



Pair of Linear Equations in Two variables Ex 3.2 Q36

Answer :

The given equations are

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

$$2x - 3y = 12 \quad \dots\dots(ii)$$

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

$$\Rightarrow 0 + 3y = 6$$

$$\Rightarrow y = 2$$

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

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

$$\Rightarrow x + 3 \times 0 = 6$$

$$\Rightarrow x = 6$$

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

Use the following table to draw the graph.

x	0	6
y	2	0

The graph of (i) can be obtained by plotting the two points $A(0, 2)$, $B(6, 0)$.

$$2x - 3y = 12 \quad \dots\dots(ii)$$

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

$$\Rightarrow 2 \times 0 - 3y = 12$$

$$\Rightarrow y = -4$$

$$x = 0, \quad y = -4$$

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

$$\Rightarrow 2x - 3 \times 0 = 12$$

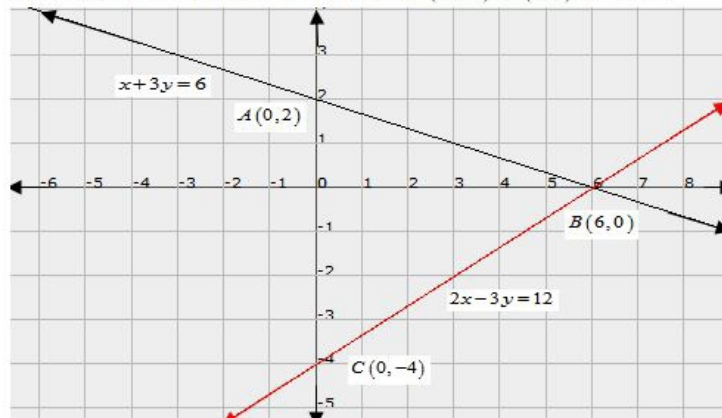
$$\Rightarrow x = 6$$

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

Use the following table to draw the graph.

x	0	6
y	-4	0

Draw the graph by plotting the two points $C(0, -4)$, $D(6, 0)$ from table.



Graph of lines represented by the equations $x + 3y = 6$, $2x - 3y = 12$ meet y -axis at $A(0, 2)$, $C(0, -4)$ respectively.

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Answer :

(i) For intersecting lines,

Equation of another intersecting line to the given line is–

$$2x + 5y - 3 = 0$$

Since, condition for intersecting lines and unique solution is–

$$\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$$

(ii) For parallel lines,

Equation of another parallel line to the given line is–

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

Since, condition for parallel lines and no solution is–

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

(iii) For co–incident lines,

Equation of another coincident line to the given line is–

$$4x + 6y - 16 = 0$$

Since, condition for coincident lines and infinite solution is–

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

***** END *****