# Exercise (4.1)



**Question 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. $y$.)

**Solution 1:**
- Let the cost of a notebook be Rs. x
- Let the cost of a pen be Rs. $y$

Given: Cost of Notebook is twice the cost of Pen

Therefore, we can write the required linear equation in the

form of, Cost of notebook = 2 × Cost of pen

$x = 2y$

$x - 2y = 0$

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**Question 2:**
Express the following linear equations in the form $ax + by + c = 0$ and indicate the values of $a$, $b$, $c$ in each case:

(i) $2x + 3y = 9.3\overline{5}$

(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) $5 = 2x$

**Solution 2:**
(i) $2x + 3y = 9.3\overline{5}$ --------------- Equation (1)

$2x + 3y - 9.3\overline{5} = 0$

Comparing this equation with standard form of the linear equation, $ax + by + c = 0$ we have,
- $a = 2$,
- $b = 3$,
- $c = -9.3\overline{5}$

# Study Materials

NCERT Solutions for Class 6 to 12 (Math & Science)
Revision Notes for Class 6 to 12 (Math & Science)
RD Sharma Solutions for Class 6 to 12 Mathematics
RS Aggarwal Solutions for Class 6, 7 & 10 Mathematics
Important Questions for Class 6 to 12 (Math & Science)
CBSE Sample Papers for Class 9, 10 & 12 (Math & Science)
Important Formula for Class 6 to 12 Math
CBSE Syllabus for Class 6 to 12
Lakhmir Singh Solutions for Class 9 & 10
Previous Year Question Paper
CBSE Class 12 Previous Year Question Paper
CBSE Class 10 Previous Year Question Paper
JEE Main & Advanced Question Paper
NEET Previous Year Question Paper

(ii) $x-\frac{y}{5}-10=0$ --------------- Equation (1)

Comparing Equation (1) with standard form of the linear equation, $ax + by + c = 0$ we have,

- $a = 1,$
- $b = -\frac{1}{5},$
- $c = -10$

(iii) $-2x + 3y = 6$ --------------- Equation (1)

$-2x + 3y - 6 = 0$

Comparing this equation with standard form of the linear equation, $ax + by + c = 0$ we have,

- $a = -2,$
- $b = 3,$
- $c = -6$

(iv) $x = 3y$ --------------- Equation (1)

$1x - 3y + 0 = 0$

Comparing this equation with standard form of the linear equation, $ax + by + c = 0$ we have,

- $a = 1,$
- $b = -3,$
- $c = 0$

(v) $2x = -5y$ --------------- Equation (1)

$2x + 5y + 0 = 0$

Comparing this equation with standard form of the linear equation, $ax + by + c = 0$ we have,

- $a = 2,$
- $b = 5,$
- $c = 0$

(vi) $3x + 2 = 0$ --------------- Equation (1)

We can write Equation (1) as below,

$3x + 0y + 2 = 0$

Comparing this equation with $ax + by + c = 0$,

- $a = 3,$
- $b = 0,$
- $c = 2$

(vii) $y - 2 = 0$ --------------- Equation (1)

We can write Equation (1) as below,

$0x + 1y - 2 = 0$

Comparing this equation with standard form of the linear equation, $ax + by + c = 0$ we have,

- $a = 0,$

* $b = 1$,
* $c = -2$

(viii) $5 = 2x$ --------------- Equation (1)
$-2x + 0y + 5 = 0$
Comparing this equation with standard form of the linear equation, $ax + by + c = 0$ we have,

* $a = -2$,
* $b = 0$,
* $c = 5$

## Exercise (4.2)

**Question 1:**
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

**Solution 1:**

Given:

- $y = 3x + 5$ is a linear Equation.
- For $x = 0$, $y = 0 + 5 = 5$ Therefore, (0, 5) is another solution.
- For $x = 1$, $y = 3 \times 1 + 5 = 8$ Therefore (1, 8) is another solution.
- For $y = 0$ , $3x + 5 = 0$ is the one solution

Clearly, for different values of x, we get another value of y.

Thus, the chosen value of x together with this value of y constitutes another solution of the given equation.

So, there is no end to different solutions of a linear equation in two variables. Therefore, a linear equation in two variables has infinitely many solutions

Hence (iii) is the correct answer

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**Question 2:**

Write four solutions for each of the following equations:

(i) $2x + y = 7$

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

(iii) $x = 4y$

**Solution 2:**

(i) $2x + y = 7$

Given,

- Linear Equation, $2x + y = 7$
  We can write the above equation as below by simplifying
  $y = 7 - 2x$ ----------Equation (1)

Let us now take different values of x and substituting in the Equation (1), we get

- For $x = 0$,
  $2(0) + y = 7$
  $\Rightarrow y = 7$

Hence, we get $(x, y) = (0, 7)$

- For $x = 1$,
  $2(1) + y = 7$
  $\Rightarrow y = 5$
  Hence, we get $(x, y) = (1, 5)$

- For $x = 2$,
  $2(2) + y = 7$
  $\Rightarrow y = 3$
  Hence, we get $(x, y) = (2, 3)$

