



Pair of Linear Equations in Two variables Ex 3.2 Q30

Answer :

The given equations are

$$2x - 3y + 6 = 0 \quad \text{.....(i)}$$

$$2x + 3y - 18 = 0 \quad \text{.....(ii)}$$

$$y - 2 = 0 \quad \text{.....(iii)}$$

The two points satisfying (i) can be listed in a table as,

x	-3	6
y	0	6

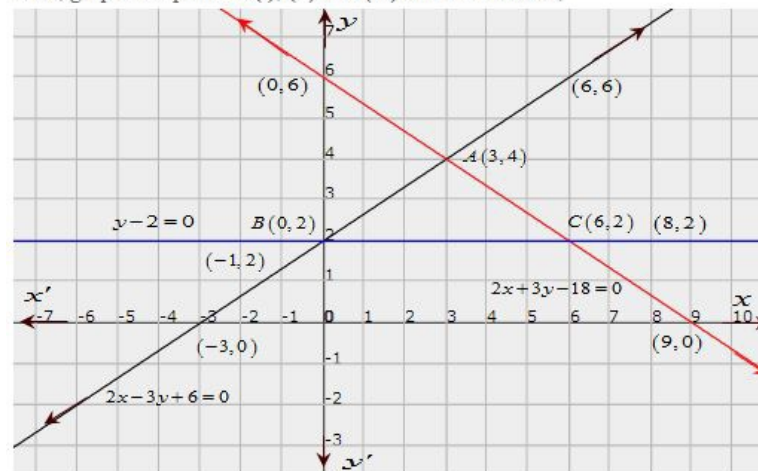
The two points satisfying (ii) can be listed in a table as,

x	0	9
y	6	0

The two points satisfying (iii) can be listed in a table as,

x	-1	8
y	2	2

Now, graph of equations (i), (ii) and (iii) can be drawn as,



It is seen that the coordinates of the vertices of the obtained triangle are

$A(3, 4)$, $B(0, 2)$, $C(6, 2)$

$$\therefore \text{Area of } \triangle ABC = \frac{1}{2} \times \text{Base} \times \text{height} = \frac{1}{2} \times 6 \times 2 \text{ sq units} = 6 \text{ sq units}$$

Pair of Linear Equations in Two variables Ex 3.2 Q31

Answer :

The given equations are:

$$2x - 3y + 6 = 0 \quad \dots\dots(i)$$

$$2x + 3y - 18 = 0 \quad \dots\dots(ii)$$

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

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

$$\Rightarrow y = 2$$

$$x = 0, y = 2$$

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

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

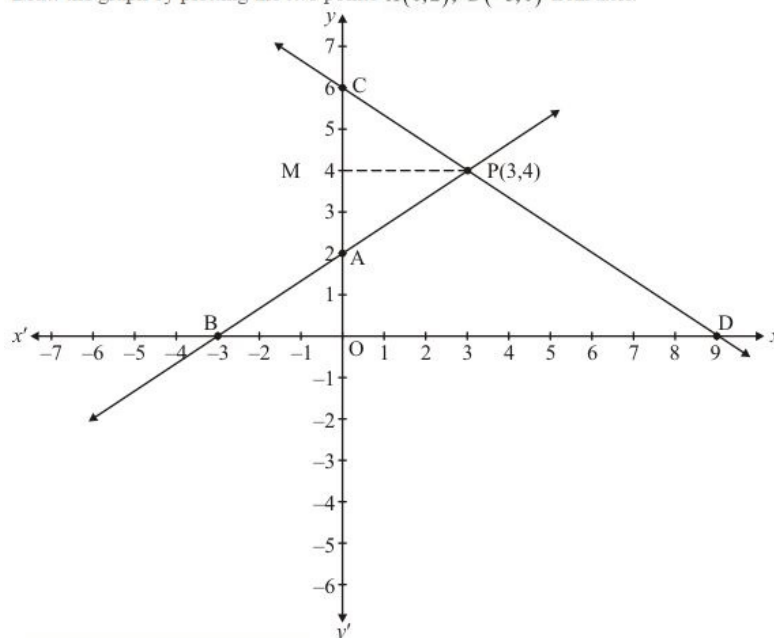
$$\Rightarrow x = -3$$

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

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.



$$2x + 3y - 18 = 0 \quad \dots\dots(ii)$$

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

$$\Rightarrow 2 \times 0 + 3y = 18$$

$$\Rightarrow y = 6$$

$$x = 0, \quad y = 6$$

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

$$\Rightarrow 2x + 3 \times 0 = 18$$

$$\Rightarrow x = 9$$

$$x = 9, \quad y = 0$$

Use the following table to draw the graph.

x	0	9
y	6	0

Draw the graph by plotting the two points $C(0, 6)$, $D(9, 0)$ from table.

The two lines intersect at $P(3, 4)$.

Hence $x = 3$, $y = 4$ is the solution of the given equations.

The area enclosed by the lines represented by the given equations and the y-axis

Now,

$$\Rightarrow \text{Required area} = \text{Area of PCA}$$

$$\Rightarrow \text{Required area} = 1/2(\text{base} \times \text{height})$$

$$\Rightarrow \text{Required area} = 1/2(CA \times PM)$$

$$\Rightarrow \text{Required area} = 1/2(4 \times 3) \text{sq. units}$$

Hence the required area is 6 sq. units

***** END *****