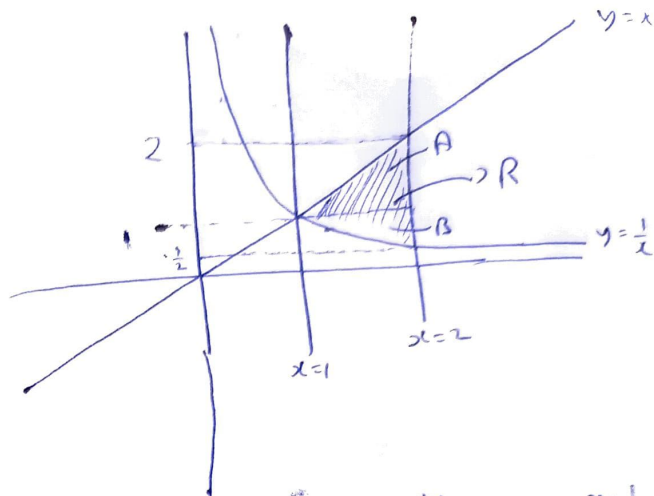


Changing strips



$$\int_B \int f(x,y) dx dy + \int_A \int f(x,y) dx dy$$

$$\Rightarrow \int_{y=\frac{1}{2}}^1 \int_{x=\frac{1}{y}}^2 f(x,y) dx dy + \int_{y=1}^2 \int_{x=y}^2 f(x,y) dx dy$$

option (c) ✓

$$\Rightarrow \int_{y=\frac{1}{2}}^1 \int_{x=\frac{1}{y}}^2 \frac{y \sin y}{2y-1} dx dy + \int_{y=1}^2 \int_{x=y}^2 \frac{\sin y}{2-y} dx dy$$

$$\Rightarrow \int_{y=\frac{1}{2}}^1 \frac{y \sin y}{2y-1} \times \left(2 - \frac{1}{y}\right) dy + \int_{y=1}^2 \frac{\sin y}{(2-y)} \times (2-y) dy$$

$$\Rightarrow \int_{y=\frac{1}{2}}^1 \sin y dy + \int_1^2 \sin y dy \Rightarrow \int_{\frac{1}{2}}^2 \sin y dy \Rightarrow - [\cos y]_{\frac{1}{2}}^2$$

$$\Rightarrow - [\cos(2) - \cos(\frac{1}{2})]$$

$$\Rightarrow \boxed{\cos \frac{1}{2} - \cos 2} \text{ Ans}$$

option (b) ✓