



### Exercise 3A

Question 13:

On a graph paper, draw horizontal line  $X'OX$  and a vertical line  $YOY'$  as  $x$ -axis and  $y$ -axis respectively.

#### Graph of $3x + 5y = 15$ :

For the graph of  $3x + 5y = 15$  or  $y = \frac{-3x+15}{5}$

We have the following table for  $3x + 5y = 15$

x	0	5	-5
y	3	0	6

Plot the points A (0, 3), B (5, 0) and C (-5, 6).

Join AB and AC to get BC.

Extend it on both ways.

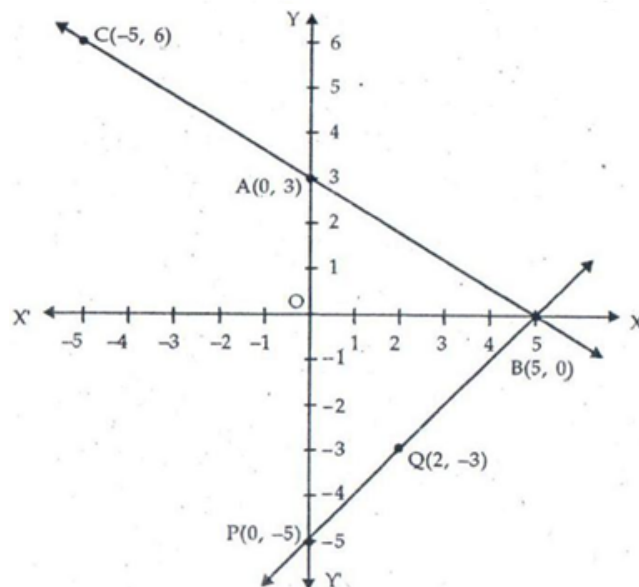
The line BC is the graph of the equation  $3x + 5y = 15$

#### Graph of $x - y = 5$ :

$x - y = 5 \Rightarrow y = x - 5$

We have the following table  $x - y = 5$

x	0	5	2
y	-5	0	-3



On the same graph paper, plot the points P(0, -5) and Q(2, -3).

The point B (5, 0) has already been plotted.

Join PQ and QB to get PB

The line PB is the graph of the equation  $x - y = 5$

It is clear from the graph that the given system of equations is consistent.

The lines  $3x + 5y = 15$  and  $x - y = 5$  meet the  $y$ -axis at A (0, 3) and P(0, -5) respectively.

Question 14:

On a graph paper, draw horizontal line X'OX and a vertical line YOY' as x-axis and y-axis respectively.

**Graph of  $x + 2y = 5$ :**

$$x + 2y = 5 \Rightarrow y = \frac{5-x}{2}$$

thus, we have the following table for  $x + 2y = 5$ .

x	1	3	5
y	2	1	0

On the graph paper, plot the points A (1, 2), B (3, 1) and C (5, 0)

Join AB and BC to get AC

Thus, line AC is the graph of the equation  $x + 2y = 5$

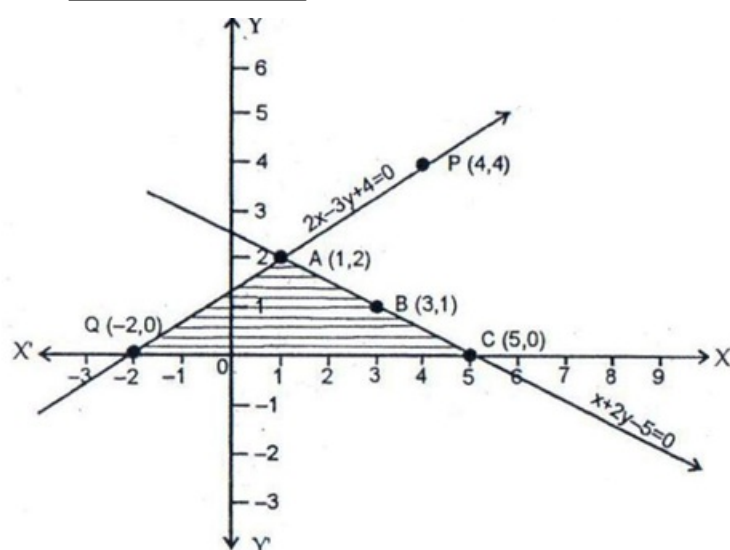
**Graph of  $2x - 3y = -4$ :**

For graph of  $2x - 3y = -4$

$$2x - 3y = -4 \Rightarrow y = \frac{2x+4}{3}$$

Thus, we have the following table for  $2x - 3y = -4$

x	1	-2	4
y	2	0	4



On the same graph paper, plot the points P (4, 4) and Q (-2, 0).

The point A (1, 2) has been already plotted.

Join PA and QA to get PQ

The line PQ is the graph of the equation  $2x - 3y = -4$

The two graph lines intersect at point A (1, 2)

$\therefore x = 1, y = 2$  is the solution of the given system of equations

The region bounded by these lines and x-axis has been shaded.

On extending the graph lines on both sides, we find that these graph lines intersect the x-axis at points Q (-2, 0) and C (5, 0)

\*\*\*\*\* END \*\*\*\*\*