- For $x = 3$,
  $2(3) + y = 7$
  $\Rightarrow y = 1$
  Hence we get $(x, y) = (3, 1)$

Therefore the four solutions of the given equation are (0,7) , (1,5), (2, 3), (3,1)

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

Given,

- Linear Equation, $\pi x + y = 9$
  We can write the above equation as below by Transposing
  $y = 9 - \pi x$ ----------Equation (1)

Let us now take different values of x and substituting in the Equation (1), we get

- For $x = 0$,
  $y = 9 - \pi(0)$
  $\Rightarrow y = 9$

Hence we get $(x, y) = (0, 9)$

- For $x = 1$,
  $y = 9 - \pi(1)$
  $= 9 - \pi$

Hence we get $(x, y) = (1, 9 - \pi)$

- For $x = 2$,
  $y = 9 - \pi(2)$

Hence we get $(x, y) = (2, 9 - 2\pi)$

- For $x = 3$,
  $y = 9 - \pi(3)$

Hence we get $(x, y) = (3, 9 - 3\pi)$

Therefore the four solutions of the given equation are (0, 9), (1, 9 - ), (2, 9 −2 ), (3, 9 - 3 )

(iii) $x = 4y$

Given,

- Linear Equation, $x = 4y$
  We can write the above equation as below by Transposing
  $y = x/4$ ----------Equation (1)

Let us now take different values of x and substituting in the Equation (1), we get

- For $x = 0$,
  $y = 0/4 = 0$

Hence we get $(x, y) = (0, 0)$

- For x = 1,
  y = 1/4

Hence we get (x, y) = (1, 1/4)

- For x = 2,
  y = 2/4 = 1/2

Hence we get (x, y) = (2, 1/2)

- For x = 3,
  y = 3/4

Hence we get (x, y) = (3, 3/4)

Therefore the four solutions of the given equation are (0, 0), (1, 1/4), (2, 1/2), (3, 3/4)

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**Question 3:**

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

(i) (0, 2)

(ii) (2, 0)

(iii) (4, 0)

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

(v) (1, 1)

**Solution 3:**

Given **:** $x - 2y = 4$ is a Linear Equation----------Equation(1)

(i) (0, 2)

B Substituting x = 0 and y = 2 in the L.H.S of the given Equation (1)

$x - 2y$

$= (0) - (2)\,2$

$= -4 \neq 4 \neq \text{RHS}$

L.H.S ≠ R.H.S

Therefore, (0, 2) is not a solution of this equation.

(ii) (2, 0)

By Substituting, x = 2 and y = 0 in the L.H.S of the given Equation (1),

$x - 2y$

$= 2 - 2(0)$

$= 2 \neq 4 \neq \text{RHS}$

L.H.S ≠ R.H.S

Therefore, (2, 0) is not a solution of this equation.

(iii) (4, 0)
By Substituting, x = 4 and y = 0 in the L.H.S of the given Equation (1)
$x - 2y$
$= 4 - 2(0)$
$= 4$
L.H.S = R.H.S
Therefore, (4, 0) is a solution of this equation.

(iv) $(\sqrt{2}, 4\sqrt{2})$
By Substituting, $x = \sqrt{2}$ and $y = 4\sqrt{2}$ in the L.H.S of the given Equation (1)
$x - 2y$
$= \sqrt{2} - 8\sqrt{2}$
$= -7\sqrt{2} \neq 4 \neq RHS$
L.H.S $\neq$ R.H.S
Therefore, is not a solution of this equation.

(v) (1, 1)
By Substituting, x = 1 and y = 1 in the L.H.S of the given Equation (1)
$x - 2y$
$= 1 - 2(1)$
$= 1 - 2$
$= -1 \neq 4 \neq RHS$
L.H.S $\neq$ R.H.S
Therefore, (1, 1) is not a solution of this equation.

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**Question 4:**
Find the value of *k*, if *x* = 2, *y* = 1 is a solution of the equation 2*x* + 3*y* = *k*.

**Solution 4:**
Given **:** 2x + 3y = k is the Linear Equation ---------------- Equation (1)
- x = 2
- y = 1
- k =?

By substituting the values of x and in the Equation (1),
$2x + 3y = k$
$\Rightarrow 2(2) + 3(1) = k$
$\Rightarrow 4 + 3 = k$
$\Rightarrow$ Hence, k = 7
Therefore, the value of *k* is 7.

