -5)$.

Therefore, we can conclude that four solutions for the linear equation

$2x + y = 7$ are

$(0, 7), (2, 3), (4, -1)$ and $(6, -5)$.

(ii) $\pi x + y = 9$

We know that any linear equation has infinitely many solutions.

Let us put $x = 0$

in the linear equation $\pi x + y = 9$, to get

$$\pi(0) + y = 9 \Rightarrow y = 9$$

Thus, we get first pair of solution as $(0, 9)$.

Let us put $y = 0$ in the linear equation

$\pi x + y = 9$, to get

$$\pi x + (0) = 9 \Rightarrow x = \frac{9}{\pi}.$$

Thus, we get second pair of solution as

$$\left(\frac{9}{\pi}, 0\right).$$

Let us put $x = 1$

in the linear equation $\pi x + y = 9$, to get



$$\pi(1) + y = 9 \Rightarrow y = \frac{9}{\pi}$$

Thus, we get third pair of solution as $\left(1, \frac{9}{\pi}\right)$.

Let us put $y = 2$ in the linear equation

$$\pi x + y = 9, \text{ to get}$$

$$\pi x + 2 = 9 \Rightarrow \pi x = 7 \Rightarrow x = \frac{7}{\pi}$$

Thus, we get fourth pair of solution as $\left(\frac{7}{\pi}, 2\right)$.

Therefore, we can conclude that four solutions for the linear equation

$$\pi x + y = 9 \text{ are}$$

$$(0, 9), \left(\frac{9}{\pi}, 0\right), \left(1, \frac{9}{\pi}\right) \text{ and } \left(\frac{7}{\pi}, 2\right).$$

$$\text{(iii) } x = 4y$$

We know that any linear equation has infinitely many solutions.

Let us put $y = 0$ in the linear equation

$$x = 4y, \text{ to get}$$

$$x = 4(0) \Rightarrow x = 0$$

Thus, we get first pair of solution as $(0, 0)$.

Let us put $y = 2$ in the linear equation

$$x = 4y, \text{ to get}$$

$$x = 4(2) \Rightarrow x = 8$$

Thus, we get second pair of solution as $(8, 2)$.

Let us put $y = 4$ in the linear equation

$$x = 4y, \text{ to get}$$



$$x = 4(4) \Rightarrow x = 16$$

Thus, we get third pair of solution as $(16, 4)$.

Let us put $y = 6$ in the linear equation

$$x = 4y, \text{ to get}$$

$$x = 4(6) \Rightarrow x = 24$$

Thus, we get fourth pair of solution as $(24, 6)$.

Therefore, we can conclude that four solutions for the linear equation

$$x = 4y \text{ are}$$

$$(0, 0), (8, 2), (16, 4) \text{ and } (24, 6)$$

2. Check which of the following are solutions of the equation $x - 2y = 4$ and which are not:

(i) $(0, 2)$

(ii) $(2, 0)$

(iii) $(4, 0)$

(iv) $(\sqrt{2}, 4\sqrt{2})$

(v) $(1, 1)$

Ans. (i) $(0, 2)$

We need to put $x = 0$ and $y = 2$

in the L.H.S. of linear equation

$$x - 2y = 4, \text{ to get}$$

$$(0) - 2(2) = -4$$

\therefore L.H.S. \neq R.H.S.

Therefore, we can conclude that $(0, 2)$

is not a solution of the linear equation $x - 2y = 4$.

(ii) $(2, 0)$

We need to put $x = 2$ and $y = 0$

in the L.H.S. of linear equation

$x - 2y = 4$, to get

$$(2) - 2(0) = 2$$

\therefore L.H.S. \neq R.H.S.

Therefore, we can conclude that $(2, 0)$

is not a solution of the linear equation $x - 2y = 4$.

(iii) $(4, 0)$

We need to put $x = 4$ and $y = 0$

in the linear equation $x - 2y = 4$, to get

$$(4) - 2(0) = 4$$

\therefore L.H.S. = R.H.S.

Therefore, we can conclude that $(4, 0)$

is a solution of the linear equation $x - 2y = 4$.

(iv) $(\sqrt{2}, 4\sqrt{2})$

We need to put $x = \sqrt{2}$ and $y = 4\sqrt{2}$

in the linear equation $x - 2y = 4$, to get

$$(\sqrt{2}) - 2(4\sqrt{2}) = -7\sqrt{2}$$

\therefore L.H.S. \neq R.H.S.

Therefore, we can conclude that $(\sqrt{2}, 4\sqrt{2})$

is not a solution of the linear equation $x - 2y = 4$.

(v) $(1, 1)$

We need to put $x = 1$ and $y = 1$

in the linear equation $x - 2y = 4$, to get

$$(1) - 2(1) = -1$$

\therefore L.H.S. \neq R.H.S.

Therefore, we can conclude that $(1, 1)$

is not a solution of the linear equation $x - 2y = 4$.

3. Draw the graph of each of the following line a equations in two variables:

(i) $x + y = 4$

(ii) $x - y = 2$

(iii) $y = 3x$

(iv) $3 = 2x + y$

Ans. (i) $x + y = 4$

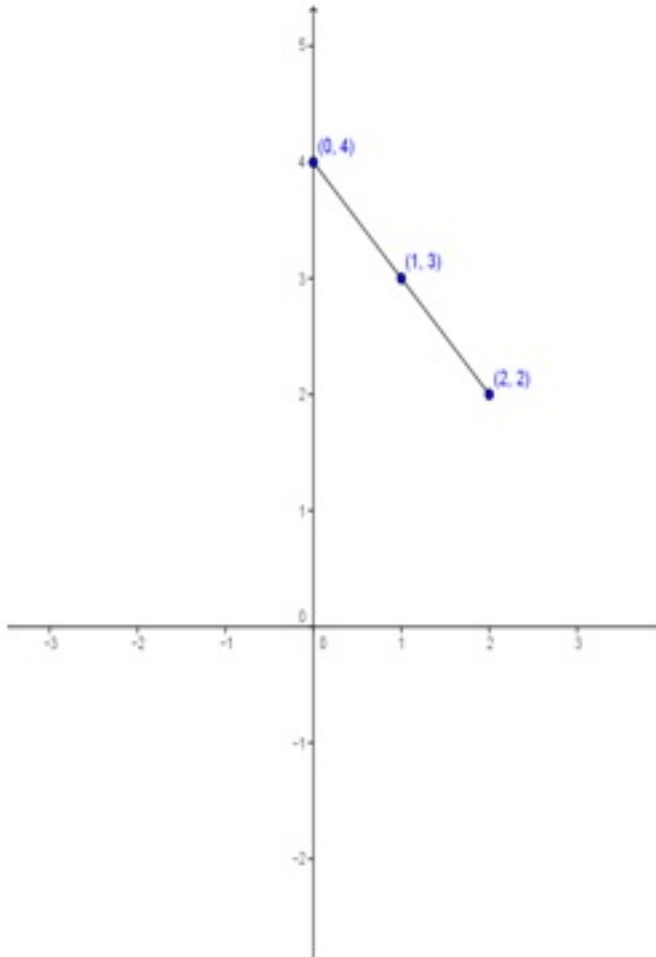
We can conclude that $x = 0, y = 4; x = 1, y = 3$ and $x = 2, y = 2$

are the solutions of the linear equation $x + y = 4$.

