

$$\frac{2}{3x+2y} + \frac{3}{3x-2y} = \frac{17}{5} \quad \& \quad \frac{5}{3x+2y} + \frac{1}{3x-2y} = 2 \quad \text{Solve } x \text{ and } y?$$

$$\text{Let: } \frac{1}{3x+2y} = A \quad \& \quad \frac{1}{3x-2y} = B$$

$$\& \quad 2A + 3B = \frac{17}{5} \quad \& \quad 5A + B = 2$$

$$\Downarrow$$

$$10A + 15B = 17 \quad \& \quad (5A + B = 2) \times 2$$

$$\Downarrow$$

$$10A + 15B = 17 \quad \text{--- (1)}$$

$$10A + 2B = 4 \quad \text{--- (2)}$$

Subtract (1) and (2)

$$10A + 15B = 17$$

$$10A + 2B = 4$$

$$13B = 13$$

$$B = 1$$

Substitute  $B=1$  in Equation (2)

$$10A + 2 = 4$$

$$A = \frac{1}{5}$$

As per our previous Assumption

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

$$\Downarrow$$

$$3x + 2y = 5 \quad \& \quad 3x - 2y = 1 \quad \text{--- (4)}$$

Add (3) + (4)  $\Rightarrow$

$$\begin{array}{r} 3x + 2y = 5 \\ 3x - 2y = 1 \\ \hline 6x = 6 \end{array}$$

$$6x = 6$$

$$x = 1$$

$$y = 1$$

Substitute it in (3)

$$3(1) + 2y = 5$$

$$2y = 5 - 3$$

$$2y = 2$$

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