# Exercise (4.3)

**Question 1:**
Draw the graph of each of the following linear equations in two variables:

(i) $x + y = 4$
(ii) $x - y = 2$
(iii) $y = 3x$
(iv) $3 = 2x + y$

**Solution 1:**
(i) $x + y = 4$
Given : Linear Equation

$$x + y = 4 \Rightarrow y = 4 - x \text{ ------------------Equation (1)}$$

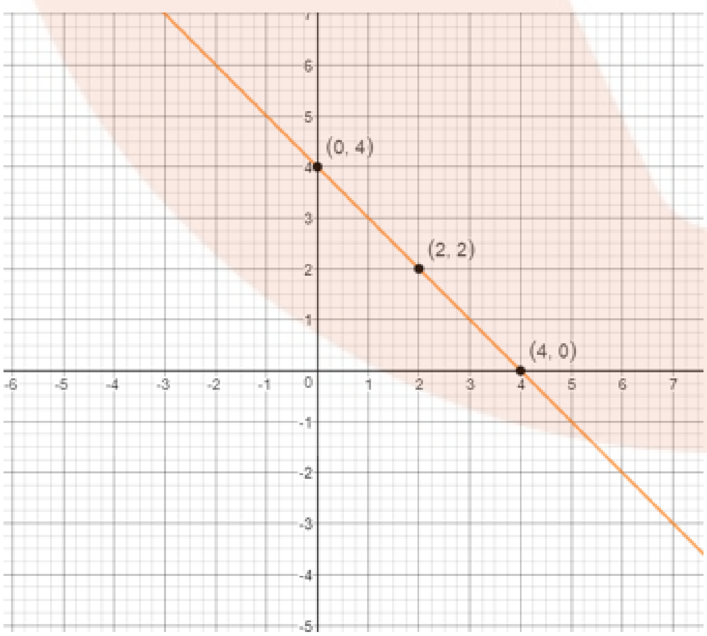
By substituting the different values of x in the Equation (1) we get different values for y

- When $x = 0$ , we have : $y = 4 - 0 = 4$
- When $x = 2$, we have : $y = 4 - 2 = 2$
- When $x = 4$, we have : $y = 4 - 4 = 0$

Thus, we have the following table with all the obtained solutions:

| | | | |
|---|---|---|---|
| x | 0 | 2 | 4 |
| y | 4 | 2 | 0 |

By Plotting the points (0, 4) (2, 2) and (4, 0) on the graph paper and drawing a line joining them, we obtain the Graph.
The graph of the line represented by the given equation as shown.
The graph of this equation is constructed as follows:



(ii) $x - y = 2$

Given : Linear Equation

$x - y = 2 \Rightarrow y = x - 2$ ------------------Equation (1)

By substituting the different values of x in the Equation (1) we get different values for y

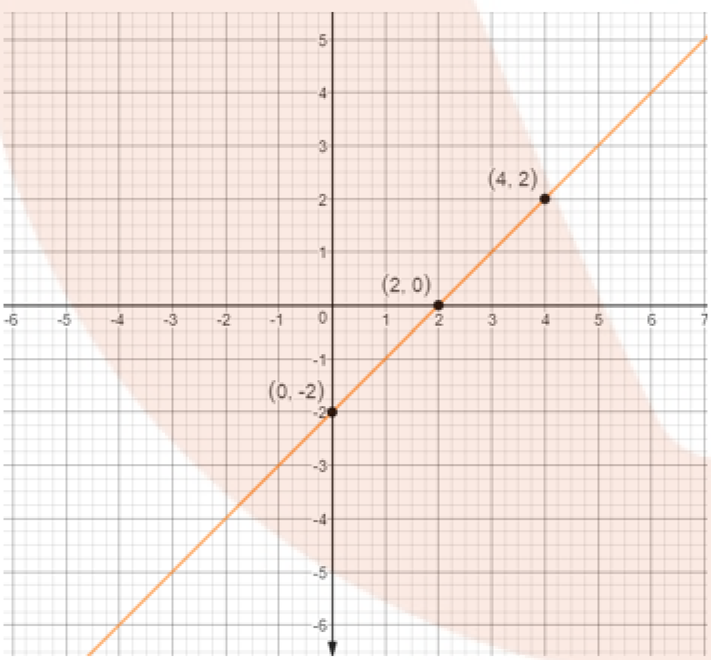
- When $x = 0$ , we have $y = 0 - 2 = -2$
- When $x = 2$, we have $y = 2 - 2 = 0$
- When $x = 4$, we have $y = 4 - 2 = 2$

Thus, we have the following table with all the obtained solutions:

| | | | |
|---|---|---|---|
| x | 0 | 2 | 4 |
| y | -2 | 0 | 2 |

By Plotting the points (0, –2), (2, 0) and (4, 2) on the graph paper and drawing a line joining them, we obtain the Graph.

The graph of the line represented by the given equation as shown




(iii) $y = 3x$

Given: Linear Equation

$y = 3x$ ------------------Equation (1)

By substituting the different values of x in the Equation (1) we get different values for y