We can optionally consider the given below table for plotting the linear equation

$x + y = 4$ on the graph.

X	0	1	2
y	4	3	2



(ii) $x - y = 2$

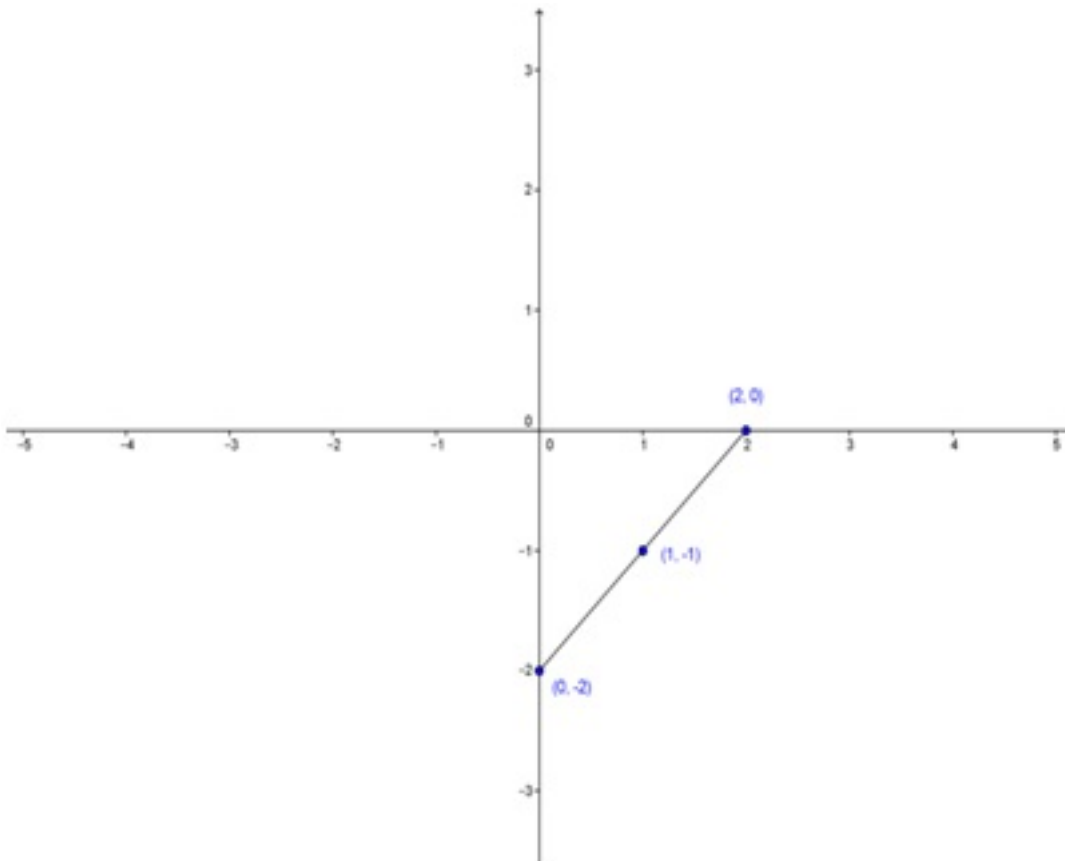
We can conclude that $x = 0, y = -2; x = 1, y = -1$ and $x = 2, y = 0$

are the solutions of the linear equation $x - y = 2$.

We can optionally consider the given below table for plotting the linear equation

$x - y = 2$ on the graph.

