



Exercise 3A

Question 17:

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

Graph of $4x - y = 4$:

$$4x - y = 4 \Rightarrow y = 4x - 4$$

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

x	0	1	2
y	-4	0	4

On the graph paper plot the points A (0, -4), B (1, 0) and C (2, 4)

Join AB and BC to get AC

Thus, line AC is the graph of the equation $4x - y = 4$

For graph of $3x + 2y = 14$

$$3x + 2y = 14 \Rightarrow y = \frac{14 - 3x}{2}$$

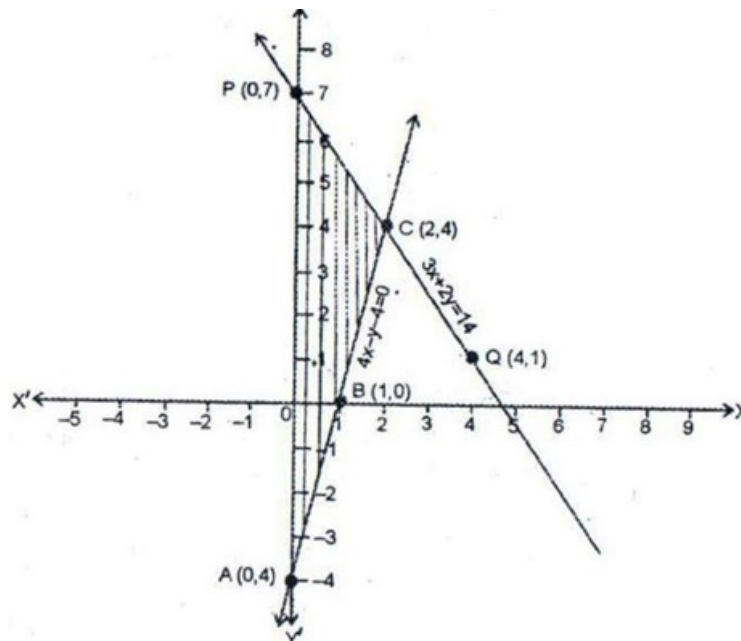
Thus, we have the following table for $3x + 2y = 14$

x	0	2	4
y	7	4	1

On the same graph paper as above, plot the points P (0, 7) and Q (4, 1).

Third point C (2, 4) has already been plotted.

Join PC and CQ to get PQ.



Thus, line PQ is the graph of the equation $3x + 2y = 14$

The two graph lines intersect at point C(2, 4)

$\therefore x = 2, y = 4$ is the solution of the given system of equations

The region bounded by these lines and the y -axis has been shown by shaded area.

Question 18:

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

The given system of equations is $2x - y = 1$, $x - y = -1$

Graph of $2x - y = 1$:

$$2x - y = 1 \Rightarrow y = 2x - 1 \text{ ---(1)}$$

Putting $x = 1$, we get $y = 2 - 1 = 1$

Putting $x = 2$, we get $y = 2 \times 2 - 1 = 3$

Putting $x = 0$, we get $y = 0 - 1 = -1$

\therefore table for equations (1) is

x	1	2	0
y	1	3	-1

Plot the points A (1, 1), B(2, 3), C(0, -1).

Join AB and AC to get BC.

BC is the graph of the equation $2x - y = 1$

Graph of $x - y = -1$:

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

Putting $x = 1$, we get $y = 1 + 1 = 2$

Putting $x = 2$, we get $y = 2 + 1 = 3$

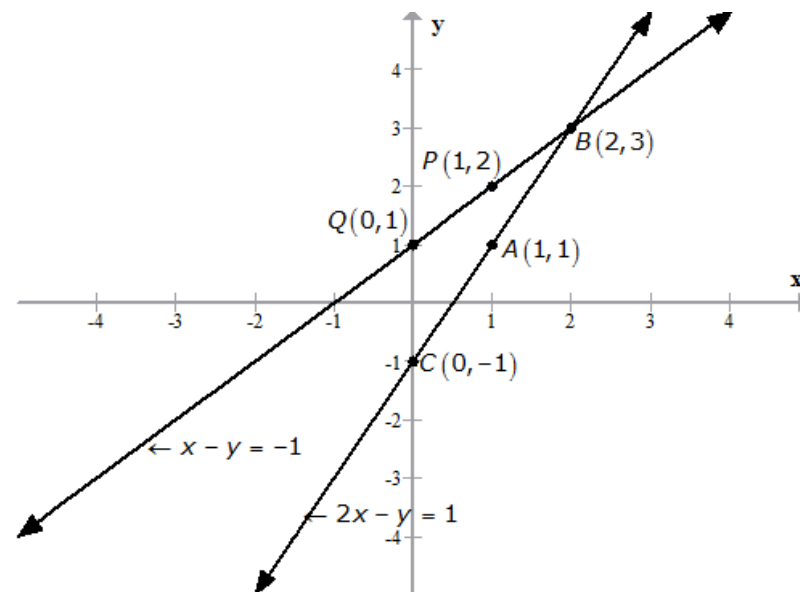
Putting $x = 0$, we get $y = 0 + 1 = 1$

Table for equations (2) is

x	1	2	0
y	2	3	1

Plot the points P (1, 2) and Q (0, 1)

The point B (2, 3) has been already plotted.



Join PB and PQ to get BQ.

The line BQ is the graph of $x - y = -1$

The graph of lines BC and BQ intersect at B (2, 3). Solution of the given system of equations is $x = 2$, $y = 3$.

The region bounded by the lines and y-axis has been shaded.

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