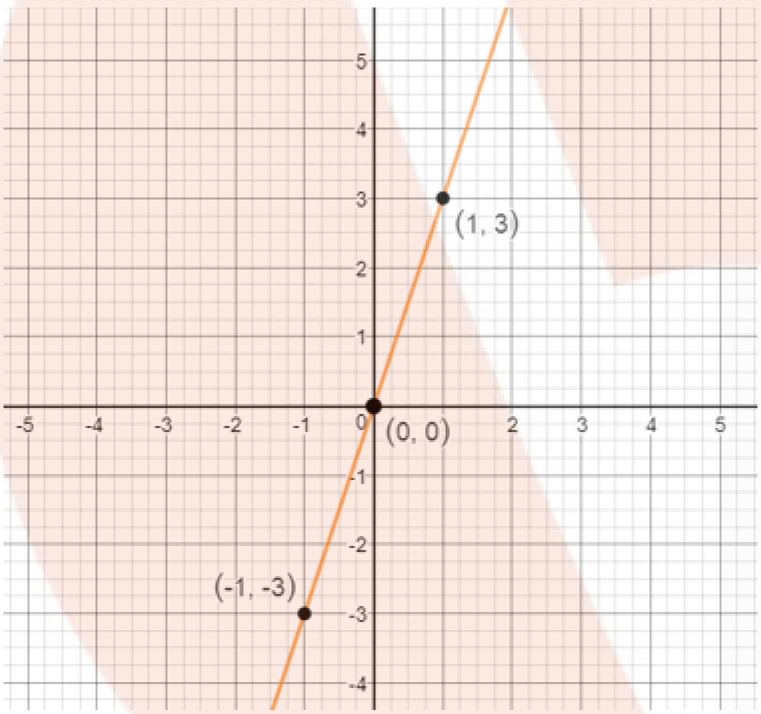
- When x = 0 , we have : y = 3(0) = 0
- When x = 1, we have : y = 3 (1) = 3
- When x = –1, we have : y = 3(–1) = – 3

Thus, we have the following table with all the obtained solutions:

| | | | |
|---|---|---|---|
| x | 0 | 1 | -1 |
| y | 0 | 3 | -3 |

By Plotting the points (0, 0), (1, 3) and (–1, –3) on the graph paper and drawing a line joining them, we the Graph.

The graph of the line represented by the given equation as shown:




(iv) 3 = 2x + y

Given: 3 = 2x + y be the Linear Equation

$\Rightarrow$ y = 3 – 2x ------------------Equation (1)

By substituting the different values of x in the Equation (1) we get different values for y

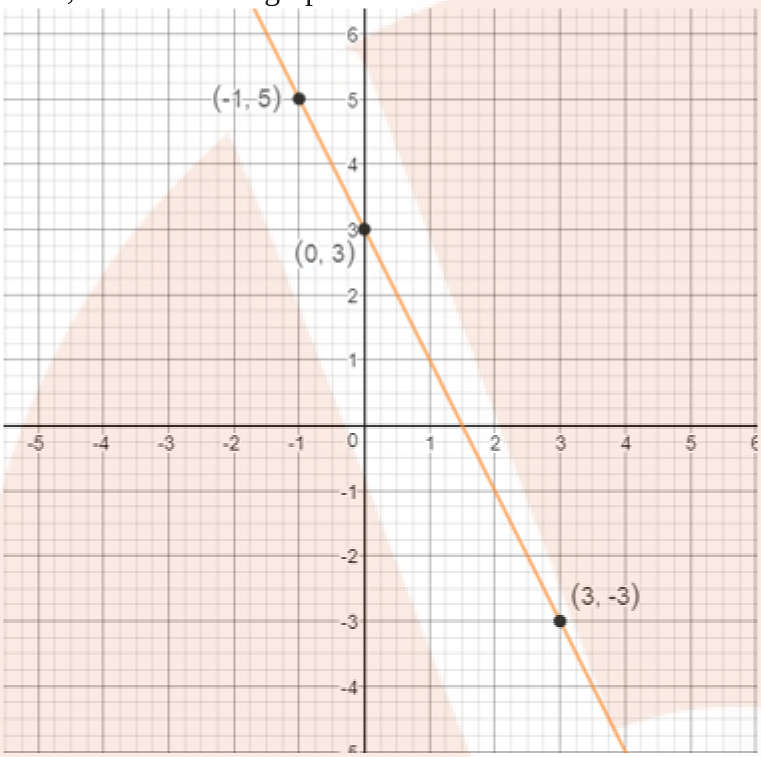
- When x = 0, we have: y = 3 – 2(0) = 3 – 0 = 3
- When x = 3, we have: y = 3 – 2(3) = 3 – 6 = – 3
- When x = – 1, we have: y = 3 – 2 (–1) = 3 + 2 = 5

Thus, we have the following table with all the obtained solutions:

| | | | |
|---|---|---|---|
| x | 0 | 3 | -1 |

| | | | |
|---|---|---|---|
| y | 3 | -3 | 5 |

By Plotting the points (0, 3), (3, –3) and (–1, 5) on the graph paper and drawing a line joining them, we obtain the graph:




The graph of the line represented by the given equation as shown.

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**Question 2:**

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

**Solution 2:**

Given :

- Equations of two lines passing through (2, 14).
- It can be observed that point (2, 14) satisfies the equation $7x - y = 0$ and $x - y + 12 = 0$.

Therefore, $7x - y = 0$ and $x - y + 12 = 0$ are two lines passing through point (2, 14).

As it is known that through one point, infinite number of lines can pass through, therefore, there are infinite lines of such type passing through the given point.