X	0	1	2
y	-2	-1	0

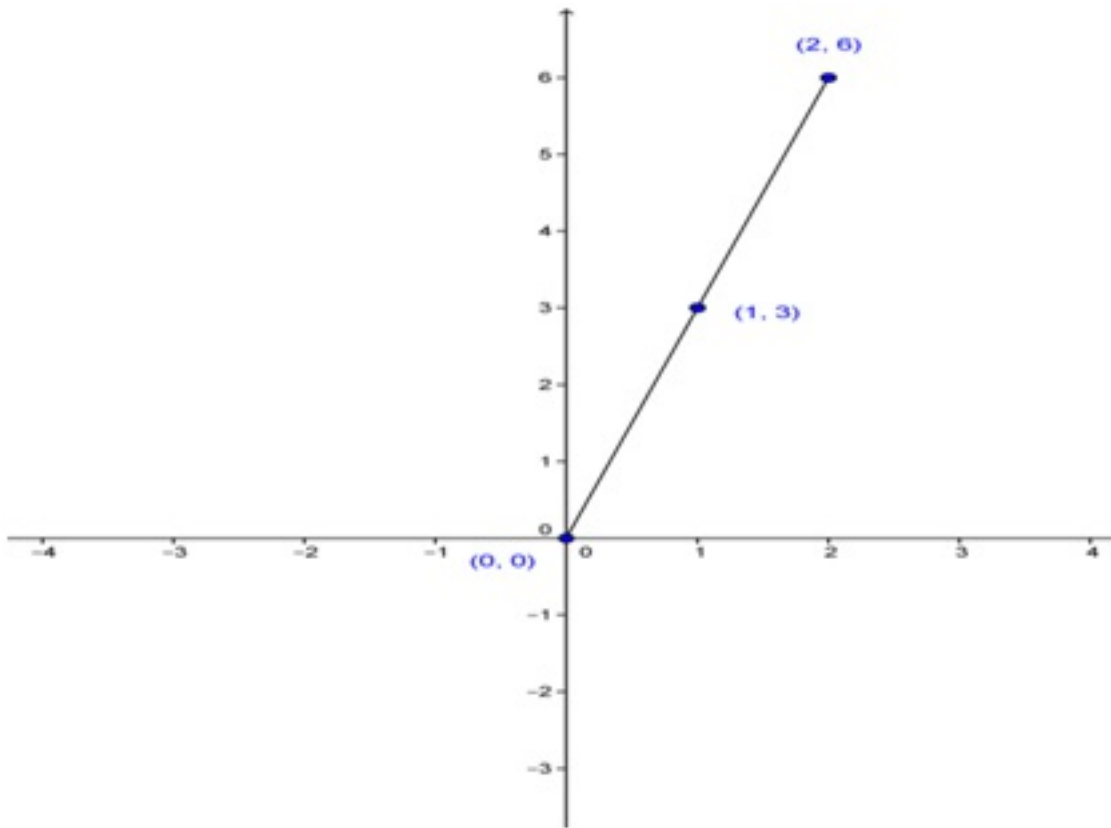


(iii) $y = 3x$

We can conclude that $x = 0, y = 0$; $x = 1, y = 3$ and $x = 2, y = 6$ are the solutions of the linear equation $y = 3x$.

We can optionally consider the given below table for plotting the linear equation $y = 3x$ on the graph.

X	0	1	2
y	0	3	6

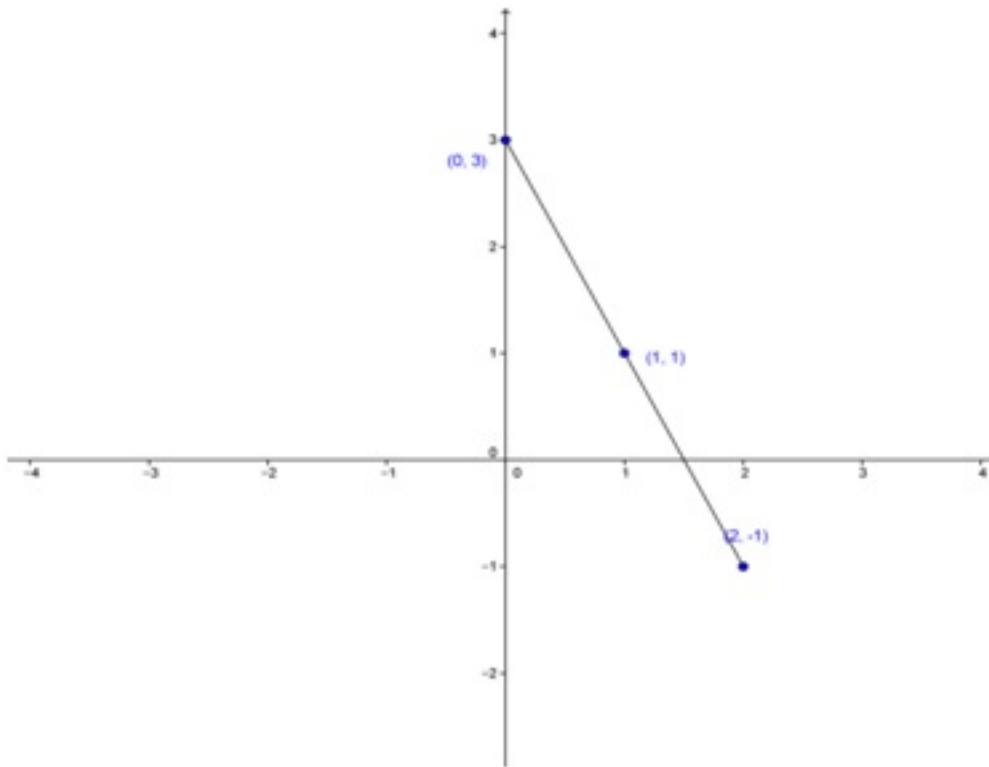


(iv) $3 = 2x + y$

We can conclude that $x = 0, y = 3; x = 1, y = 1$ and $x = 2, y = -1$ are the solutions of the linear equation $3 = 2x + y$.

We can optionally consider the given below table for plotting the linear equation $3 = 2x + y$ on the graph.

X	0	1	2
y	3	1	-1



4. The taxi fare in a city is as follows: For the first kilometre, the fare is Rs 8 and for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as $Rs\ y$, write a linear equation for this information, and draw its graph.

Ans. From the given situation, we can conclude that the distance covered at the rate Rs 5 per km will be

$(x - 1)$, as first kilometer is charged at Rs 8 per km.

We can conclude that the linear equation for the given situation will be:

$$8 + 5(x - 1) = y \Rightarrow 8 + 5x - 5 = y \Rightarrow 3 + 5x = y.$$

We need to draw the graph of the linear equation $3 + 5x = y$.

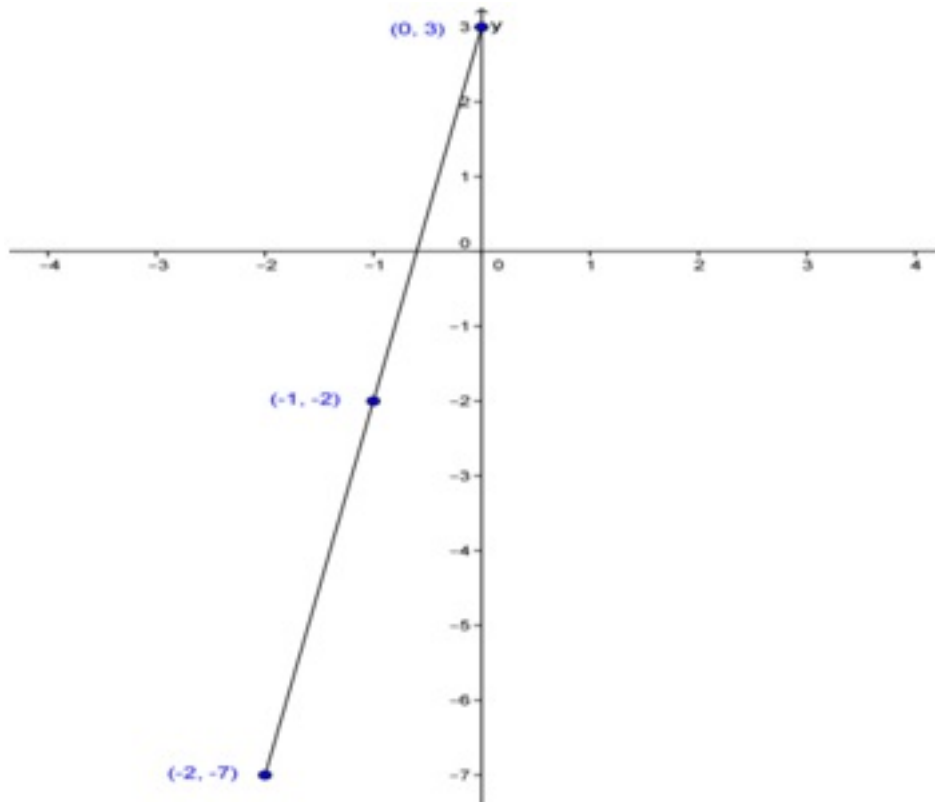
We can conclude that $x = 0, y = 3; x = 1, y = 1$ and $x = 2, y = -1$

are the solutions of the linear equation $3 + 5x = y$.

