

Exercise 8.3

Solve the following pair of equations in x and y graphically.

Q.1 $x + y = 0$ and $2x - y + 3 = 0$

Solution: $\Rightarrow y = 0 - x$

Table of values

x	-3	-2	-1	0	1	2
y	3	2	1	0	-1	-2

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

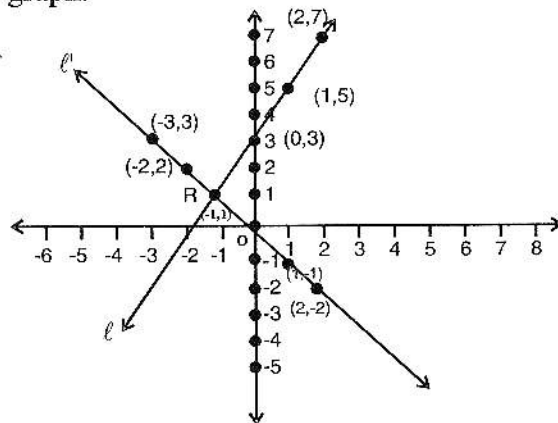
$$\Rightarrow -y = -3 - 2x$$

$$y = 3 + 2x$$

Table of values

x	-2	-1	0	1	2
y	-1	1	3	5	7

By plotting the points we get the following graph.



The solution of the system is the point R where the lines l and l' meet at $R(-1, 1)$ such that $x = -1$ and $y = 1$

Q.2 $x - y + 1 = 0$ and $x - 2y = -1$

Solution: $y = x + 1$

Table of values,

x	-4	-3	-2	-1	0	1	2
y	-3	-2	-1	0	1	2	3

$$x - 2y = -1$$

$$-2y = -1 - x$$

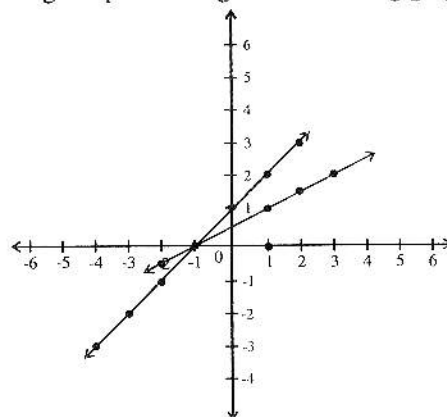
$$2y = 1 + x$$

$$y = \frac{1+x}{2}$$

Table of values,

x	-2	-1	0	1	2	3
y	-0.5	0	0.5	1	1.5	2

By plotting the points we get the following graph



The solution of the system is the point R where the lines ℓ and ℓ' meet at R $(-1, 0)$ such that $x = -1$ and $y = 0$