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**Question 3:**

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

### Solution 3:
Given **:**

- 3y = ax + 7 is the Linear Equation -----------Equation(1)
- Point (3, 4) lies on the Equation (1)

By Substituting the value of x = 3 and y = 4 in the Equation (1),

3y = ax + 7

3(4) = a(3) + 7

5 = 3a

We get, $a = \frac{5}{3}$

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### Question 4:
The taxi fare in a city is as follows: For the first kilometre, the fares 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.

### Solution 4:
Given,

- Fare for 1st kilometer = Rs. 8
- Taxi fare for the subsequent km = Rs 5
- Fare for the rest of the distance = Rs. (x − 1) 5
- Let the Total distance covered = *x* km
- Let the Total fare covered = Rs. y

The linear equation for the above information is given by,

Total fare, y = [8 + (x − 1) 5]

y = 8 + 5x − 5

y = 5x + 3

5x − y + 3 = 0

By substituting the different values of x in the Equation (1) we get different values for y

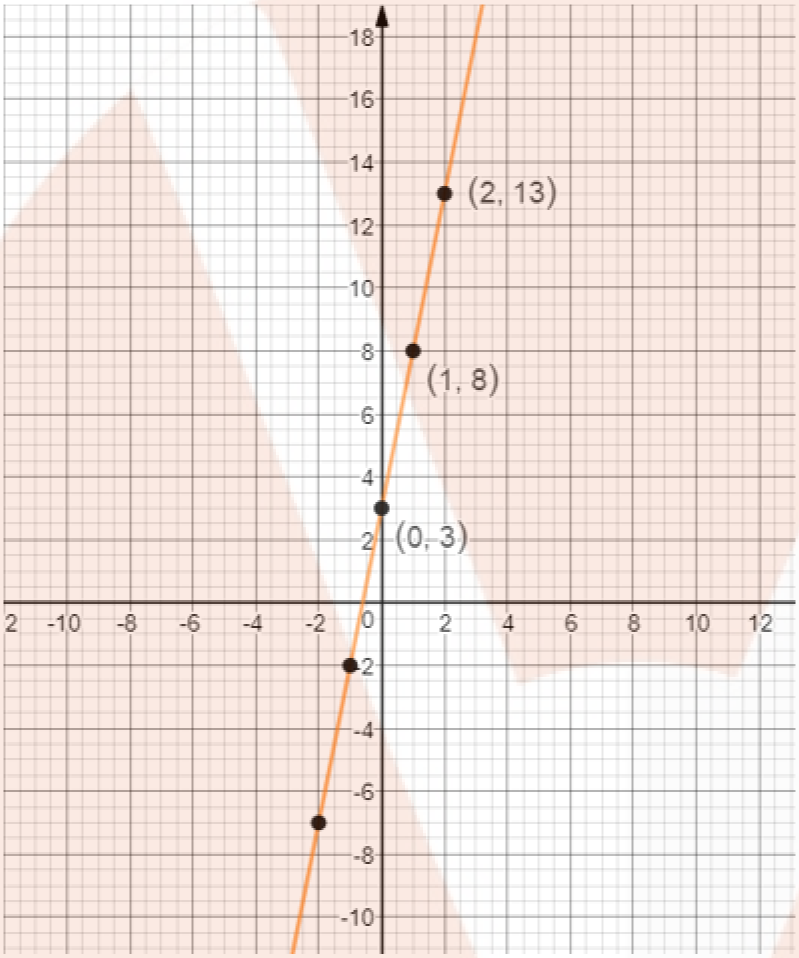
- When x = 0, y = 5 × 0 + 3 = 0 + 3 = 3
- When x = 1, y = 5 ×( 1) + 3 = 5 + 3 = 8
- When x = 2, y = 5 × (2) + 3 = 10 + 3 = 13
- When x = -1, y = 5 × (–1) + 3 = –5 + 3 = -2
- When x = -2, y = 5 × (–2) + 3 = –10 + 3 = -7

Thus, we have the following table with all the obtained solutions:

| | | | | | |
|---|---|---|---|---|---|
| x | 0 | 1 | 2 | -1 | -2 |
| y | 3 | 8 | 13 | -2 | -7 |

By Plotting the points (0, 3), (1, 8) , (2, 13) , (-1, -3) , (-2, -7) on the graph paper and drawing a line joining them, we, obtain the required graph

The graph of the line represented by the given equation as shown:




Here, it can be seen that variable x and y are representing the distance covered and the fare paid for that distance respectively and these quantities may not be negative.
Hence, only those values of x and y which are lying in the 1st quadrant will be considered.