We can optionally consider the given below table for plotting the linear equation

$3 + 5x = y$ on the graph.

X	0	-1	-2
y	3	-2	-7



5. Give the geometric representation of $y = 3$ as an equation

(i) In one variable,

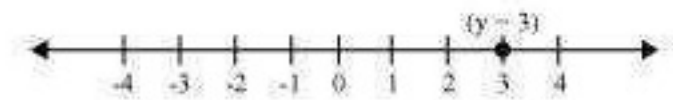
(ii) In two variables

Ans. We need to represent the linear equation $y = 3$ geometrically in one variable.

(i) We can conclude that in one variable, the geometric representation of the linear equation $y = 3$

will be same as representing the number 3 on a number line.

Given below is the representation of number 3 on the number line.



We need to represent the linear equation $y = 3$ geometrically in two variables.

We know that the linear equation $y = 3$ can also be written as $0 \cdot x + y = 3$.

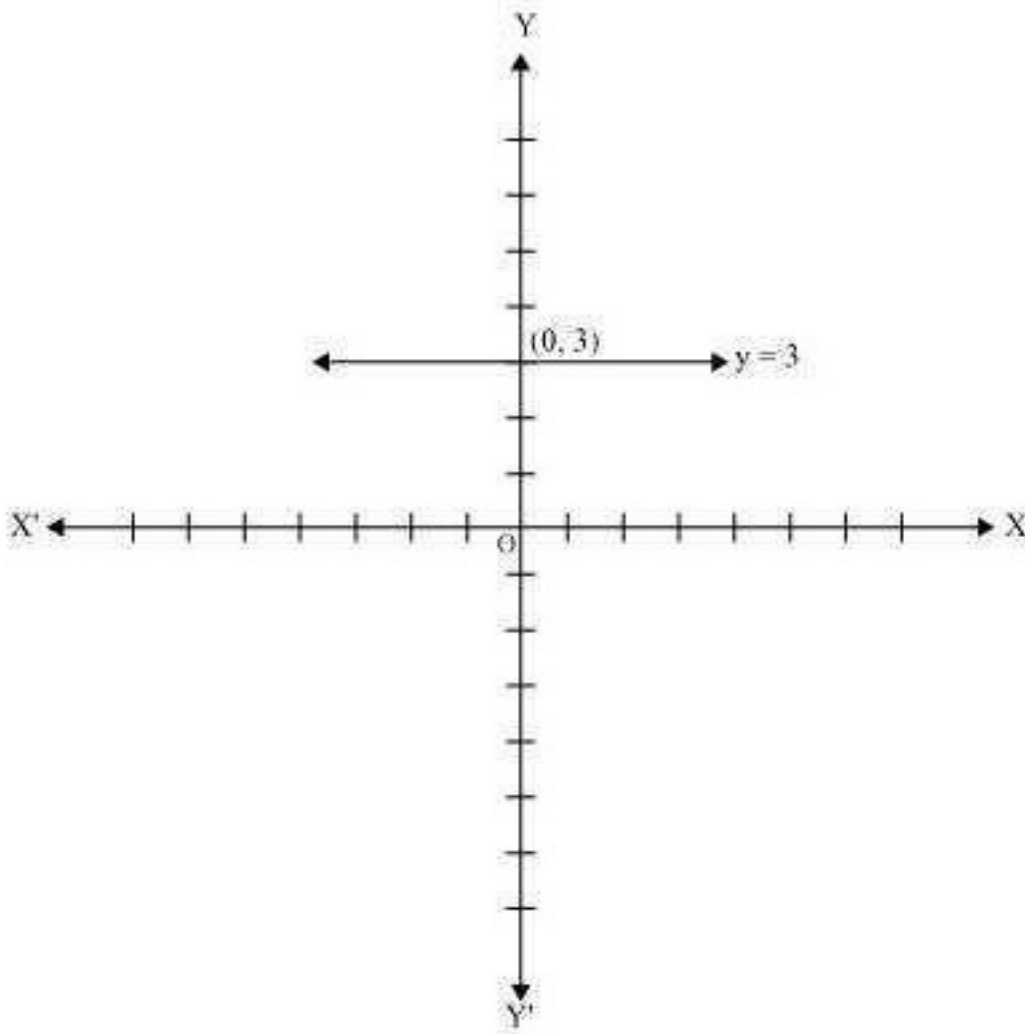
(ii) We can conclude that in two variables, the geometric representation of the linear equation $y = 3$

will be same as representing the graph of linear equation $0 \cdot x + y = 3$.

Given below is the representation of the linear equation $0 \cdot x + y = 3$ on a graph.

We can optionally consider the given below table for plotting the linear equation $0 \cdot x + y = 3$ on the graph.

x	1	0
y	3	3



6. Give the geometric representations of $2x + 9 = 0$ as an equation

(i) In one variable

(ii) In two variables

Ans. We need to represent the linear equation $2x + 9 = 0$ geometrically in one variable.

We know that the linear equation $2x + 9 = 0$ can also be written as

$$x = -\frac{9}{2} \text{ or } x = -4.5.$$

(i) We can conclude that in one variable, the geometric representation of the linear equation

$2x + 9 = 0$ will be same as representing the number -4.5 on a number line.

Given below is the representation of number 3 on the number line.



We need to represent the linear equation $2x + 9 = 0$ geometrically in two variables.

We know that the linear equation $2x + 9 = 0$ can also be written as $2x + 0 \cdot y = 9$.

