Exercise 3A

Question 7:

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

Graph of $x + 2y + 2 = 0$:

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

thus, we have the following table for $x + 2y + 2 = 0$

x	-2	0	2
y	0	-1	-2

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

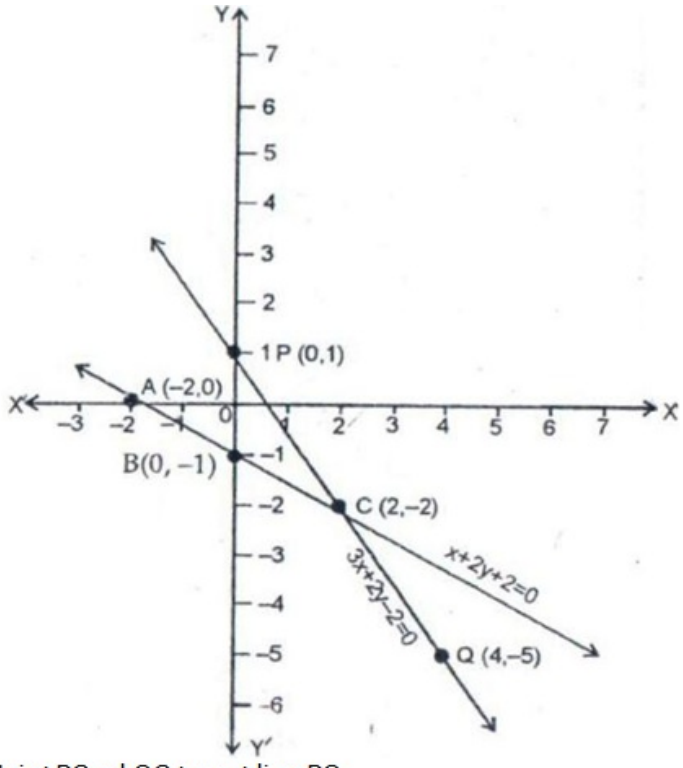
Graph of $3x + 2y - 2 = 0$:

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

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

x	0	2	4
y	1	-2	-5

On the graph paper as above plot the points P (0, 1) and Q (4, -5) and third point C (2, -2) is already plotted.



Joint PC ad QC to get line PQ
Thus, the line PQ is the graph of the equation $3x + 2y - 2 = 0$
Two graph lines intersect at the point C(2, -2)
$\therefore x = 2, y = -2$ is the solution of the given system of equations.

Question 8:

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

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

$2x + 3y = 8 \Rightarrow y = \frac{8 - 2x}{3} \quad ---(1)$

Thus, we have the following table for $2x + 3y = 8$

x	1	-5	7
y	2	6	-2

On the graph paper plot the points A(1, 2), B(-5, 6) and C(7, -2)
Join AB and AC to get BC
Thus the line AC is the equation of $2x + 3y = 8$

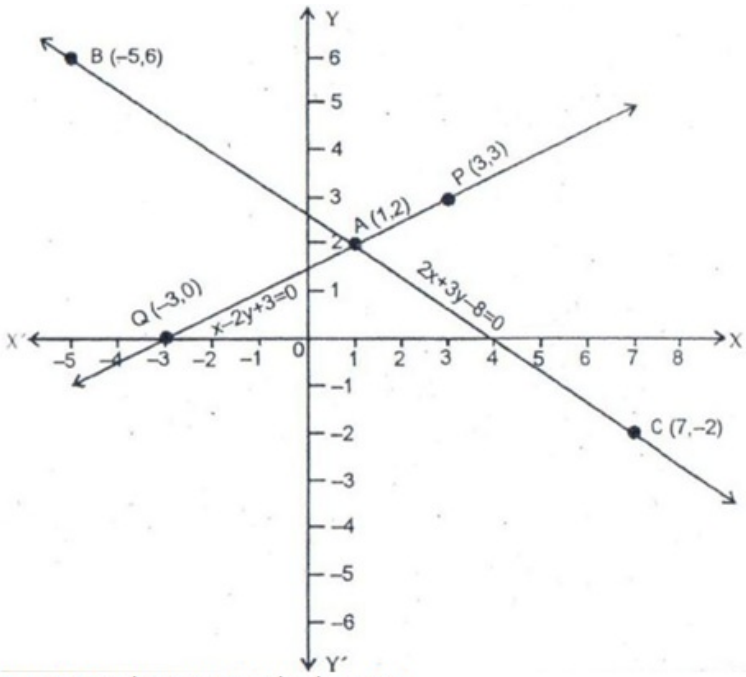
Graph of $x - 2y + 3 = 0$:

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

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

x	1	3	-3
y	2	3	0

On the same graph paper as above, plot the points P(3, 3) and Q(-3, 0).
The point A(1, 2) has been already plotted.



Join PA and QA to get the line PQ
Thus, line PQ is the graph of the equation $x - 2y + 3 = 0$
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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