EXERCISE 4.3

1. Draw the graphs of linear equations y = x and y = – x on the same Cartesian plane. What do you observe?

Solution:

According to the question,

y = x ------- eq (i)

Values of x and y satisfying the equation=

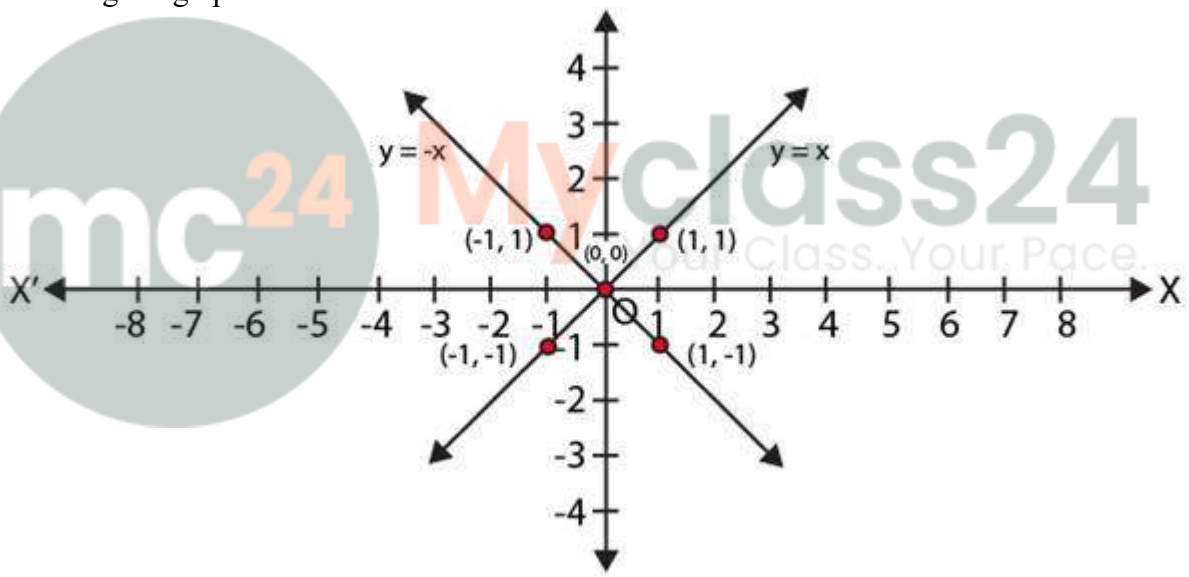
x	– 1	0	1
y	– 1	0	1

y = -x ------- (ii)

Values of x and y satisfying the equation=

x	– 1	0	1
y	1	0	– 1

Plotting the graph:



From the above graph,

We observe that the two lines y = x and y = – x intersect each other at O (0, 0).

2. Determine the point on the graph of the linear equation 2x + 5y = 19 whose ordinate is 1½ times its abscissa.

Solution:

From the question, we have,

2x + 5y = 19 …(i)

According to the question,

Ordinate is 1½ times its abscissa

⇒ y = 1½ x = (3/2) x

Substituting y = (3/2)x in eq. (i)

We get,

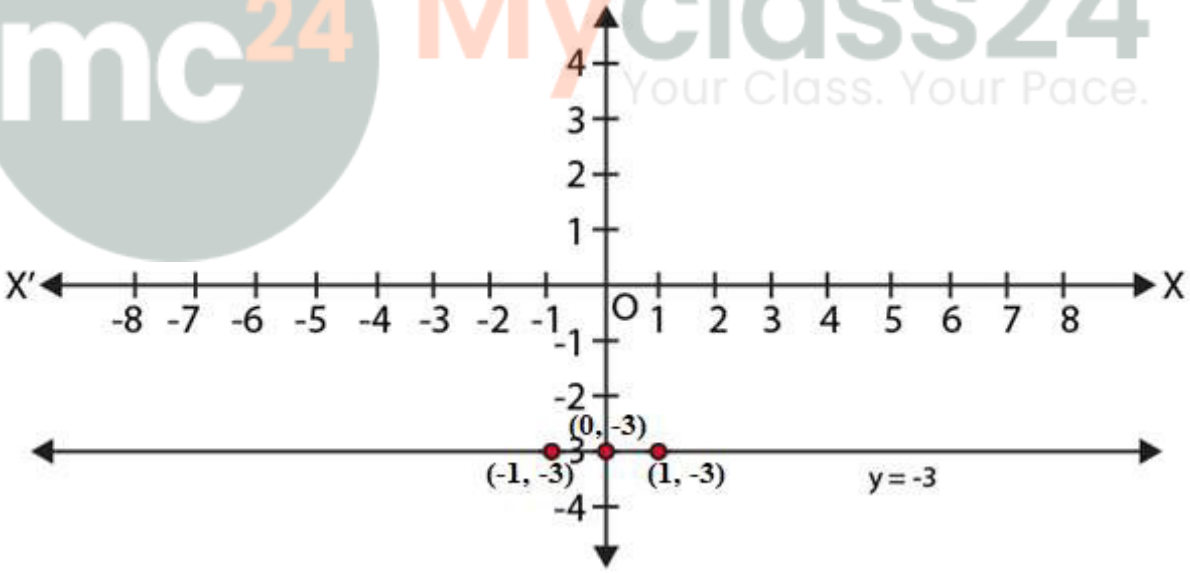
$2x + 5 (3/2) x = 19$
$(19/2)x = 19$
$x = 2$
Substituting $x = 2$ in eq. (i)
We get
$2x + 5y = 19$
$2(2) + 5y = 19$
$y = (19 – 4)/5 = 3$
Hence, we get $x = 2$ and $y = 3$
Thus, point (2, 3) is the required solution.