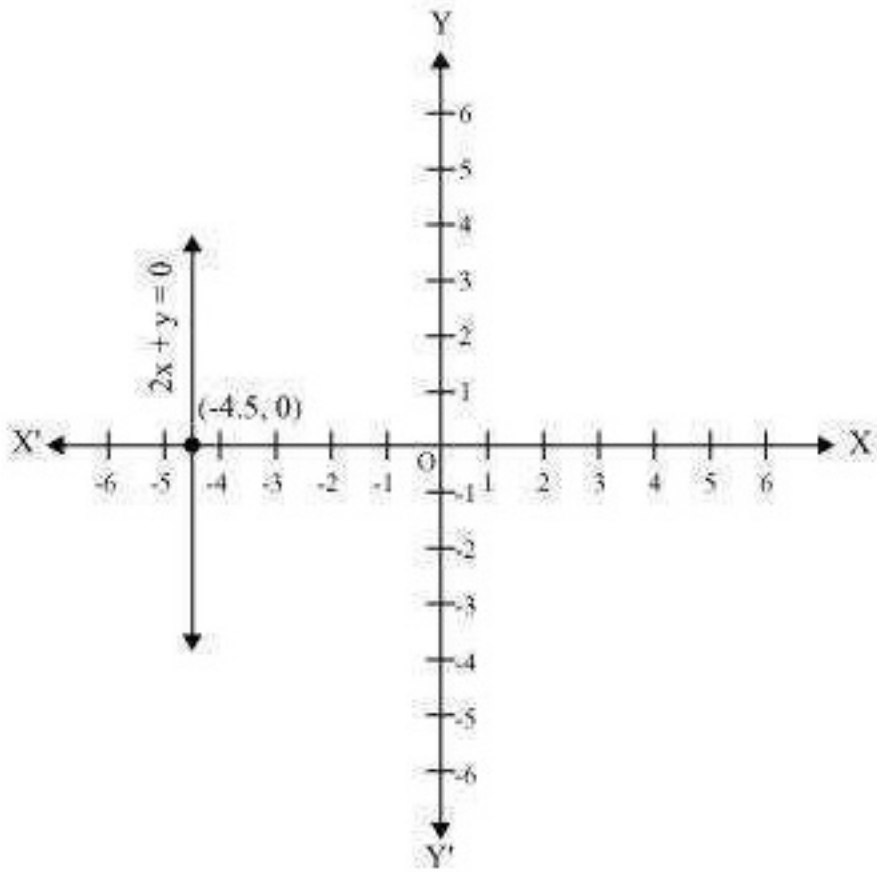
(ii) We can conclude that in two variables, the geometric representation of the linear equation

$2x + 9 = 0$ will be same as representing the graph of linear equation $2x + 0 \cdot y = 9$.

Given below is the representation of the linear equation $2x + 0 \cdot y = 9$ on a graph.

We can optionally consider the given below table for plotting the linear equation $2x + 0 \cdot y = 9$ on the graph.

X	1	0
y	4.5	4.5



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4 Marks Questions

1. Express the following linear equations in the form $ax + by + c = 0$ and indicate the values of a , b and c in each case:

(i) $2x + 3y = 9.\overline{35}$

(ii) $x - \frac{y}{5} - 10 = 0$

(iii) $-2x + 3y = 6$

(iv) $x = 3y$

(v) $2x = -5y$

(vi) $3x + 2 = 0$

(vii) $y - 2 = 0$

(viii) $5 = 2x$

Ans.(i) $2x + 3y = 9.\overline{35}$

We need to express the linear equation in the form $ax + by + c = 0$ and indicate the values of a , b and c .

$2x + 3y = 9.\overline{35}$ can also be written as $2x + 3y - 9.\overline{35} = 0$.

We need to compare the equation $2x + 3y - 9.\overline{35} = 0$

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 $c = -9.\overline{35}$



$$(ii) x - \frac{y}{5} - 10 = 0$$

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 .

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

$$\text{We need to compare the equation } 1 \cdot x - \frac{y}{5} - 10 = 0$$

with the general equation $ax + by + c = 0$, to get the values of a , b and c .

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

$$(iii) -2x + 3y = 6$$

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 .

$$-2x + 3y = 6 \text{ can also be written as } -2x + 3y - 6 = 0.$$

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 .

$$\text{Therefore, we can conclude that } a = -2, b = 3 \text{ and } c = -6$$

$$(iv) x = 3y$$

We need to express the linear equation $x = 3y$ in the form $ax + by + c = 0$ and indicate the values of a , b and c .

$$x = 3y \text{ can also be written as } x - 3y + 0 = 0. \text{ We need to compare the equation } x - 3y + 0 = 0$$

with the general equation $ax + by + c = 0$, to get the values of a , b and c .

$$\text{Therefore, we can conclude that } a = 1, b = -3 \text{ and } c = 0.$$

$$(v) 2x = -5y$$

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 $c = 0$

(vi) $3x + 2 = 0$

We need to express the linear equation $3x + 2 = 0$ in the form $ax + by + c = 0$ and indicate the values of a , b and c .

$3x + 2 = 0$ can also be written as $3x + 0 \cdot y + 2 = 0$.

We need to compare the equation $3x + 0 \cdot y + 2 = 0$ with the general equation $ax + by + c = 0$, to get the values of a , b and c .

Therefore, we can conclude that $a = 3$, $b = 0$ and $c = 2$.

(vii) $y - 2 = 0$

We need to express the linear equation $y - 2 = 0$ in the form $ax + by + c = 0$ and indicate the values of a , b and c .

$y - 2 = 0$ can also be written as $0 \cdot x + 1 \cdot y - 2 = 0$.

We need to compare the equation $0 \cdot x + 1 \cdot y - 2 = 0$ with the general equation $ax + by + c = 0$, to get the values of a , b and c .

Therefore, we can conclude that $a = 0$, $b = 1$ and $c = -2$

(viii) $5 = 2x$

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 $-2x + 0 \cdot y + 5 = 0$.

