



INDIAN SCHOOL AL WADI AL KABIR
MCQ – Inverse Trigonometric Functions (2023-24)

Class: XII

Sub: MATHEMATICS

27-03-2023

MULTIPLE CHOICE QUESTIONS

Choose and write the correct option in the following questions.

- The value of $\tan^{-1}(\sqrt{3}) + \cos^{-1}\left(-\frac{1}{2}\right)$ corresponding to principal branches is
(a) $-\frac{\pi}{12}$ (b) 0 (c) π (d) $\frac{\pi}{3}$
- The value of $\cot(\sin^{-1} x)$ is [NCERT Exemplar]
(a) $\frac{\sqrt{1+x^2}}{x}$ (b) $\frac{x}{\sqrt{1+x^2}}$ (c) $\frac{1}{x}$ (d) $\frac{\sqrt{1-x^2}}{x}$
- The value of $\sin^{-1}\left(\cos\frac{\pi}{9}\right)$ is [NCERT Exemplar]
(a) $\frac{\pi}{9}$ (b) $\frac{5\pi}{9}$ (c) $\frac{-5\pi}{9}$ (d) $\frac{7\pi}{18}$
- Let $\theta = \sin^{-1}(\sin(-600^\circ))$, then value of θ is
(a) $\frac{\pi}{3}$ (b) $\frac{\pi}{2}$ (c) $\frac{2\pi}{3}$ (d) $\frac{-2\pi}{3}$
- The value of the expression $2\sec^{-1}2 + \sin^{-1}\left(\frac{1}{2}\right)$ is [NCERT Exemplar]
(a) $\frac{\pi}{6}$ (b) $\frac{5\pi}{6}$ (c) $\frac{7\pi}{6}$ (d) 1
- The value of $\tan^2(\sec^{-1}2) + \cot^2(\operatorname{cosec}^{-1}3)$ is
(a) 5 (b) 11 (c) 13 (d) 15
- The value of $\cot\left[\cos^{-1}\left(\frac{7}{25}\right)\right]$ is [NCERT Exemplar]
(a) $\frac{25}{24}$ (b) $\frac{25}{7}$ (c) $\frac{24}{25}$ (d) $\frac{7}{24}$
- $\sin(\tan^{-1} x)$, $|x| < 1$ is equal to
(a) $\frac{x}{\sqrt{1-x^2}}$ (b) $\frac{1}{\sqrt{1-x^2}}$ (c) $\frac{1}{\sqrt{1+x^2}}$ (d) $\frac{x}{\sqrt{1+x^2}}$
- $\tan^{-1}\sqrt{3} - \sec^{-1}(-2)$ is equal to
(a) π (b) $-\frac{\pi}{3}$ (c) $\frac{\pi}{3}$ (d) $\frac{2\pi}{3}$
- The value of $\sin[\cot^{-1}\{\tan(\cos^{-1} x)\}]$ is
(a) $\sqrt{1-x^2}$ (b) 1 (c) x (d) x^2