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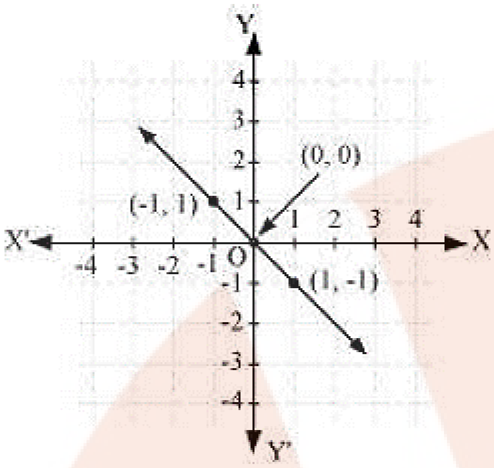
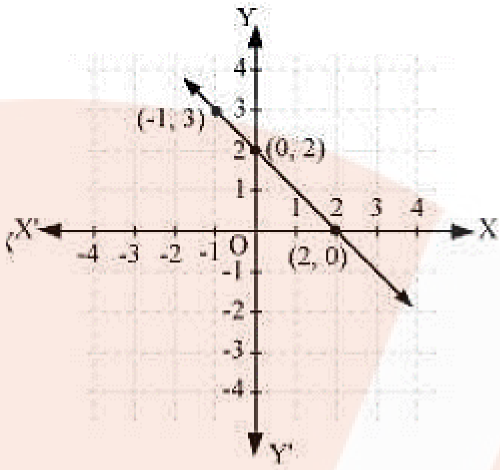
**Question 5:**
From the choices given below, choose the equation whose graphs are given in the given figures.

**For the first figure**
(i) $y = x$
(ii) $x + y = 0$
(iii) $y = 2x$
(iv) $2 + 3y = 7x$

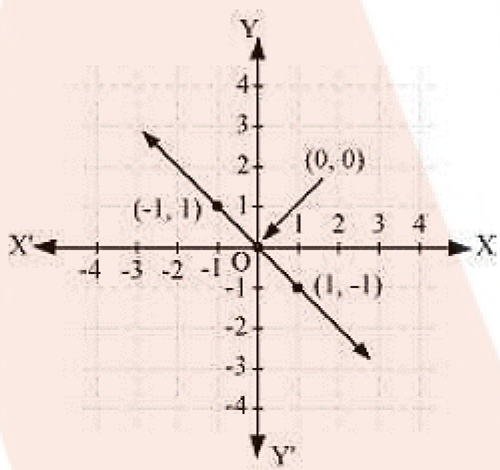
**For the second figure**
(i) $y = x + 2$
(ii) $y = x - 2$
(iii) $y = -x + 2$
(iv) $x + 2y = 6$




**Solution 5:**

For the First Figure:

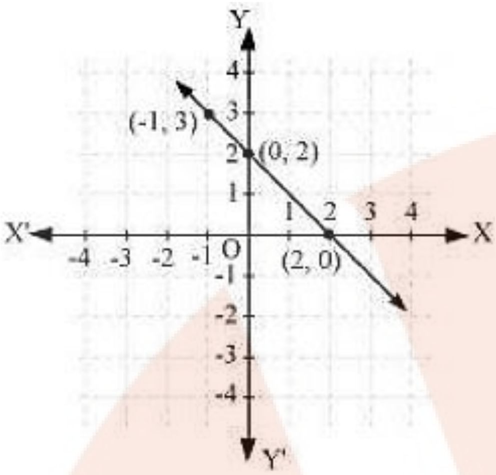



- Points on the given line are $(-1, 1)$, $(0, 0)$, and $(1, -1)$.
- It can be observed that the coordinates of the points of the graph satisfy the equation $x + y = 0$.

Therefore, $x + y = 0$ is the equation corresponding to the graph as shown in the first figure.

Hence, (ii) is the correct answer.

For the Second Figure :




- Points on the given line are (−1, 3), (0, 2), and (2, 0).
- It can be observed that the coordinates of the points of the graph satisfy the equation y = −x + 2. Therefore, y = −x + 2 is the equation corresponding to the graph shown in the second figure. Hence, (iii) is the correct answer.

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**Question 6:**

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

**Solution 6:**

Given:

- Let the distance travelled and the work done by the body be x and y respectively.
- Work done ∝ distance travelled
  Hence, y ∝ x

y = kx ----------- Equation (1)
Where, k is a constant
By substituting the different values of x in the Equation (1) we get different values for y

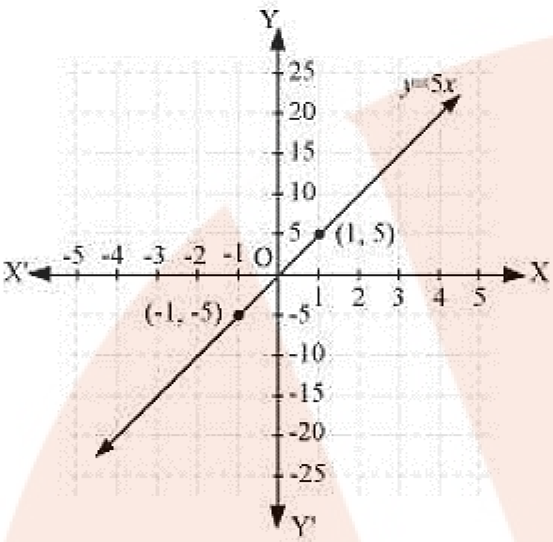
  - When x= 0, y = 0
  - When x= 1, y = 5
  - When x =-1, y= -5

Thus, we have the following table with all the obtained solutions:

| | | | |
|---|---|---|---|
| x | 0 | 1 | -1 |
| y | 0 | 5 | -5 |

By Plotting (0, 0) , (1,5) and (–1, –5) on the graph paper and drawing a line joining them we obtain the required graph

The graph of the line represented by the given equation as shown.




