



CLASS IX: MATHS  
Chapter 4: Linear in Equations

Questions and Solutions | Exercise 4.2 - NCERT Books

**Q1.** Which one of the following statements is true, and why?

$$y = 3x + 5 \text{ has}$$

- (i) A unique solution
- (ii) Only two solutions
- (iii) Infinitely many solutions.

**Sol.** Option (iii) is true because a linear equation has an infinitely many solutions. Moreover when represented graphically a linear equation in two variable is a straight line which has infinite points and hence, it has infinite solutions.

**Q2.** Write four solutions for each of the following equations :

(i)  $2x + y = 7$     (ii)  $\pi x + y = 9$     (iii)  $x = 4y$

**Sol.** (i)  $2x + y = 7$

For  $x = -1$ , we get  $-2 + y = 7$ , i.e.,  $y = 9$

$\therefore (-1, 9)$  is a solution.

For  $x = 0$ , we get  $y = 7$

$\therefore (0, 7)$  is a solution.

For  $x = 1$ , we get  $2 + y = 7$ , i.e.,  $y = 5$

$\therefore (1, 5)$  is a solution.

For  $x = 2$ , we get  $4 + y = 7$ , i.e.,  $y = 3$

$\therefore (2, 3)$  is a solution.

Hence, we have four solutions  $(-1, 9)$ ,  $(0, 7)$ ,  $(1, 5)$  and  $(2, 3)$

(ii) Proceed as in (i) and we can have four solutions

as  $(0, 9)$ ,  $(1, 9 - \pi)$ ,  $(2, 9 - 2\pi)$  and  $(3, 9 - 3\pi)$ .

(iii) Proceed as in (i) and we can have four solutions

as  $(0, 0)$ ,  $(4, 1)$ ,  $(8, 2)$  and  $(12, 3)$



**Q3.** Check which of the following are solutions of the equation  $x - 2y = 4$  and which are not

(i) (0, 2)      (ii) (2, 0)      (iii) (4, 0)

(iv)  $(\sqrt{2}, 4\sqrt{2})$       (v) (1, 1)

**Sol.** (i) Substituting  $x = 0, y = 2$  in the equation

$x - 2y = 4$ , we get  $0 - 2(2) = 4$ , i.e.,  $-4 = 4$  but  $-4 \neq 4$

$\therefore$  (0, 2) is not a solution

(ii)  $2 - 2(0) \neq 4$

$\therefore$  (2, 0) is not a solution.

(iii) Substituting  $x = 4$  and  $y = 0$  in the equation

$x - 2y = 4$ , we get

L.H.S. =  $4 - 2(0) = 4 - 0 = 4 =$  R.H.S.

$\therefore$  L.H.S. = R.H.S.

$\therefore$  (4, 0) is a solution.

(iv)  $\sqrt{2} - 2(4\sqrt{2}) = 4$ , i.e.,  $\sqrt{2} - 8\sqrt{2} = 4$ ,

i.e.,  $-7\sqrt{2} = 4$  but  $-7\sqrt{2} \neq 4$

$\therefore$   $(\sqrt{2}, 4\sqrt{2})$  is not a solution

(v)  $1 - 2(1) \neq 4$

$\therefore$  (1, 1) is not a solution.

**Q4.** Find the value of  $k$  if  $x = 2, y = 1$  is a solution of the equation  $2x + 3y = k$ .

**Sol.** (2) + (3) (1) =  $k$ , i.e.,  $4 + 3 = k$ , i.e.,  $k = 7$ .