

## Pair of Linear Equations in Two varibles Ex 3.4 Q13 Answer:

GIVEN:

$$\frac{2}{-} + \frac{3}{-} = 13$$

$$\frac{2}{x} + \frac{3}{y} = 13$$

$$\frac{5}{x} - \frac{4}{y} = -2$$

To find: The solution of the systems of equation by the method of cross-multiplication:

Here we have the pair of simultaneous equation

Rewriting the equation again

$$\frac{2}{x} + \frac{3}{y} - 13 = 0$$

$$\frac{5}{x} - \frac{4}{y} + 2 = 0$$

Taking 
$$u = \frac{1}{x}$$
 and  $v = \frac{1}{y}$   
 $2u + 3v - 13 = 0$  .....(1)

$$2u + 3v - 13 = 0$$
 .....(1

$$5u - 4v + 2 = 0$$
 .....(2)

By cross multiplication method we get from eq. (1) and eq. (2)

$$\frac{u}{(6)-(52)} = \frac{-v}{(4)-(-65)} = \frac{1}{(-8)-(15)}$$

$$\frac{u}{-46} = \frac{-v}{69} = \frac{1}{-23}$$

$$\Rightarrow \frac{u}{-46} = \frac{1}{-23}$$

$$\Rightarrow u = 2$$

And

$$\frac{-v}{69} = \frac{1}{-23}$$

$$-v = \frac{69}{-23}$$

$$\Rightarrow v = 3$$

We know that

Taking 
$$u = \frac{1}{x}$$
 and  $v = \frac{1}{v}$ 

$$2 = \frac{1}{x} \Rightarrow x = \frac{1}{2}$$

and

$$3 = \frac{1}{y} \Rightarrow y = \frac{1}{3}$$

Hence we get the value of  $x = \frac{1}{2}$  and  $y = \frac{1}{3}$ 

Pair of Linear Equations in Two varibles Ex 3.4 Q14 **Answer**:

GIVEN:

$$ax + by = \frac{a+b}{2}$$

$$3r + 5v - 4$$

To find: The solution of the systems of equation by the method of cross-multiplication: Here we have the pair of simultaneous equation

$$ax + by - \frac{a+b}{2} = 0$$

$$3x + 5y - 4 = 0$$

By cross multiplication method we get

$$\frac{x}{(-4b) - \left(-\frac{5(a+b)}{2}\right)} = \frac{-y}{(-4a) - \left(-\frac{3(a+b)}{2}\right)} = \frac{1}{5a - 3b}$$

$$\frac{x}{(-4b) + \frac{5(a+b)}{2}} = \frac{-y}{(-4a) + \frac{3(a+b)}{2}} = \frac{1}{5a - 3b}$$

$$\frac{x}{(-4b) + \frac{5(a+b)}{2}} = \frac{1}{5a - 3b}$$

$$x(5a-3b) = (-4b) + \frac{5(a+b)}{2}$$
$$x(5a-3b) = \frac{5a-3b}{2}$$
$$\Rightarrow x = \frac{1}{2}$$

And

$$\frac{-y}{(-4a) + \frac{3(a+b)}{2}} = \frac{1}{5a-3b}$$

$$\frac{-y}{-8a+3a+3b} = \frac{1}{5a-3b}$$

$$\frac{-y}{2}$$

$$\frac{-y}{-5a+3b} = \frac{1}{5a-3b}$$

$$\Rightarrow y(5a-3b) = \frac{5a-3b}{2}$$

$$\Rightarrow y = \frac{1}{2}$$

Hence we get the value of 
$$x = \frac{1}{2}$$
 and  $y = \frac{1}{2}$ 

\*\*\*\*\*\* END \*\*\*\*\*\*