(i) From the graphs, it can be observed that the value of y corresponding to x = 2 is 10. This implies that the work done by the body is 10 units when the distance travelled by it is 2 units.

(ii) From the graphs, it can be observed that the value of y corresponding to x = 0 is 0. This implies that the work done by the body is 0 units when the distance travelled by it is 0 unit.

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**Question 7:**

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 earthquake victims. Write a linear equation which satisfies this data. (You may take their contributions as Rs. *x* and Rs. *y*.) Draw the graph of the same.

**Solution 7:**

Given,

- Let the amount that Yamini and Fatima contributed be x and y respectively towards the Prime Minister's Relief fund.
- Amount contributed by Yamini and Fatima together would be = 100
  $x + y = 100$
  $y = 100 - x$

By substituting the different values of x in the Equation (1) we get different values for y

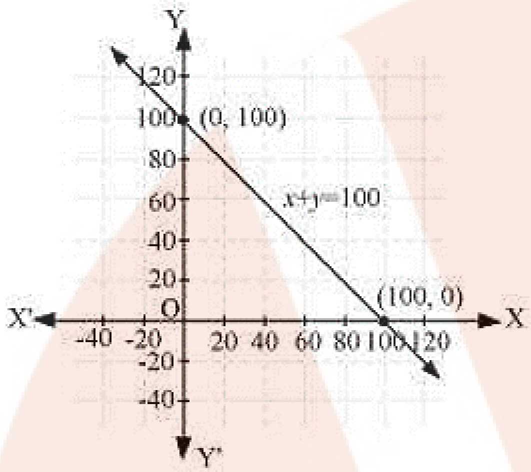
  - When $x = 0$, $y = 100$
  - When $x = 50$, $y = 50$
  - When $x = 100$, $y = 0$

Thus, we have the following table with all the obtained solutions:

| | | | |
|---|---|---|---|
| x | 0 | 50 | 100 |
| y | 100 | 50 | 0 |

By Plotting the points (0, 100), (100, 0) and (50, 50) on the graph paper and drawing a line joining them, we obtain the required graph

The graph of the line represented by the given equation as shown.




Here, it can be seen that variable x and y are representing the amount contributed by Yamini and Fatima respectively and these quantities cannot be negative. Hence, only those values of x and y which are lying in the 1st quadrant will be considered.

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**Question 8:**

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:

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

(i) Draw the graph of the linear equation above using Celsius for *x*-axis and Fahrenheit for *y*-axis.
(ii) If the temperature is 30 °C, what is the temperature in Fahrenheit?
(iii) If the temperature is 95 °F, what is the temperature in Celsius?
(iv) 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?
(v) Is there a temperature which is numerically the same in both Fahrenheit and Celsius? If yes, find it.

**Solution 8:**

(i)
Given,

- $F=\left(\frac{9}{5}\right)C+32$ -------------------Equation(1)

By substituting the different values of x in the Equation (1) we get different values for y

 - When C = 0,
 $F=\left(\frac{9}{5}\right)0+32=32$

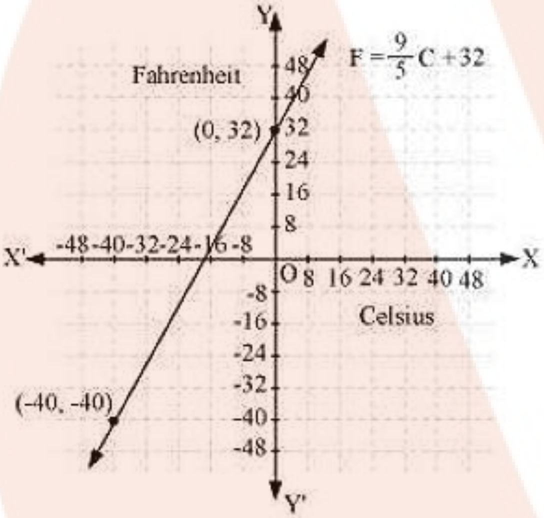
- When C = – 40, F = -40
- When C = 10, F = 50

Thus, we have the following table with all the obtained solutions:

| | | | |
|---|---|---|---|
| x | 0 | -40 | 10 |
| y | 32 | -40 | 50 |

By Plotting the points (– 40, – 40) and (10, 50) on the graph point. On joining these points by line segment we obtain the required graph

The graph of the line represented by the given equation as shown.




(ii) Given:

- Temperature = 30 °C
- F= ?

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

By Substituting the value of temperature in the Equation above,

$$F = \left(\frac{9}{5}\right)30 + 32 = 54 + 32 = 86$$

Therefore, the temperature in Fahrenheit is 86 °F.