3. Draw the graph of the equation represented by a straight line which is parallel to the x-axis and at 3 units below.
Solution:

According to the question,
We get the linear equation,
$y = – 3$
Values of x and y satisfying the equation=

x	– 1	0	1
y	– 3	– 3	– 3

Plotting the graph:



4. Draw the graph of the linear equation whose solutions are represented by the points having the sum of the coordinates as 10 units.
Solution:

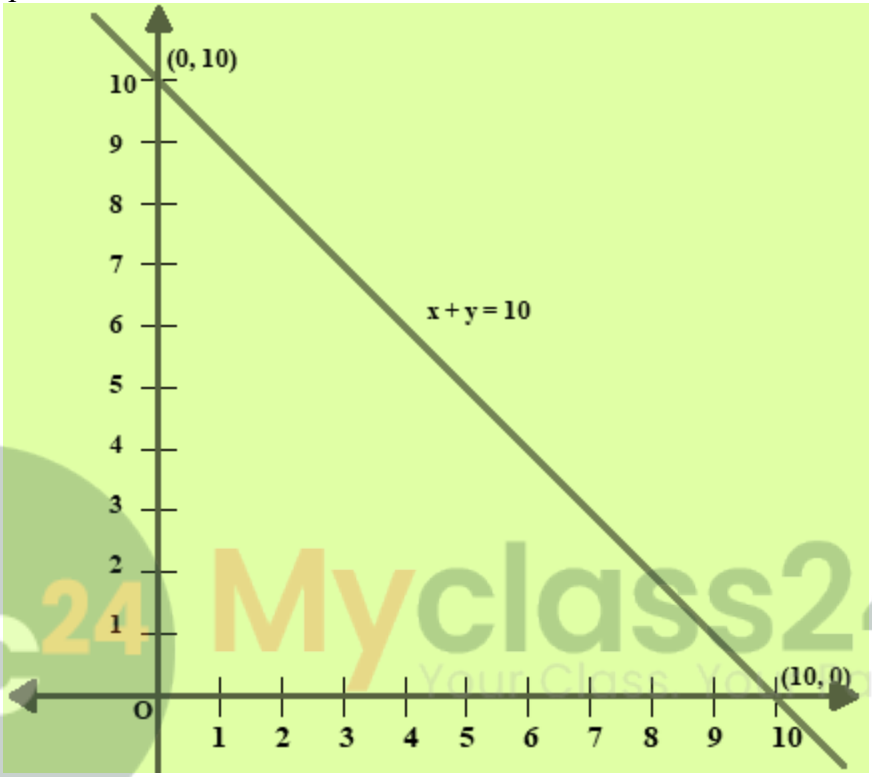
According to the question,
We get the linear equation,
$x + y = 10$
We get,

$x = 10 - y$

Values of x and y satisfying the equation=

x	10	5	0
y	0	5	10

Plotting the graph:



5. Write the linear equation such that each point on its graph has an ordinate 3 times its abscissa.

Solution:

According to the question,

A linear equation such that each point on its graph has an ordinate(y) which is 3 times its abscissa(x).

So we get,

$\Rightarrow y = 3x$.

Hence, $y = 3x$ is the required linear equation.