Pair of Linear Equations in Two varibles Ex 3.3 Q17

Answer :

The given equations are:

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

$$x+y=2xy \qquad ..(i)$$

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

$$x-y=6xy \qquad ...(ii)$$

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 $\boxed{x=-\frac{1}{2}}$ and $\boxed{y=\frac{1}{4}}$

Pair of Linear Equations in Two varibles Ex 3.3 Q18

Answer :

The given equations are:

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

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

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

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

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

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

$$\Rightarrow u=5$$

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 varibles Ex 3.3 Q19

Answer :

The given equations are:

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

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

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

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

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

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

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

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

********** END **********