Exercise 3A

Question 9:

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 $2x - 5y + 4 = 0$
and $2x + y - 8 = 0$

Graph of $2x - 5y + 4 = 0$:

$2x - 5y + 4 = 0 \Rightarrow y = \frac{2x+4}{5}$ ----(1)

Thus, we have the following table for $2x - 5y + 4 = 0$

x	-2	3	8
y	0	2	4

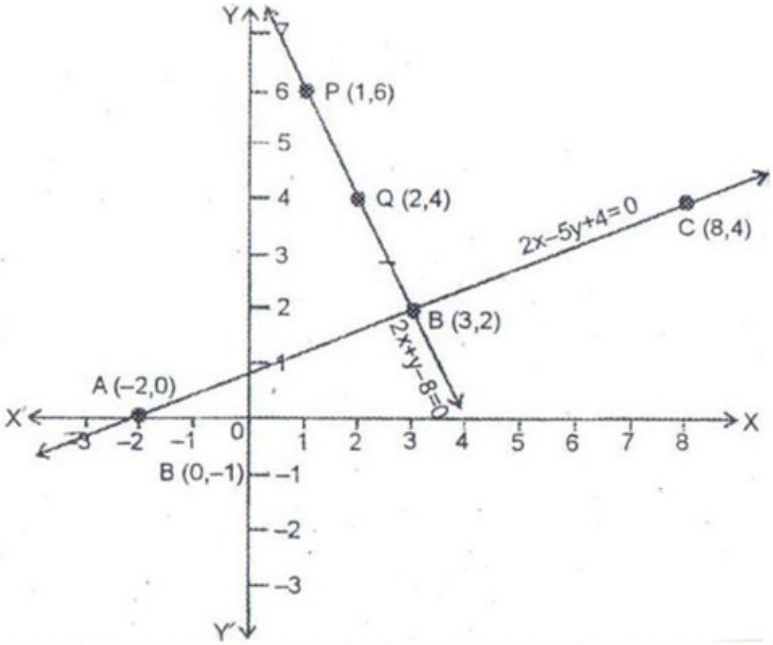
On the graph paper plot the points A(-2, 0), B(3, 2) and C(8, 4)
Joint AB and BC to get AC
Thus, line AC is the graph of the equation $2x - 5y + 4 = 0$

Graph of $2x + y - 8 = 0$

$2x + y - 8 = 0 \Rightarrow y = -2x + 8$ ---(2)
Thus, we have the following table for $2x + y - 8 = 0$

x	1	3	2
y	6	2	4

On the same graph paper as above, plot the points P (1, 6) and Q (2, 4).
The third point B (3, 2) has been already plotted.



Join PQ and QB to get to the line PB. Thus, line PB is the graph of the equation $2x + y - 8 = 0$.
The two graph lines intersect at the point B(3, 2)
$\therefore x = 3, y = 2$ is the solution of the given system of equations

Question 10:

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 $3x + y + 1 = 0$
and $2x + y - 8 = 0$

Graph of $3x + y + 1 = 0$:

$3x + y + 1 = 0 \Rightarrow y = -3x - 1$ ---(1)
Thus, we have the following table for $3x + y + 1 = 0$

x	0	-1	1
y	-1	2	-4

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

Graph of $2x - 3y + 8 = 0$:

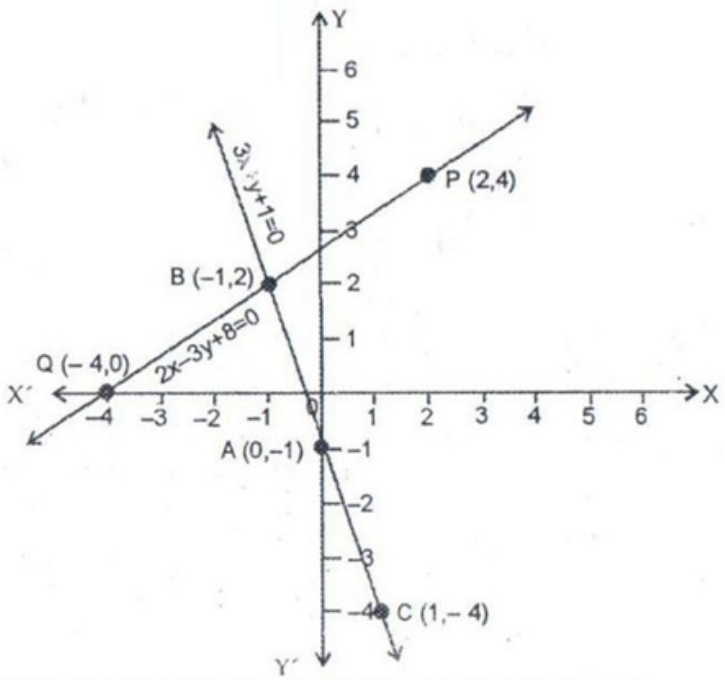
For graph of $2x - 3y + 8 = 0$

$$2x - 3y + 8 = 0 \Rightarrow y = \frac{2x + 8}{3} - - - (2)$$

Thus, we have the following table for equation (2)

x	-1	2	-4
y	2	4	0

On the same graph as above, plot the points P (2, 4) and Q (-4, 0).
The point B (-1, 2) has been already plotted.
Join PB and BQ to get PQ.



Thus the line PQ is graph of equation $2x - 3y + 8 = 0$
The two graph lines intersect at the point B(-1, 2)
$\therefore$ $x = -1, y = 2$ is the solution of the given system of equations.

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