



Pair of Linear Equations in Two variables Ex 3.3 Q41

Answer :

The given equations are:

$$\frac{2}{x} + \frac{3}{y} = 13 \dots (i)$$

$$\frac{5}{x} - \frac{4}{y} = -2 \dots (ii)$$

Multiply equation (i) by 4 and equation (ii) by 3 and add both equations we get

$$\begin{aligned} \frac{8}{x} + \frac{12}{y} &= 52 \\ \frac{15}{x} - \frac{12}{y} &= -6 \\ \hline \frac{23}{x} &= 46 \\ \Rightarrow x &= \frac{1}{2} \end{aligned}$$

Put the value of x in equation (i), we get

$$\begin{aligned} \frac{2}{\frac{1}{2}} + \frac{3}{y} &= 13 \\ \frac{4}{1} + \frac{3}{y} &= 13 \\ \Rightarrow \frac{3}{y} &= 9 \\ \Rightarrow y &= \frac{1}{3} \end{aligned}$$

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

Pair of Linear Equations in Two variables Ex 3.3 Q42

Answer :

The given equations are:

$$\frac{5}{x-1} + \frac{1}{y-2} = 2$$

$$\frac{6}{x-1} - \frac{3}{y-2} = 1$$

Let $\frac{1}{x-1} = u$ and $\frac{1}{y-2} = v$ then equations are

$$5u + v = 2 \quad \dots (i)$$

$$6u - 3v = 1 \quad \dots (ii)$$

Multiply equation (i) by 3 and add both equations, we get

$$15u + 3v = 6$$

$$\frac{6u - 3v = 1}{21u = 7}$$

$$21u = 7$$

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

Put the value of u in equation (i), we get

$$5 \times \frac{1}{3} + v = 2$$

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

Then

$$\frac{1}{x-1} = \frac{1}{3}$$

$$\Rightarrow x-1 = 3$$

$$\Rightarrow x = 4$$

$$\frac{1}{y-2} = \frac{1}{3}$$

$$\Rightarrow y-2 = 3$$

$$\Rightarrow y = 5$$

Hence the value of $\boxed{x = 4}$ and $\boxed{y = 5}$.

***** END *****