PARISHRAM 2026

Mathematics

DPP: 2

Inverse Trigonometric Functions

Q1 The principal value of $\tan^{-1}\left(-\sqrt{3}\right)$ is equal to

(A) $\frac{\pi}{6}$ (B) $\frac{\pi}{3}$

(C) $\frac{-\pi}{3}$ (D) $\frac{-\pi}{6}$

Q2 The principal value of $\tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$ is

(A) $\frac{\pi}{2}$ (B) $\frac{\pi}{3}$

(C) $\frac{\pi}{6}$ (D) π

Q3 The principal value of $\cot^{-1}\left(-\sqrt{3}\right)$ is

(A) $\frac{-\pi}{6}$ (B) $\frac{\pi}{6}$

(C) $\frac{7\pi}{6}$ (D) $\frac{5\pi}{6}$

Q4 The principal value of $\cot^{-1}\left(-1\right)$ is

(A) $\frac{-\pi}{4}$ (B) $\frac{\pi}{4}$

(C) $\frac{5\pi}{4}$ (D) $\frac{3\pi}{4}$

Q5 The principal value of $\sin^{-1}\left(\frac{-1}{2}\right)$ is

(A) $\frac{-\pi}{6}$ (B) $\frac{5\pi}{6}$

(C) $\frac{7\pi}{6}$ (D) None of these

Q6 The principal value of $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$ is equal to

(A) $\frac{\pi}{3}$ (B) $\frac{\pi}{6}$

(C) $\frac{\pi}{2}$ (D) $\frac{-\pi}{2}$

Q7 The principal value of $\operatorname{cosec}^{-1}\left(2\right)$ is

(A) $\frac{\pi}{3}$ (B) $\frac{\pi}{6}$

(C) $\frac{2\pi}{3}$ (D) $\frac{5\pi}{6}$

Q8 The principal value of $\cos^{-1}\left(\frac{1}{2}\right)$ is equal to

(A) $\frac{\pi}{6}$ (B) $\frac{\pi}{3}$

(C) π (D) 0

Q9 The principal value of $\cos^{-1}\left(\frac{-1}{\sqrt{2}}\right)$ is equal

(A) $\frac{7\pi}{4}$ (B) $\frac{-\pi}{4}$

(C) $\frac{\pi}{4}$ (D) $\frac{3\pi}{4}$

Q10 The principal value of $\sec^{-1}\left(\frac{-2}{\sqrt{3}}\right)$ is equal to

(A) $\frac{5\pi}{6}$ (B) $\frac{\pi}{6}$

(C) $\frac{-\pi}{6}$ (D) $\frac{-5\pi}{6}$

Answer Key

Q1	C
Q2	C
Q3	D
Q4	D
Q5	A
Q6	A
Q7	B
Q8	B
Q9	D
Q10	A

Hints & Solutions

Note: scan the QR code to watch video solution

Q1 **Text Solution:**

$\tan^{-1}\left(-\sqrt{3}\right)$

$= -\tan^{-1}\sqrt{3}$

$= -\tan^{-1}\left(\tan\frac{\pi}{3}\right)$

$= -\frac{\pi}{3} \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

Video Solution:

Q2 **Text Solution:**

$\tan^{-1}\left(\frac{1}{\sqrt{3}}\right) = \tan^{-1}\left(\tan\frac{\pi}{6}\right) = \frac{\pi}{6}$

Video Solution:

Q3 **Text Solution:**

$\cot^{-1}\left(-\sqrt{3}\right)$

$= \pi - \cot^{-1}\left(\sqrt{3}\right)$

$= \pi - \cot^{-1}\left(\cot\frac{\pi}{6}\right)$

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

$= \frac{5\pi}{6}$

Video Solution:

Q4 **Text Solution:**

$\cot^{-1}\left(-1\right)$

$= \pi - \cot^{-1}\left(1\right)$

$= \pi - \cot^{-1}\left(\cot\frac{\pi}{4}\right)$

$= \pi - \frac{\pi}{4}$

$= \frac{3\pi}{4}$

Video Solution:

Q5 **Text Solution:**

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

$= -\sin^{-1}\left(\frac{1}{2}\right)$

$= -\sin^{-1}\left(\sin\frac{\pi}{6}\right)$

$= -\frac{\pi}{6} \in \left[\frac{-\pi}{2}, \frac{\pi}{2}\right]$

Video Solution:

Q6 **Text Solution:**

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

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

$= \frac{\pi}{3} \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

Video Solution:

Q7 **Text Solution:**

$\text{cosec}^{-1}(2)$

$= \text{cosec}^{-1}\left(\text{cosec}\ \frac{\pi}{6}\right)$

$= \frac{\pi}{6} \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] - \{0\}$

Video Solution:

Q8 **Text Solution:**

$\cos^{-1}\left(\frac{1}{2}\right)$

$= \cos^{-1}\left(\cos\ \frac{\pi}{3}\right)$

$= \frac{\pi}{3} \in [0, \pi]$

Video Solution:

Q9 **Text Solution:**

$\cos^{-1}\left(-\frac{1}{\sqrt{2}}\right) = \pi - \cos^{-1}\left(\frac{1}{\sqrt{2}}\right)$

$= \pi - \frac{\pi}{4} = \frac{3\pi}{4}$

Video Solution:

Q10 **Text Solution:**

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

$= \pi - \frac{\pi}{6} = \frac{5\pi}{6}$

Video Solution: