

For $x < 0$, $\tan^{-1} x + \tan^{-1} \frac{1}{x} =$

- (A) 0 (B) $\frac{\pi}{2}$ (C) $-\frac{\pi}{2}$ (D) π

Solution

If $x < 0$, $\tan^{-1} \frac{1}{x} = \cot^{-1} x - \pi$

The given expression = $\tan^{-1} x + \tan^{-1} \frac{1}{x} = \tan^{-1} x + \cot^{-1} x - \pi$

$$= \frac{\pi}{2} - \pi = -\frac{\pi}{2}$$

Hence, (C)