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 $c = 5$

2. From the choices given below, choose the equation whose graphs are given in the given figures.

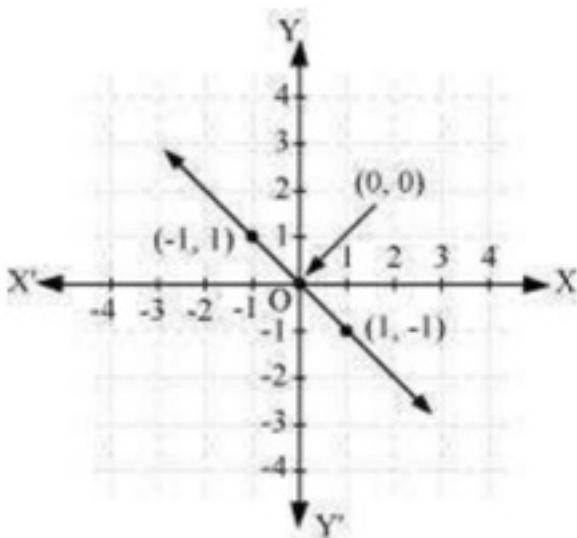
For the first figure

(i) $y = x$

(ii) $x + y = 0$

(iii) $y = 2x$

(iv) $2 + 3y = 7x$



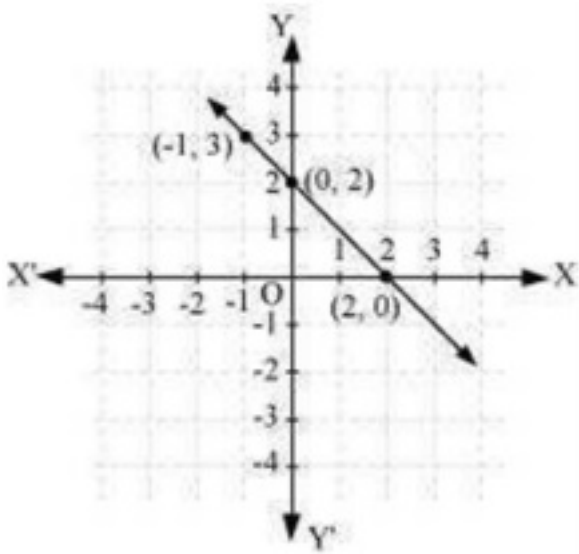
For the second figure

(i) $y = x + 2$

(ii) $y = x - 2$

(iii) $y = -x + 2$

(iv) $x + 2y = 6$



Ans.For First figure

(i) $y = x$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

Let us check whether $x = -1, y = 1; x = 0, y = 0$ and $x = 1, y = -1$ are the solutions of the linear equation

$y=x$. for $x=-1, y=1$, we get

Therefore, the given graph does not belong to the linear equation $y=x$.

(ii) $x + y = 0$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

For $x = -1, y = 1$, we get

$$-1 + 1 = 0 \Rightarrow 0 = 0.$$

For $x = 0, y = 0$, we get

$$0 + 0 = 0 \Rightarrow 0 = 0.$$

For $x = 1, y = -1$, we get

$$1 + (-1) = 0 \Rightarrow 1 - 1 = 0 \Rightarrow 0 = 0.$$

Therefore, the given graph belongs to the linear equation $x + y = 0$

(iii) $0 y = 2x$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

For $x = -1, y = 1$, we get

$$y = 2x \Rightarrow -1 = 2(1) \Rightarrow -1 \neq 2.$$

Therefore, the given graph does not belong to the linear equation $y = 2x$

(iv) $2 + 3y = 7x$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

For $x = -1, y = 1$, we get

$$2 + 3(1) = 7(-1) \Rightarrow 2 + 3 = -7 \Rightarrow 5 \neq -7.$$

Therefore, the given graph does not belong to the linear equation $2 + 3y = 7x$

For Second figure

(i) $y = x + 2$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

For $x = -1, y = 3$, we get

$$3 = -1 + 2 \Rightarrow 3 \neq 1.$$

Therefore, the given graph does not belong to the linear equation $y = x + 2$



(ii) $y = x - 2$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

For $x = -1, y = 3$, we get

$$3 = -1 - 2 \Rightarrow 3 \neq -3.$$

Therefore, the given graph does not belong to the linear equation $y = x - 2$

(iii) $y = -x + 2$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

For $x = -1, y = 3$, we get

$$3 = -(-1) + 2 \Rightarrow 3 = 1 + 2 \Rightarrow 3 = 3.$$

For $x = 0, y = 2$, we get

$$2 = -(0) + 2 \Rightarrow 2 = 2.$$

For $x = 2, y = 0$, we get

$$0 = -(2) + 2 \Rightarrow 0 = 0.$$

Therefore, hat the given graph belongs to the linear equation

(iv) $y = -x + 2$

$$x + 2y = 6$$

We know that if any point lie on the graph of any linear equation, then that point is the solution of that linear equation.

For $x = -1, y = 3$, we get

$$(-1) + 2(3) = 6 \Rightarrow -1 + 6 = 6 \Rightarrow 5 \neq 6.$$



Therefore, the given graph does not belong to the linear equation $x + 2y = 6$.

3. If the work done by a body on application of a constant force is directly proportional to the distance travelled by the body, express this in the form of an equation in two variables and draw the graph of the same by taking the constant force as 5 units. Also read from the graph the work done when the distance travelled by the body is:

(i) 2 units (ii) 0 units

Ans. We are given that the work done by a body on application of a constant force is directly proportional to the distance travelled by the body.

Let the work done be W and let constant force be F .

Let distance travelled by the body be D .

