1. Which one of the following options is true, and why?

$$y = 4x - 7 \text{ has}$$

(i) a unique solution, (ii) only two solutions,

(iii) infinitely many solutions.

2. Find out which of the following equations have $x = 2, y = 1$ as a solution:

(i) $2x + 5y = 9$ (ii) $5x + 3y = 14$

(iii) $2x + 3y = 7$ (iv) $2x - 3y = 1$

(v) $2x - 3y + 7 = 0$ (vi) $x + y + 4 = 0$

(vii) $2x - 2 = 3y - 6$ (viii) $3y - 4 - x = 3$

3. Find at least three solutions for each of the following linear equations in two variables:

(i) $3x + 4y = 18$ (ii) $x + 2y = 3$

(iii) $x - 2y = 4$

4. Find four solutions for each of the following equations:

(i) $2(x - 1) + 3y = 4$ (ii) $2(x - 3) - 3(y - 1) = 0$

5. Find the value of k so that each of the following equations may have $x = 1, y = 1$ as a solution.

(i) $5x + 3y = k$ (ii) $x - y = k$

6. Find solutions of the form $x = a, y = 0$ and $x = 0, y = b$ for the following pair of equations. Do they have any such common solution?

$3x + 2y = 6$ and $5x - 2y = 10$

Answers

1. Infinitely many solutions because for every value of x, there is a corresponding value of y and vice-versa.

2. $x = 2, y = 1$ is a solution of (i), (iii), (iv).

5. (i) $k = 8$ (ii) $k = 0$

6. $x = 0, y = 3$; $x = 2, y = 0$ are the solutions of the equation $3x + 2y = 6$.

$x = 0, y = -5$; $x = 2, y = 0$ are the solutions of the equation $5x - 2y = 10$.

Yes, the given pair of equations have a common solution. *i.e.* $x = 2, y = 0$.