Pair of Linear Equations in Two varibles Ex 3.2 Q21

Answer :

(i) The given equations are

$2x-3y=6 \quad \ldots\ldots\ldots\ldots(i)$

$x+y=1 \quad \ldots\ldots\ldots\ldots(ii)$

Putting $x=0$ in equation (i), we get:

$\Rightarrow 2\times 0-3y=6$

$\Rightarrow y=-2$

$x=0, \quad y=-2$

Putting $y=0$ in equation (i) we get:

$\Rightarrow 2x-3\times 0=6$

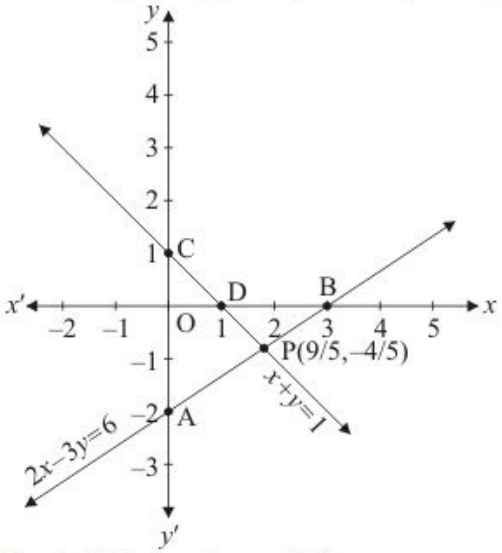
$\Rightarrow x=3$

$x=3, \quad y=0$

Use the following table to draw the graph.

x	0	3
y	-2	0

Draw the graph by plotting the two points $A(0,-2), B(3,0)$ from table.



Graph of the equation....(ii):

$x+y=1 \quad .....(ii)$

Putting $x=0$ in equation (ii) we get:

$\Rightarrow 0+y=1$

$\Rightarrow y=1$

$\therefore \ x=0, \quad y=1$

Putting $y=0$ in equation (ii), we get:

$\Rightarrow x+0=1$

$\Rightarrow x=1$

$x=1, \quad y=0$

Use the following table to draw the graph.

x	0	1
y	1	0

Draw the graph by plotting the two points $C(0,1), D(1,0)$ from table.

The two lines intersect at point $P\left(\frac{9}{5},-4/5\right)$.

Hence the equations have unique solution.

(ii) The equations of graphs is

$2y=4x-6$

$4x-2y=6 \quad .....(i)$

$2x=y+3$

$2x-y=3 \quad .....(ii)$

Putting $x=0$ in equation (i), we get:

$\Rightarrow 4\times 0-2y=6$

$\Rightarrow y=-3$

$\Rightarrow \ x=0, \quad y=-3$

Putting $y=0$ in equation (i), we get:

$\Rightarrow 4x-2\times 0=6$

$\Rightarrow x=3/2$

$x = 3/2, \quad y = 0$

Use the following table to draw the graph.

x	0	$3/2$
y	-3	0

The graph of (i) can be obtained by plotting the two points $A(0,-3), B(3/2,0)$.

Graph of the equation (ii)

$2x - y = 3 \quad .....(ii)$

Putting $x = 0$ in equation (ii), we get.

$\Rightarrow 2 \times 0 - y = 3$

$\Rightarrow y = -3$

$x = 0, \quad y = -3$

Putting $y = 0$ in equation (ii), we get.

$\Rightarrow 2x - 0 = 3$

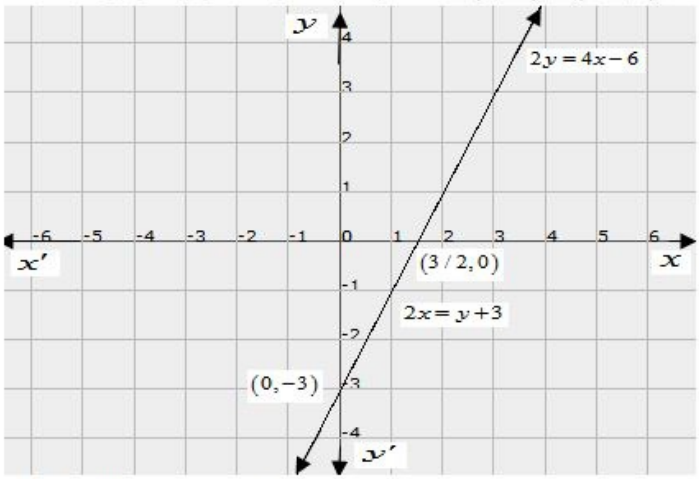
$\Rightarrow x = 3/2$

$x = 3/2, \quad y = 0$

Use the following table to draw the graph.

x	0	$3/2$
y	-3	0

Draw the graph by plotting the two points $C(0,-3), D(3/2,0)$ from table.



The two lines are coincident.

Hence the equations have infinitely much solution.

Hence the system is consistent

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