



Pair of Linear Equations in Two variables Ex 3.3 Q17

Answer :

The given equations are:

$$\frac{x+y}{xy} = 2$$

$$x+y = 2xy \quad \dots(i)$$

$$\frac{x-y}{xy} = 6$$

$$x-y = 6xy \quad \dots(ii)$$

Adding both equations, we get

$$x+y = 2xy$$

$$\underline{x-y = 6xy}$$

$$2x = 8xy$$

$$\Rightarrow y = \frac{1}{4}$$

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

$$x + \frac{1}{4} = 2x \times \frac{1}{4}$$

$$\Rightarrow \frac{-x}{2} = \frac{1}{4}$$

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

Hence the value of $x = -\frac{1}{2}$ and $y = \frac{1}{4}$

Pair of Linear Equations in Two variables Ex 3.3 Q18

Answer :

The given equations are:

$$\frac{15}{u} + \frac{2}{v} = 17 \quad \dots (i)$$

$$\frac{1}{u} + \frac{1}{v} = \frac{36}{5} \quad \dots (ii)$$

Multiply equation (ii) by 2 and subtract (ii) from (i), we get

$$\frac{15}{u} + \frac{2}{v} = 17$$

$$\frac{2}{u} + \frac{2}{v} = \frac{72}{5}$$

$$\frac{13}{u} = \frac{13}{5}$$

$$\Rightarrow u = 5$$

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

$$\frac{15}{5} + \frac{2}{v} = 17$$

$$\Rightarrow \frac{2}{v} = 14$$

$$\Rightarrow v = \frac{1}{7}$$

Hence the value of $\boxed{u = 5}$ and $\boxed{v = \frac{1}{7}}$.

Pair of Linear Equations in Two variables Ex 3.3 Q19

Answer :

The given equations are:

$$\frac{3}{x} - \frac{1}{y} = -9 \quad \dots (i)$$

$$\frac{2}{x} + \frac{3}{y} = 5 \quad \dots (ii)$$

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

$$\frac{9}{x} - \frac{3}{y} = -27$$

$$\frac{2}{x} + \frac{3}{y} = 5$$

$$\frac{11}{x} = -22$$

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

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

$$\frac{3}{\frac{-1}{2}} - \frac{1}{y} = -9$$

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

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

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

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