(iii) Given,

- Temperature = 95 °F
- F = ?

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

By Substituting the value of temperature in the Equation above,

$$95 = \left(\frac{9}{5}\right)C + 32$$

$$63 = \left(\frac{9}{5}\right)C$$

C = 35

Therefore, the temperature in Celsius is 35 °C.

(iv) We know that, $F = \left(\frac{9}{5}\right)C + 32$

If C = 0 °C, then by Substituting this value in the Equation above,

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

Therefore, if C = 0 °C, then F = 32 °F

If F = 0 °F, then by Substituting this value in the Equation above,

$$0 = \left(\frac{9}{5}\right)C + 32$$

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

$$C = \frac{-160}{9} = -17.77$$

Therefore, if F = 0 °F, then C = −17.8 °C

(v) We know that, $F = \left(\frac{9}{5}\right)C + 32$

Let us consider, F = C

By Substituting this value in the Equation above,

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

$$\left(\frac{9}{5} - 1\right)F + 32 = 0$$

$$\left(\frac{4}{5}\right)F = -32$$

Hence, F = –40

Yes, there is a temperature, −40°, which is numerically the same in both Fahrenheit and Celsius.

# Exercise (4.4)

**Question 1:**

Give the geometric representation of y = 3 as an equation

(i) in one variable

(ii) in two variables

**Solution 1:**

(i) Given,

- y = 3 is the equation
- The representation of the solution on the number when y = 3 is treated as an equation in one variable

In one variable, y = 3 represents a point as shown in following figure.


(ii) Given:

- y = 3 is the equation

We know that y = 3 can be written as 0.x + y = 0 .

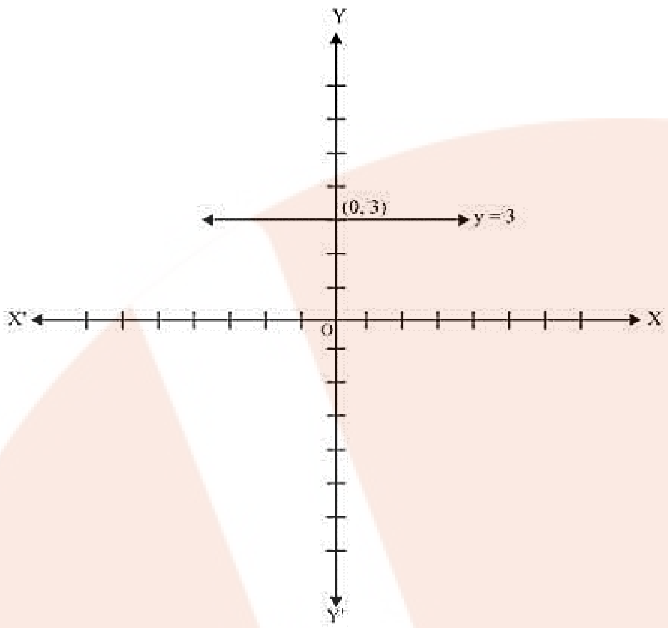
In two variables, y = 3 represents a straight line passing through point (0, 3) and parallel to *x*-axis. It is a collection of all points of the plane, having their *y*-coordinate as 3.

Hence,

- When, x = 0, we get y = 3 ;
- When x = 2, we get y = 3 ;
- When x = - 2 , we get y = 3 are the solutions for the equations.

Plotting the points (0, 3) (2, 3) and (–2, 3) and on joining them we get the graph AB as a line parallel to x-axis at a distance of 3 units above it

The graphical representation is shown below:

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## Question 2:

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

(i) in one variable

(ii) in two variables

## Solution 2:

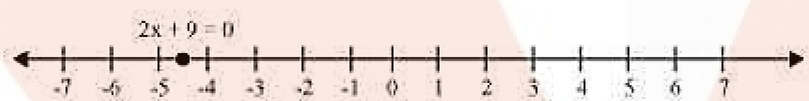
(i) Given: 2x + 9 = 0 is the Linear Equation ------------ Equation (1)

$2x + 9 = 0$

$2x = 9$

$$x = \frac{-9}{2} = -4.5$$

Hence, in one variable 2x + 9 = 0 represents a point as shown in the following figure.




(ii) Given: 2x + 9 = 0 is the Linear Equation ------------ Equation (1)

We know that 2x + 9 = 0 can be written as 2x + 0y + 9 = 0 as a linear equation in variables x and y.

Value of y is always 0. However, x must satisfy the relation 2x + 9= 0

i.e. $x = \frac{-9}{2} = -4.5$

Hence,

- When, y= 0, we get x= -4.5 ;

- When y = 2, we get x= -4.5;
- When y = - 2, we get  x= -4.5 are the solutions for the equations.

Hence three solution of the given equation are, y = 0 ; ,y = 2 and ,y =– 2.

Therefore, plotting the point and on joining them we get the graph AB as a line parallel to y-axis at a distance of on the left of y-axis It is a collection of all points of the plane, having their *x*-coordinate as 4.5.