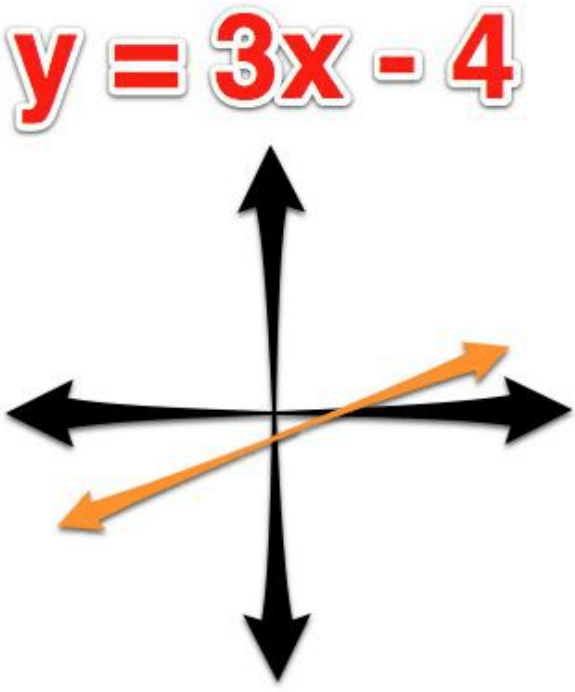
NCERT Class 9 Solutions: Linear Equation in Two Variable (Chapter 4) Exercise 4.2 – Part 1

Linear equation



Q-1 Which one of the following option is true, and why?

$y = 3x + 5$ has

1. A unique solution
2. Only two solution
3. Infinitely many solutions

Solution:

- Infinitely many solutions
- Because a linear equation in two variables has infinitely many solutions. We keep changing the value of and solve the linear equation for the corresponding value of .

Q-2 Write four solutions for each of the following equations:

1. $2x + y = 7$
2. $\pi x + y = 9$
3. $x = 4y$

Solution:

i) $2x + y = 7$

For $x = 1$,

$$2(1) + y = 7$$

$$\Rightarrow y = 5$$

Therefore, $(1, 5)$ is a solution of this equation.

For $x = 2$,

$$2(2) + y = 7$$

$$\Rightarrow y = 3$$

Therefore, $(2, 3)$ is a solution of this equation.

For $x = 3$,

$$2(3) + y = 7$$

$$\Rightarrow y = 1$$

Therefore, $(3, 1)$ is a solution of this equation.

For $x = 4$,

$$2(4) + y = 7$$

$\Rightarrow y = -1$

Therefore, $(4, -1)$ is a solution of this equation.

Four solutions of $2x + y = 7$ is $(1, 5), (2, 3)$, $(3, 1), (4, -1)$

ii) $\pi x + y = 9$

For $x = \frac{1}{\pi}$

$$\pi\left(\frac{1}{\pi}\right) + y = 9$$

$$\Rightarrow y = 9$$

Therefore, $\left(\frac{1}{\pi}, 9\right)$ is a solution of this equation.

For $x = \frac{2}{\pi}$,

$$\pi\left(\frac{2}{\pi}\right) + y = 9$$

$\Rightarrow y = 7$

Therefore, $\left(\frac{2}{\pi}, 7\right)$ is a solution of this equation.

For $x = \frac{3}{\pi}$,

$$\pi\left(\frac{3}{\pi}\right) + y = 9$$

$$\Rightarrow y = 6$$

Therefore, $\left(\frac{3}{\pi}, 6\right)$ is a solution of this equation.

For $x = \frac{4}{\pi},$

$$\pi\left(\frac{4}{\pi}\right) + y = 9$$

$$\Rightarrow y = 5$$

Therefore, $\left(\frac{4}{\pi}, 5\right)$ is a solution of this equation.

Four solution of $\pi x + y = 9 \left(\frac{1}{\pi}, 9\right), \left(\frac{2}{\pi}, 7\right), \left(\frac{3}{\pi}, 6\right), \left(\frac{4}{\pi}, 5\right)$

iii) $x = 4y$

For $x = 8$,

$$8 = 4y$$

$$\Rightarrow y = 2$$

Therefore, $(8, 2)$ is a solution of this equation.

For $x = 12,$

$$12 = 4y = 3$$

Therefore, $(12, 3)$ is a solution of this equation.

For $x = 16,$

$16 = 4y$

$\Rightarrow y = 4$

Therefore, $(16, 4)$ is a solution of this equation.

For $x = 20,$

$20 = 4y$

$y = 5$

Therefore , $(20, 5)$ is a solution of this equation.

Four solution of $x = 4y$ is $(8, 2), (12, 3), (16, 4), (20, 5)$