According to the question,

$$W \propto D \Rightarrow W = F \cdot D.$$

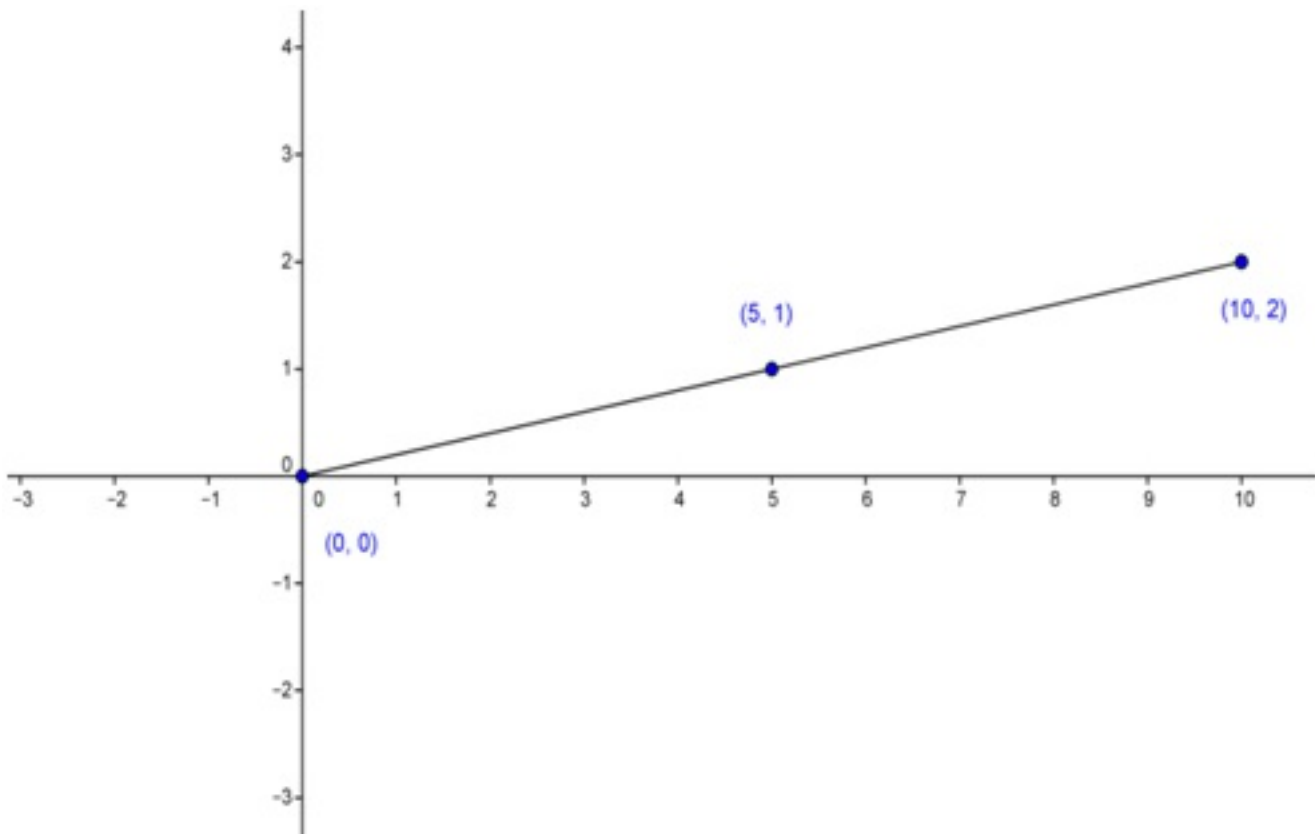
We need to draw the graph of the linear equation

$$W = F \cdot D, \text{ when the force is constant as 5 units, i.e., } W = 5D$$

We can conclude that $x = 0, y = 0$; $x = 5, y = 1$ and $x = 10, y = 2$

are the solutions of the linear equation $W = 5D$

W	0	5	10
D	0	1	2



Therefore, we can conclude from the above mentioned graph, the work done by the body, when the distance is 2 units will be 10 units and when the distance is 0 units, the work done will be 0 unit.

4. Yamini and Fatima, two students of Class IX of a school, together contributed Rs 100 towards the Prime Minister's Relief Fund to help the earth quake victims. Write a line equation which satisfies this data. (You may take their contributions as Rs x and Rs y .) Draw the graph of the same.

Ans. The contribution made by Yamini is Rs x and the contribution made by Fatime is Rs y .

We are given that together they both contributed Rs 100.

We get the given below linear equation from the given situation.

$$x + y = 100.$$

We need to consider any 3 solutions of the linear equation $x + y = 100$

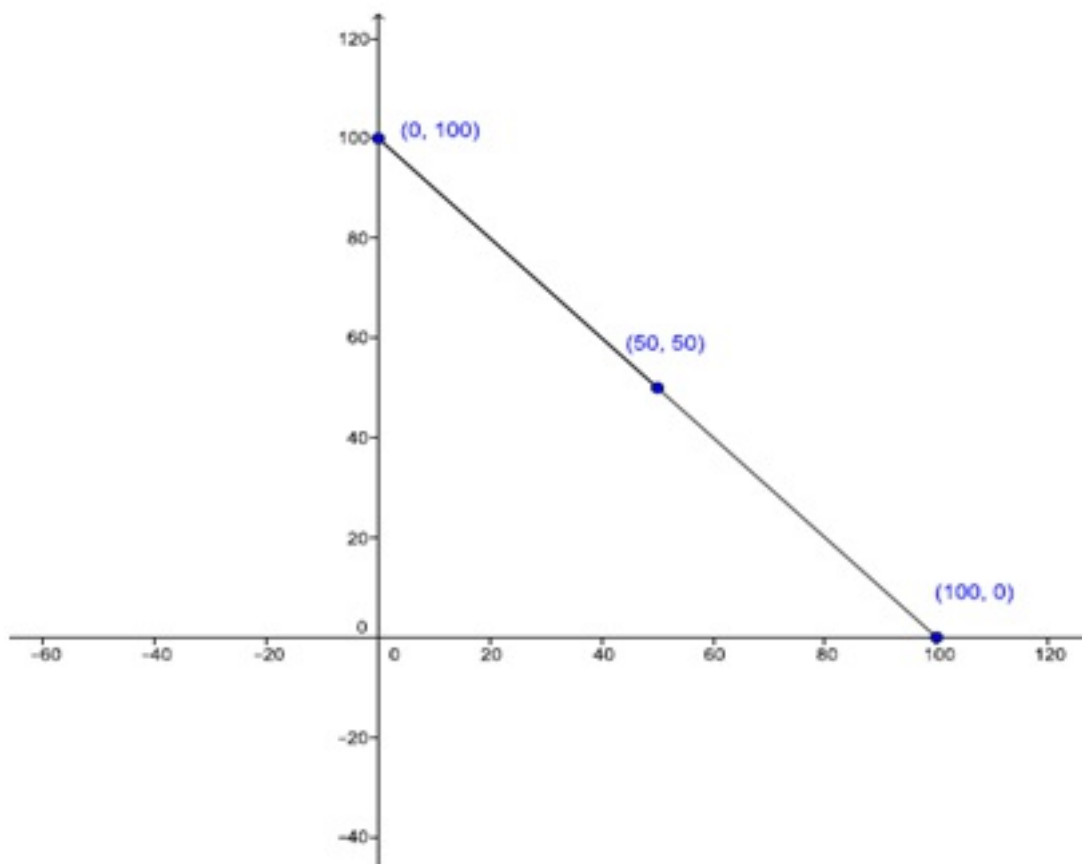
to plot the graph of the linear equation $x + y = 100$

We can conclude that $x = 0, y = 3; x = 1, y = 1$ and $x = 2, y = -1$

are the solutions of the linear equation $x + y = 100$

We can optionally consider the given below table for plotting the linear equation $x + y = 100$ on the graph.

X	0	50	100
y	100	50	0



5. In countries like USA and Canada, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Fahrenheit to Celsius:

$$F = \left(\frac{9}{5}\right) C + 32$$

Draw the graph of the linear equation above using Celsius for x-axis and Fahrenheit for



y-axis.

If the temperature is 30°C , what is the temperature in Fahrenheit?