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11. If $\theta = \sin^{-1}(\sin 60^\circ)$ then the value of θ is
 (a) $\frac{\pi}{3}$ (b) $-\frac{\pi}{3}$ (c) 0 (d) $\frac{2\pi}{3}$
12. $\cos^{-1}\left[\cos \frac{7\pi}{6}\right]$ is equal to
 (a) $\frac{7\pi}{6}$ (b) $\frac{5\pi}{6}$ (c) $\frac{\pi}{3}$ (d) $\frac{\pi}{6}$
13. $\sin\left[\frac{\pi}{3} - \sin^{-1}\left(-\frac{1}{2}\right)\right]$ is equal to
 (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) 1
14. $\tan^{-1}\sqrt{3} - \cot^{-1}(-\sqrt{3})$ is equal to
 (a) π (b) $-\frac{\pi}{2}$ (c) 0 (d) $2\sqrt{3}$
15. $\cos^{-1}\left[\cos\left(-\frac{17}{15}\pi\right)\right]$ is equal to
 (a) $\frac{17\pi}{15}$ (b) $\frac{13\pi}{15}$ (c) $\frac{3\pi}{15}$ (d) $-\frac{17\pi}{15}$
16. Which of the following is the principal value branch of $\cos^{-1}x$?
 (a) $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ (b) $(0, \pi)$ (c) $[0, \pi]$ (d) $(0, \pi) - \left\{\frac{\pi}{2}\right\}$
17. Which of the following is the principal value branch of $\operatorname{cosec}^{-1}x$?
 (a) $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$ (b) $(0, \pi) - \left\{\frac{\pi}{2}\right\}$ (c) $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ (d) $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right] - \{0\}$
18. The value of $\sin^{-1}\left[\cos\left(\frac{33\pi}{5}\right)\right]$ is
 (a) $\frac{3\pi}{5}$ (b) $\frac{-7\pi}{5}$ (c) $\frac{\pi}{10}$ (d) $\frac{-\pi}{10}$
19. The domain of the function $\cos^{-1}(2x - 1)$ is
 (a) $[0, 1]$ (b) $[-1, 1]$ (c) $(-1, 1)$ (d) $[0, \pi]$
20. The value of $\cos^{-1}\left(\cos \frac{3\pi}{2}\right)$ is
 (a) $\frac{\pi}{2}$ (b) $\frac{3\pi}{2}$ (c) $\frac{5\pi}{2}$ (d) $\frac{7\pi}{2}$
21. The value of $2 \sec^{-1}2 + \sin^{-1}\left(\frac{1}{2}\right)$ is
 (a) $\frac{\pi}{6}$ (b) $\frac{5\pi}{6}$ (c) $\frac{7\pi}{6}$ (d) 1
22. The value of $\cot\left[\cos^{-1}\left(\frac{7}{25}\right)\right]$ is
 (a) $\frac{25}{24}$ (b) $\frac{25}{7}$ (c) $\frac{24}{25}$ (d) $\frac{7}{24}$

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23. The principal value of $\sin^{-1}\frac{1}{2}$ is
 (a) $\frac{\pi}{6}$ (b) $\frac{5\pi}{6}$ (c) $\frac{-\pi}{6}$ (d) Both (a) & (b)
24. The principal value of $\operatorname{cosec}^{-1}(-1)$ is
 (a) $\frac{-\pi}{2}$ (b) 0 (c) $\frac{\pi}{2}$ (d) $\frac{3\pi}{2}$
25. The value of $\tan^{-1}(\sqrt{3}) + \cot^{-1}(-1) + \sec^{-1}\left(\frac{-2}{\sqrt{3}}\right)$ is
 (a) $\frac{-\pi}{12}$ (b) $\frac{11\pi}{12}$ (c) $\frac{5\pi}{4}$ (d) $\frac{23\pi}{12}$
26. The value of $2\cos^{-1}\left(\frac{-1}{2}\right) + 2\sin^{-1}\left(\frac{-1}{2}\right) - \cos^{-1}(-1)$ is
 (a) 0 (b) $\frac{\pi}{2}$ (c) π (d) 2π
27. The value of $\sec^{-1}\left(\sec\frac{4\pi}{3}\right)$ is
 (a) $\frac{\pi}{3}$ (b) $\frac{2\pi}{3}$ (c) $\frac{4\pi}{3}$ (d) $\frac{-\pi}{3}$
28. The value of $\cos^{-1}(-1) + \sin^{-1}(1)$ is
 (a) $\frac{-3\pi}{2}$ (b) $\frac{\pi}{2}$ (c) π (d) $\frac{3\pi}{2}$
29. The value of $\cos^{-1}\left(\cos\frac{5\pi}{3}\right) + \sin^{-1}\left(\sin\frac{5\pi}{3}\right)$ is equal to
 (a) 0 (b) $\frac{\pi}{2}$ (c) $\frac{10\pi}{3}$ (d) $\frac{2\pi}{3}$
30. The value of $\cot\left[\frac{1}{2}\sin^{-1}\frac{\sqrt{3}}{2}\right]$ is
 (a) 1 (b) $\frac{1}{\sqrt{3}}$ (c) $\sqrt{3}$ (d) 0
31. The value of $\sin^{-1}\left[-\left(\frac{1}{2}\right)\right] + \cos^{-1}\left[-\left(\frac{1}{2}\right)\right] + \cot^{-1}(-\sqrt{3}) + \operatorname{cosec}^{-1}(\sqrt{2}) + \tan^{-1}(-1) + \sec^{-1}(\sqrt{2})$ equals
 (a) $\frac{9\pi}{4}$ (b) $\frac{19\pi}{12}$ (c) $\frac{3\pi}{2}$ (d) $\frac{\pi}{2}$