INVERSE TRIGONOMETRIC FUNCTIONS

PROPERTIES OF INVERSE TRIGONOMETRIC FUNCTIONS

EXERCISE

Q.1 Find the value of $\cos\left\{\sin\left(\sin^{-1}\frac{\pi}{6}\right)\right\}$

Q.2 Find the value of $\sin\left\{\cos\left(\cos^{-1}\frac{3\pi}{4}\right)\right\}$

Q.3 Find the value of $\cos^{-1}(\cos 13)$

Q.4 Find $\sin^{-1}(\sin\theta)$, $\cos^{-1}(\cos\theta)$, $\tan^{-1}(\tan\theta)$, $\cot^{-1}(\cot\theta)$ for $\theta \in \left(\frac{5\pi}{2}, 3\pi\right)$

Q.5 Evaluate $\sin\left\{\frac{1}{2}\cot^{-1}\left(\frac{-3}{4}\right)\right\}$

Q.6 Evaluate $\tan\left\{2\tan^{-1}\left(\frac{1}{5}\right)-\frac{\pi}{4}\right\}$

Q.7 Solve $\sin^{-1}(x^2 - 2x + 3) + \cos^{-1}(x^2 - x) = \frac{\pi}{2}$

Q.8 Solve the equation $\tan^{-1}(2x) + \tan^{-1}(3x) = \frac{\pi}{4}$

Q.9 Solve the equation $\sin^{-1}x + \sin^{-1}2x = \frac{2\pi}{3}$

Q.10 Find the value of $\tan^{-1}1 + \tan^{-1}\frac{1}{2} + \tan^{-1}\frac{1}{3}$

ANSWER KEY

1. $\frac{\sqrt{3}}{2}$

2. not defined

3. $13 - 4\pi$

4. $3\pi - \theta$, $\theta - 2\pi$, $\theta - 3\pi$, $\theta - 2\pi$

5. $\frac{2\sqrt{5}}{5}$

6. $\frac{-7}{\sqrt{17}}$

7. No solution

8. $x = \frac{1}{6}$

9. $x = \frac{1}{2}$

10. $\frac{\pi}{2}$