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

$2x - y + 3 = 3$

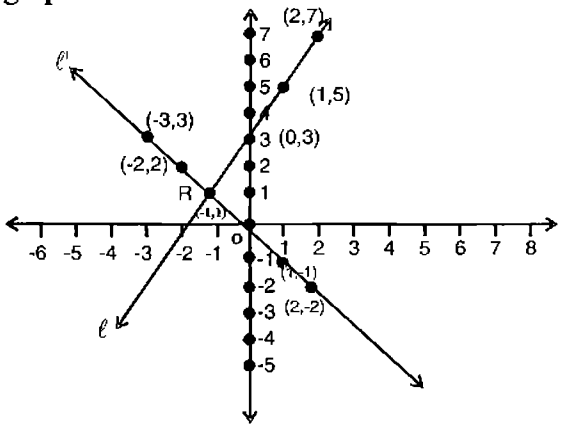
$\Rightarrow \quad -y = -3 - 2x$

$y = 3 + 2x$

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

$x - 2y = -1$

$-2y = -1 - x$

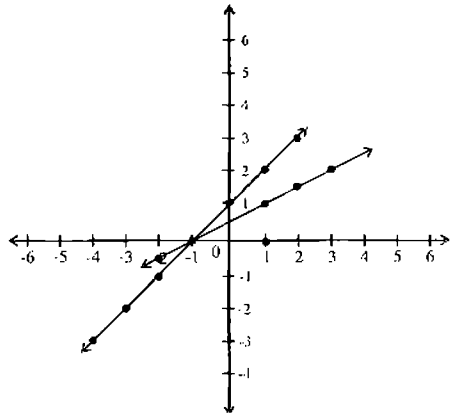
$2y = 1 + x$

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

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

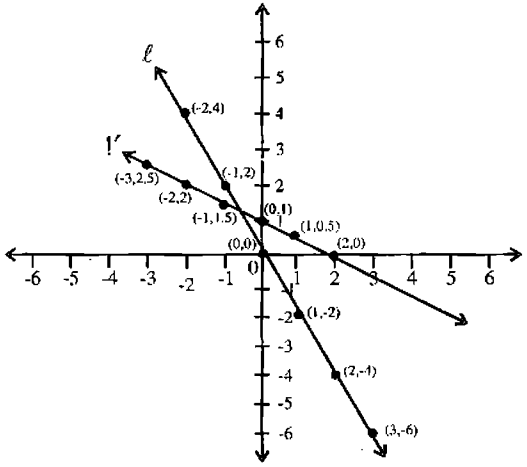
$x + 2y = 2$

$2y = 2 - x$

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

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

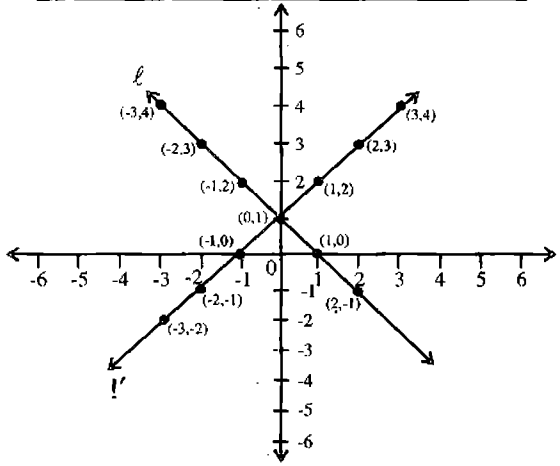
$x - y + 1 = 0$

$-y = -1 - x$

$y = 1 + x$

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: $2x + y = 1$

$y = 1 - 2x$

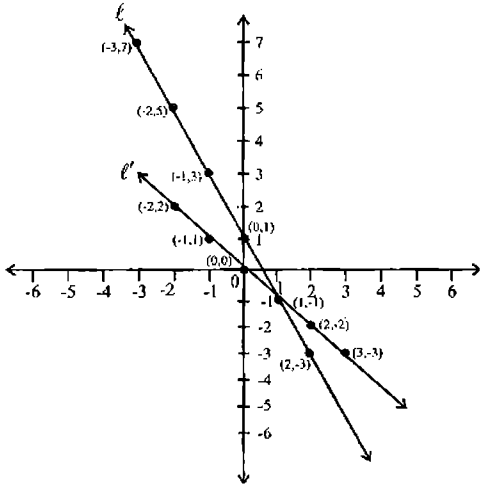
Table of values

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 $y = -1$.