



Pair of Linear Equations in Two variables Ex 3.3 Q20

Answer :

The given equations are:

$$\frac{2}{x} + \frac{5}{y} = 1 \quad \dots(i)$$

$$\frac{60}{x} + \frac{40}{y} = 19 \quad \dots(ii)$$

Multiply equation (i) by 8 and subtract (ii) from equation (i), we get

$$-\frac{44}{x} = -11$$

$$\Rightarrow x = 4$$

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

$$\Rightarrow \frac{2}{4} + \frac{5}{y} = 1$$

$$\Rightarrow \frac{5}{y} = 1 - \frac{2}{4}$$

$$\Rightarrow \frac{5}{y} = \frac{1}{2}$$

$$\Rightarrow y = 10$$

Hence the value of $x = 4$ and $y = 10$.

Pair of Linear Equations in Two variables Ex 3.3 Q21

Answer :

The given equations are:

$$\frac{1}{5x} + \frac{1}{6y} = 12 \quad \dots(i)$$

$$\frac{1}{3x} - \frac{3}{7y} = 8 \quad \dots(ii)$$

Multiply equation (i) by $\frac{3}{7}$ and equation (ii) by $\frac{1}{6}$, add both equations, we get

$$\frac{3}{35x} + \frac{3}{42y} = \frac{36}{7}$$

$$\frac{1}{18x} - \frac{3}{42y} = \frac{8}{6}$$

$$\frac{89}{630x} = \frac{272}{42}$$

$$\Rightarrow x = \frac{89}{4080}$$

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

$$\frac{1}{\frac{5 \times 89}{4080}} + \frac{1}{6y} = 12$$

$$\Rightarrow \frac{1}{6y} = \frac{1260}{445}$$

$$\Rightarrow y = \frac{89}{1512}$$

Hence the value of $x = \frac{89}{4080}$ and $y = \frac{89}{1512}$

Pair of Linear Equations in Two variables Ex 3.3 Q22

Answer :

The given equations are:

$$\frac{2}{x} + \frac{3}{y} = \frac{9}{xy} \quad \dots(i)$$

$$\frac{4}{x} + \frac{9}{y} = \frac{21}{xy} \quad \dots(ii)$$

Multiply equation (i) by 3 and subtract (ii) from (i), we get

$$\frac{6}{x} + \frac{9}{y} = \frac{27}{xy}$$

$$\frac{4}{x} + \frac{9}{y} = \frac{21}{xy}$$

$$\frac{2}{x} = \frac{6}{xy}$$

$$\Rightarrow y = 3$$

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

$$\Rightarrow \frac{2}{x} + \frac{3}{3} = \frac{9}{3x}$$

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

$$\Rightarrow x = 1$$

Hence the value of $x = 1$ and $y = 3$

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