



Pair of Linear Equations in Two variables Ex 3.5 Q15

Answer :

GIVEN:

$$x + (k+1)y = 4$$

$$(k+1)x + 9y = 5k + 2$$

To find: To determine for what value of k the system of equation has infinitely many solutions

We know that the system of equations

$$a_1x + b_1y = c_1$$

$$a_2x + b_2y = c_2$$

For infinitely many solution

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

Here,

$$\frac{1}{k+1} = \frac{(k+1)}{9} = \frac{4}{5k+2}$$

$$\frac{1}{k+1} = \frac{(k+1)}{9}$$

$$9 = (k+1)^2$$

$$3^2 = (k+1)^2$$

$$k+1 = 3$$

$$k = 2$$

Hence for $k = 2$ the system of equation have infinitely many solutions.

Pair of Linear Equations in Two variables Ex 3.5 Q16

Answer :

GIVEN:

$$kx + 3y = 2k + 1$$

$$2(k+1)x + 9y = 7k + 1$$

To find: To determine for what value of k the system of equation has infinitely many solutions

We know that the system of equations

$$a_1x + b_1y = c_1$$

$$a_2x + b_2y = c_2$$

For infinitely many solution

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

Here,

$$\frac{k}{2(k+1)} = \frac{3}{9} = \frac{2k+1}{7k+1}$$

Consider the following relation to find k

$$\frac{k}{2(k+1)} = \frac{3}{9}$$

$$9k = 6(k+1)$$

$$9k - 6k - 6 = 0$$

$$3k = 6$$

$$k = 2$$

Now consider the following

$$\frac{3}{9} = \frac{2k+1}{7k+1}$$

$$3(7k+1) = 9(2k+1)$$

$$21k + 3 = 18k + 9$$

$$21k - 18k = 9 - 3$$

$$3k = 6$$

$$k = 2$$

Hence for $k = 2$ the system of equation have infinitely many solutions

*****END*****