

Solution

$$\sin \left\{ \frac{\pi}{2} - \sin^{-1} \left(-\frac{\sqrt{3}}{2} \right) \right\}$$

Property : $\boxed{\sin^{-1}(-x) = -\sin^{-1}(x)}$ for all $x \in [-1, 1]$

$$\sin \left\{ \frac{\pi}{2} - \left(-\sin^{-1} \frac{\sqrt{3}}{2} \right) \right\}$$

$$\boxed{\sin^{-1} \frac{\sqrt{3}}{2} = \frac{\pi}{3}}$$

$$\sin \left\{ \frac{\pi}{2} + \frac{\pi}{3} \right\} = \sin \frac{5\pi}{6}$$

$$= \sin \left(\pi - \frac{\pi}{6} \right)$$

$$= \sin \frac{\pi}{6}$$

$$\boxed{\because \sin(\pi - \theta) = \sin \theta}$$

$$\boxed{\text{Ans} = \frac{1}{2}}$$