If the temperature is 95°F , what is the temperature in Celsius?

If the temperature is 0°C , what is the temperature in Fahrenheit and if the temperature is 0°F , what is the temperature in Celsius?

Is there a temperature which is numerically the same in both Fahrenheit and Celsius? If yes, find it.

Ans. We are given a linear equation that converts the temperature in Fahrenheit into degree Celsius.

$F = \left(\frac{9}{5}\right)C + 32$ We need to consider any 3 solutions of the linear equation

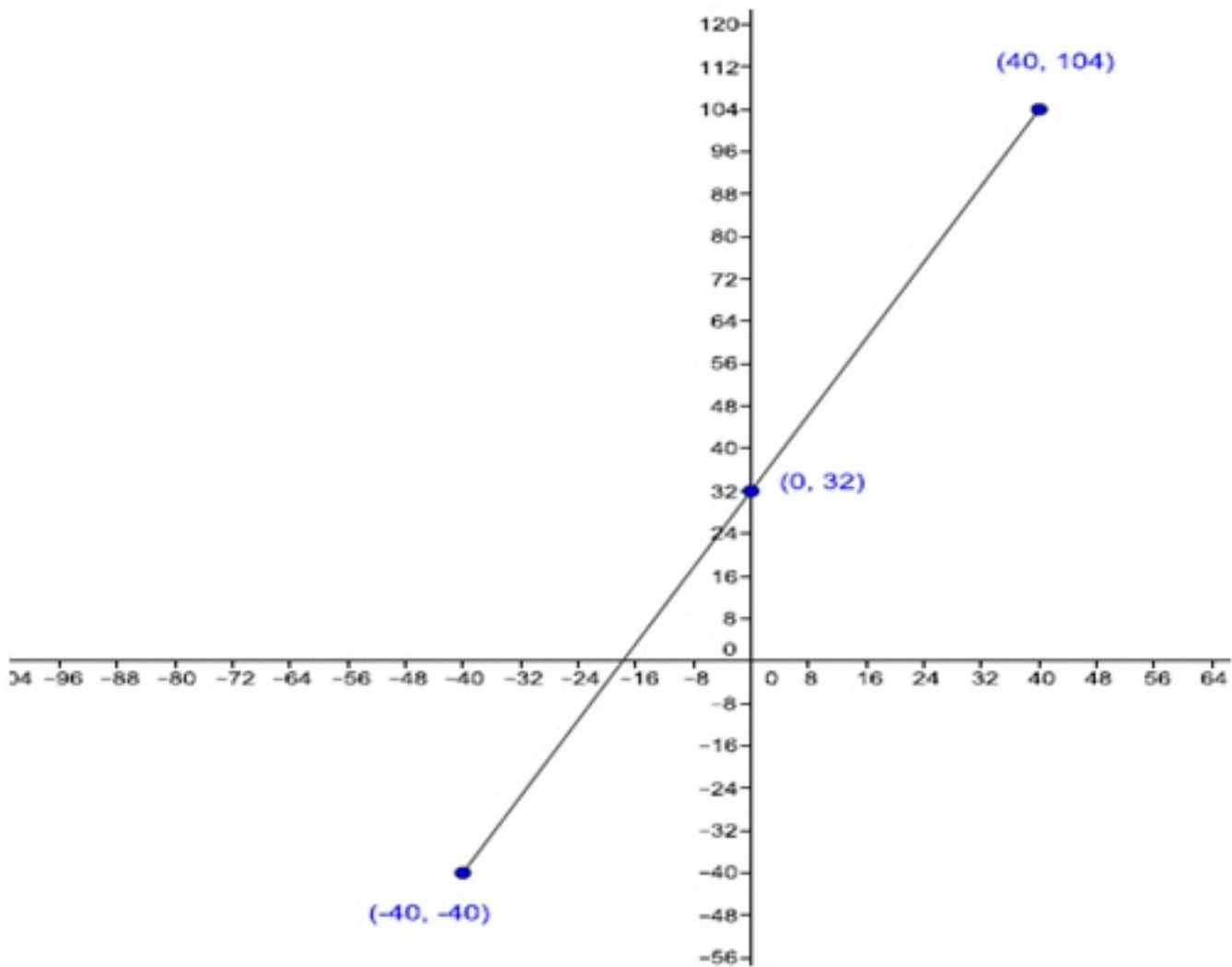
$F = \left(\frac{9}{5}\right)C + 32$, to plot the graph of the linear equation

$$F = \left(\frac{9}{5}\right)C + 32.$$

We can conclude that $x = 0, y = 3$; $x = 1, y = 1$ and $x = 2, y = -1$

are the solutions of the linear equation $F = \left(\frac{9}{5}\right)C + 32$.

C	-40	0	40
F	-40	32	104



We need to find the temperature in Fahrenheit, when the temperature in degree Celsius is 30° .

$$F = \left(\frac{9}{5}\right)(30) + 32 = 9 \times 6 + 32 = 86^\circ$$

Therefore, we can conclude that the temperature in Fahrenheit will be $86^\circ F$.

We need to find the temperature in degree Celsius, when the temperature in Fahrenheit is 95° .

$$95 = \left(\frac{9}{5}\right)C + 32 \Rightarrow \frac{9}{5}C = 95 - 32 \Rightarrow C = 63 \times \frac{5}{9} = 35^\circ$$

Therefore, we can conclude that the temperature in degree Celsius will be 35° .

We need to find the temperature in Fahrenheit, when the temperature in degree Celsius is 0° .

$$F = \left(\frac{9}{5}\right) (0) + 32 = 32^\circ$$

Therefore, we can conclude that the temperature in Fahrenheit will be 32° .

We need to find the temperature in degree Celsius, when the temperature in Fahrenheit is 0° .

$$0 = \left(\frac{9}{5}\right) C + 32 \Rightarrow \frac{9}{5} C = 0 - 32 \Rightarrow C = -32 \times \frac{5}{9} = -17.77^\circ$$

Therefore, we can conclude that the temperature in degree Celsius will be -17.77°

We need to find a temperature that is numerically same in both Fahrenheit and degree Celsius.

$$\begin{aligned} F &= \left(\frac{9}{5}\right) C + 32 \Rightarrow F - \frac{9F}{5} = 32 \Rightarrow -\frac{4F}{5} = 32 \\ &\Rightarrow F = -40^\circ \end{aligned}$$

Therefore, we can conclude that the temperature that is numerically same in Fahrenheit and degree Celsius will be -40°