$$\lim_{x\to 0} \int_{x/2}^{x} \sin^{-1} t \, dt$$

$$\Rightarrow \int_{\frac{x}{2}}^{x} 1 \cdot \sin^{-1} t \, dt = t \cdot \sin^{-1} t - \int \frac{t}{\sqrt{1-t^2}} \, dt$$

let $1-t^2 = x \Rightarrow \frac{dx}{dt} = -2t$

$$\Rightarrow t \sin^{-1} t - \int \frac{\cancel{t}}{\sqrt{x}} \times \frac{dx}{-2\cancel{t}}$$

$$\Rightarrow t \cdot \sin^{-1} t + \frac{1}{2} \times 2 \sqrt{x}$$

$$\Rightarrow \left[t \cdot \sin^{-1} t + \sqrt{1-t^2} \right]_{\frac{x}{2}}^{x}$$

$$\Rightarrow \left(x \cdot \sin^{-1} x + \sqrt{1-x^2} \right) - \left(\frac{x}{2} \cdot \sin^{-1} \frac{x}{2} + \sqrt{1 - \frac{x^2}{4}} \right)$$

taking limit

$$\Rightarrow (0 + 1) - (0 + 1 \Rightarrow 0 \text{ Ans}$$