Q.3 $2x + y = 0$ and $x + 2y = 2$

Solution: $y = -2x$

Table of the values

x	-2	-1	0	1	2	3	4
y	4	2	0	-2	-4	-6	-4

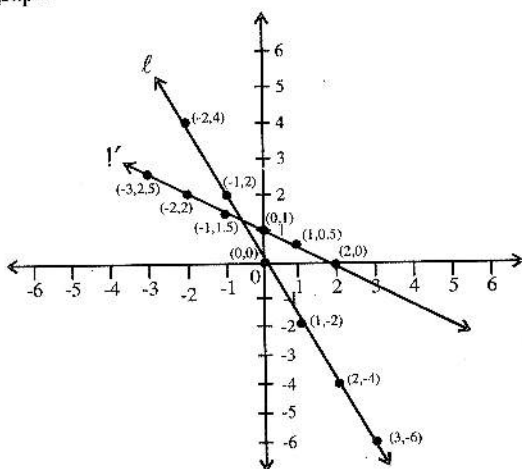
$$x + 2y = 2$$

$$2y = 2 - x$$

$$y = \frac{2-x}{2}$$

x	-3	-2	-1	0	1	2
y	2.5	2	1.5	1	0.5	0

By plotting the points we get the following graph



The solution of equations is $R\left(-\frac{2}{3}, \frac{4}{3}\right)$

Q.4 $x + y - 1 = 0$

$x - y + 1 = 0$

Solution: $x + y = 1$

$y = 1 - x$

Table of values

x	-3	-2	-1	0	1	2
y	4	3	2	1	0	-1

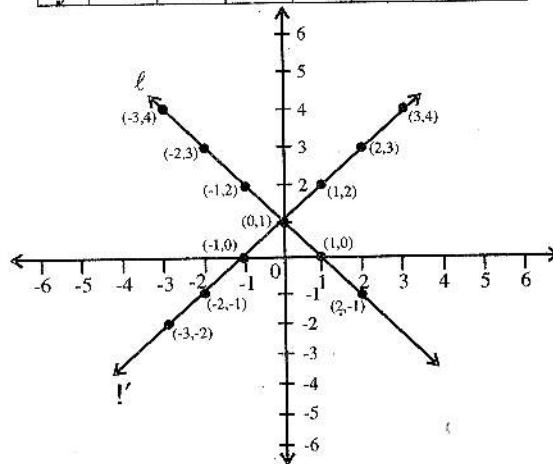
$$x - y + 1 = 0$$

$$-y = -1 - x$$

$$y = 1 + x$$

Table of values,

x	-3	-2	-1	0	1	2	3
y	-2	-1	0	1	2	3	4



The solution of the systems is $R(0, 1)$

Q.5 $2x + y - 1 = 0$, $x = -y$

Solution: $2x + y = 1$

$y = 1 - 2x$

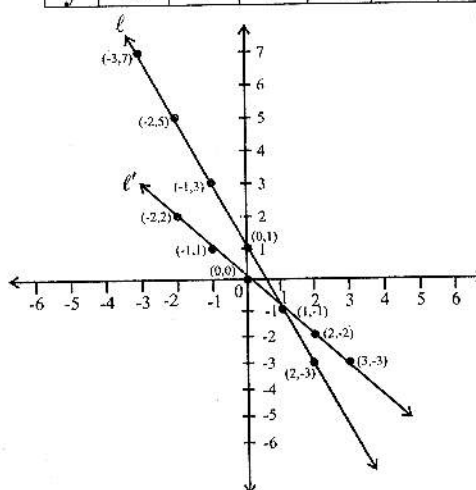
Table of values

x	-3	-2	-1	0	1	2
y	7	5	3	1	-1	-3

$x = -y$

Table of values

x	-2	-1	0	1	2	3
y	2	1	0	-1	-2	-3



The solution of the system is the point R where the lines ℓ and ℓ' meet at $R(1, -1)$ such that $x = 1$ and $y = -1$.

Objective

1. If $(x-1, y+1) = (0, 0)$, then (x, y) is:
 (a) $(1, -1)$ (b) $(-1, 1)$
 (c) $(1, 1)$ (d) $(-1, -1)$
2. If $(x, 0) = (0, y)$, then (x, y) is:
 (a) $(0, 1)$ (b) $(1, 0)$
 (c) $(0, 0)$ (d) $(1, 1)$
3. Point $(2, -3)$ lies in quadrant:
 (a) I (b) II
 (c) III (d) IV
4. Point $(-3, -3)$ lies in quadrant:
 (a) I (b) II
 (c) III (d) IV
5. If $y = 2x + 1$, $x = 2$ then y is:
 (a) 2 (b) 3
 (c) 4 (d) 5
6. Which ordered pair satisfy the equation $y = 2x$:
 (a) $(1, 2)$ (b) $(2, 1)$
 (c) $(2, 2)$ (d) $(0, 1)$
7. The real numbers x, y of the ordered pair (x, y) are called _____ of point $P(x, y)$ in a plane:
 (a) co-ordinates
 (b) x co-ordinates
 (c) y-coordinate
 (d) ordinate
8. Cartesian plane is divided into _____ quadrants:
 (a) Two (b) Three
 (c) Four (d) Five
9. The point of intersection of two coordinate axes is called:
 (a) Origin (b) Centre
 (c) X-coordinate (d) y-coordinate
10. The x-coordinate of a point is called ____
 (a) Origin (b) abscissa
 (c) y-coordinate (d) Ordinate
11. The y-coordinate of a point is called:
 (a) Origin (b) x-coordinate
 (c) y-coordinate (d) ordinate
12. The set of points which lie on the same line are called _____ points:
 (a) Collinear (b) Similar
 (c) Common (d) None of these
13. The plane formed by two straight lines perpendicular to each other is called ____:
 (a) Cartesian plane
 (b) Coordinate axes
 (c) Plane
 (d) None of these
14. An ordered pair is a pair of elements in which elements are written in specific:
 (a) Order (b) Array
 (c) Point (d) None

Answer key

1.	a	2.	c	3.	d	4.	c	5.	d
6.	a	7.	a	8.	c	9.	a	10.	b
11.	d	12.	a	13.	a	14.	a		