Exercise 3A

Question 3:

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

Given equations are $x - y + 1 = 0$ and $3x + 2y - 12 = 0$

Graph of $x - y + 1 = 0$:

$x - y + 1 = 0 \Rightarrow y = x + 1$ --- (1)

Thus, we have following table for $x - y + 1 = 0$

x	0	-1	2
y	1	0	3

Plot the points A (0,1), B (-1, 0) and C (2, 3) on the graph paper. Join AB and AC to get the graph line BC. Extend it on both ways.

Thus, line BC is the graph of $x - y + 1 = 0$.

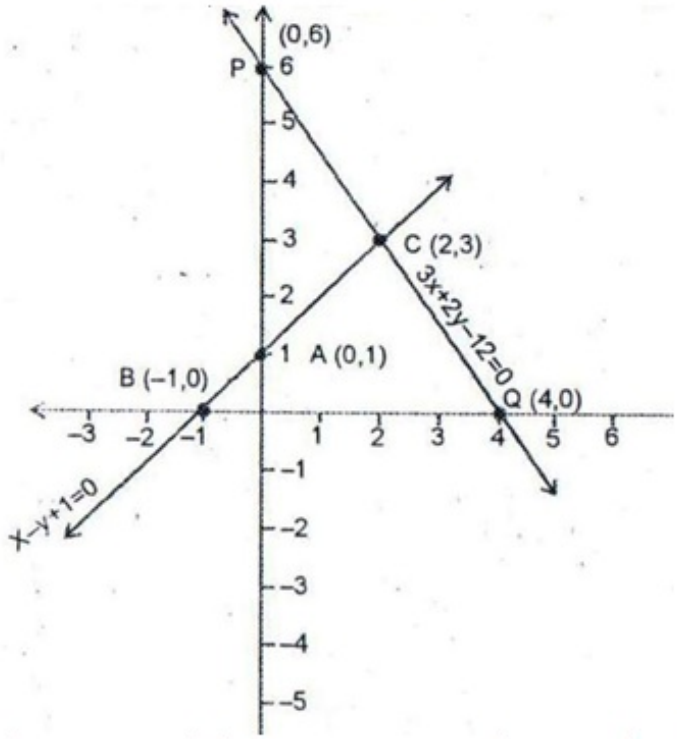
Graph of $3x + 2y - 12 = 0$:

$$2y = 12 - 3x \Rightarrow y = \frac{12 - 3x}{2} \text{ --- (2)}$$

Thus, we have the following table for $3x + 2y - 12 = 0$

x	0	2	4
y	6	3	0

On the same graph paper as above plot the points P (0, 6) and Q (4, 0). The point C (2, 3) has already been plotted. Join PC and QC and extend it. Thus, the line PQ is the graph of $3x + 2y - 12 = 0$.



The two graph lines intersect at the point (2, 3)
$\therefore x = 2, y = 3$ is the solution of the given system of equations

Question 4:

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

Given equations are $2x + 3y = 4$ and $3x - y = -5$

Graph of $2x + 3y = 4$:

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

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

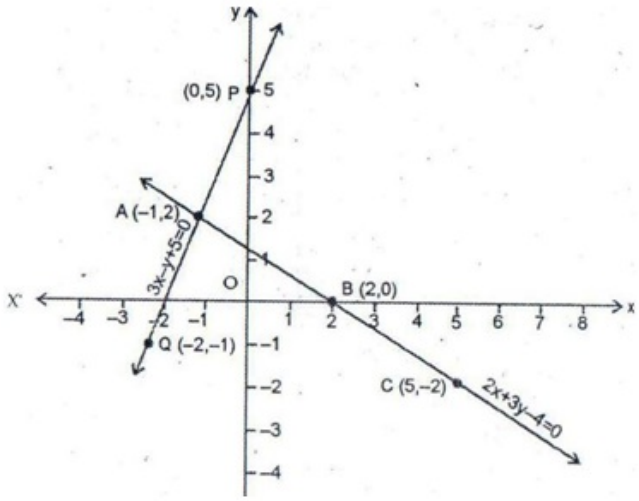
x	-1	2	5
y	2	0	-2

On the graph paper plot the point A (-1, 2), B (2, 0) and C (5, -2)
Join AB and BC to get in line AC
Thus, the line AC is the graph of the equation $2x + 3y = 4$

Graph of $3x - y = -5$:
$y = 3x + 5$
Thus, we have the following table for $3x - y = -5$

x	-1	0	-2
y	2	5	-1

On the same graph paper plot the points P(0, 5) and Q (-2, -1)
The third point A (-1, 2) has been already plotted.



Join PA and QA to get the line PQ
Thus, the line PQ is the graph of the equation 3x - y = -5

The two graph lines intersect at the point A(-1, 2)
$\therefore$ x = -1, y = 2 is the solution of the given system of equations

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