

$$10) \frac{7x-2y}{xy} = 5$$

$$\Rightarrow \frac{7x}{xy} - \frac{2y}{xy} = 5$$

$$\Rightarrow \frac{7}{y} - \frac{2}{x} = 5$$

Put $\frac{1}{y} = a, \frac{1}{x} = b$

$$7a - 2b = 5 \dots \textcircled{1}$$

$$\frac{8x+7y}{xy} = 15$$

$$\Rightarrow \frac{8x}{xy} + \frac{7y}{xy} = 15$$

$$\Rightarrow \frac{8}{y} + \frac{7}{x} = 15$$

Put $\frac{1}{y} = a, \frac{1}{x} = b$

$$8a + 7b = 15 \dots \textcircled{11}$$

$$\textcircled{1} \times 7 + \textcircled{11} \times 2$$

$$49a - 14b = 35$$

$$16a + 14b = 30$$

$$65a = 65$$

$$\Rightarrow a = \frac{65}{65} = 1$$

Sub $\textcircled{1}$

$$7 \times 1 - 2b = 5$$

$$\Rightarrow -2b = 5 - 7$$

$$\Rightarrow -2b = -2$$

$$\Rightarrow b = 1$$

$$a = 1 \quad | \quad b = 1$$

$$\frac{1}{y} = 1 \quad | \quad \frac{1}{x} = 1$$

$$\Rightarrow y = 1 \quad | \quad \Rightarrow x = 1$$

$$11) 6x + 3y = 6xy \dots \textcircled{i}$$

$$2x + 4y = 5xy \dots \textcircled{ii}$$

Put $x=0$ gives $y=0$
in both the eqns.

if $x, y \neq 0$

divide \textcircled{i} and \textcircled{ii} by xy

$$\frac{6x}{xy} + \frac{3y}{xy} = \frac{6xy}{xy} \quad | \quad \frac{2x}{xy} + \frac{4y}{xy} = \frac{5xy}{xy}$$

$$\Rightarrow \frac{6}{y} + \frac{3}{x} = 6 \quad | \quad \frac{2}{y} + \frac{4}{x} = 5$$

Put $\frac{1}{y} = a, \frac{1}{x} = b$ in both eqns

$$6a + 3b = 6 \dots \textcircled{iii} \quad \times 1$$

$$2a + 4b = 5 \dots \textcircled{iv} \quad \times 3$$

$$\textcircled{iii} \times 1 - \textcircled{iv} \times 3$$

$$6a + 3b = 6$$

$$6a + 12b = 15$$

$$-9b = -9$$

$$\Rightarrow b = 1$$

Sub \textcircled{iii}

$$6a + 3 \times 1 = 6$$

$$\Rightarrow 6a = 6 - 3$$

$$\Rightarrow a = \frac{3}{6} = \frac{1}{2}$$

$$a = \frac{1}{2} \quad | \quad b = 1$$

$$\frac{1}{y} = \frac{1}{2} \quad | \quad \frac{1}{x} = 1$$

$$\Rightarrow y = 2 \quad | \quad \Rightarrow x = 1$$

$$\therefore x = 1, y = 2$$