



Pair of Linear Equations in Two variables Ex 3.3 Q33

**Answer :**

The given equations are:

$$\frac{2}{3x+2y} + \frac{3}{3x-2y} = \frac{17}{5}$$

$$\frac{5}{3x+2y} + \frac{1}{3x-2y} = 2$$

Let  $\frac{1}{3x+2y} = u$  and  $\frac{1}{3x-2y} = v$  then equations are

$$2u + 3v = \frac{17}{5} \dots (i)$$

$$5u + v = 2 \dots (ii)$$

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

$$2u + 3v = \frac{17}{5}$$

$$15u + 3v = 6$$

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

$$\Rightarrow u = \frac{1}{5}$$

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

$$2 \times \frac{1}{5} + 3v = \frac{17}{5}$$

$$\Rightarrow 3v = 3$$

$$\Rightarrow v = 1$$

Then

$$\frac{1}{3x+2y} = \frac{1}{5} \quad \dots (iii)$$

$$\Rightarrow 3x+2y = 5$$

$$\frac{1}{3x-2y} = 1 \quad \dots (iv)$$

$$\Rightarrow 3x-2y = 1$$

Add both equations, we get

$$3x+2y = 5$$

$$\underline{3x-2y = 1}$$

$$6x = 6$$

$$\Rightarrow x = 1$$

Put the value of  $x$  in equation (iii) we get

$$3 \times 1 + 2y = 5$$

$$\Rightarrow 2y = 2$$

$$\Rightarrow y = 1$$

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

**Answer :**

The given equations are:

$$\frac{4}{x} + 3y = 14 \dots (i)$$

$$\frac{3}{x} - 4y = 23 \dots (ii)$$

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

$$\frac{16}{x} + 12y = 56$$

$$\frac{9}{x} - 12y = 69$$

$$\frac{25}{x} = 125$$

$$\Rightarrow x = \frac{1}{5}$$

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

$$\frac{4}{\frac{1}{5}} + 3y = 14$$

$$\frac{4}{1}$$

$$\Rightarrow 3y = -6$$

$$\Rightarrow y = -2$$

Hence the value of  $x = \frac{1}{5}$  and  $y = -2$ .

Pair of Linear Equations in Two variables Ex 3.3 Q35

**Answer :**

The given equations are:

$$99x + 101y = 499 \dots (i)$$

$$101x + 99y = 501 \dots (ii)$$

Multiply equation (i) by 99 and equation (ii) by 101, and subtract (ii) from (i) we get

$$9801x + 9999y = 49401$$

$$10201x + 9999y = 50601$$

$$-400x = -1200$$

$$\Rightarrow x = 3$$

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

$$99 \times 3 + 101y = 499$$

$$\Rightarrow 101y = 202$$

$$\Rightarrow y = 2$$

Hence the value of  $x = 3$  and  $y = 2$

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