



SAINIK SCHOOL CHANDRAPUR

(MINISTRY OF DEFENCE)

HOLIDAY HOMEWORK

Ch.2 - INVERSE TRIGONOMETRIC FUNCTIONS

Name:

Subject: Mathematics

Class: XII

Date: 21.04.2023

1 Mark Questions

1. Find the principal value of $\sec^{-1}(2)$.
2. Find the principal value of $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$.
3. Find the principal value of $\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$.
4. Find the value of $\sin\left[\frac{\pi}{3} - \sin^{-1}\left(\frac{-1}{2}\right)\right]$.
5. Find the principal value of : $\tan^{-1}(\sqrt{3}) - \sec^{-1}(-2)$.
6. Find the value of : $\cot\left[\frac{\pi}{2} - 2 \cot^{-1}(\sqrt{3})\right]$.
7. Write the domain of the function $\sin^{-1}(x)$.
8. What is the value of $\sin\left[\frac{\pi}{6} - \sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right]$.
9. Using principal value, write the value of $\cos^{-1}\left(\frac{1}{2}\right) + 2 \sin^{-1}\left(\frac{1}{2}\right)$.
10. Write the value of $\tan^{-1}\left[\sin\left(\frac{-\pi}{2}\right)\right]$.
11. Find the principal value of $\left[\cos^{-1}\left(\frac{\sqrt{3}}{2}\right) + \cos^{-1}\left(\frac{-1}{2}\right)\right]$.
12. Using principal values evaluate, $\cos^{-1}\left[\cos\left(\frac{2\pi}{3}\right)\right] + \sin^{-1}\left[\sin\left(\frac{2\pi}{3}\right)\right]$.

2 Marks Questions

13. Find the principal value of $2 \sin^{-1}\left(\frac{\sqrt{3}}{2}\right) - \cos^{-1}\left(\frac{-1}{2}\right) + 3 \tan^{-1}(1)$.
14. Find the value of $2 \sin^{-1}\left(\frac{\sqrt{3}}{2}\right) \cos^{-1}\left(-\frac{1}{2}\right) + 3 \tan^{-1}(1)$.
15. Find the value of $\cos\left[\cos^{-1}\left(-\frac{1}{2}\right) + \frac{\pi}{3}\right] + \sin\left[\frac{\pi}{6} - \sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right]$.
16. Find the value of $\cos\left[\frac{\pi}{6} + 2 \tan^{-1}(1)\right] + \sin\left[3 \sin^{-1}\left(\frac{1}{2}\right) + 2 \cos^{-1}\left(\frac{1}{2}\right)\right]$.
17. Evaluate : $3 \tan\left(\sin^{-1}\frac{5}{13}\right) + \sec\left(\tan^{-1}\frac{4}{3}\right)$.
18. Evaluate : $\sec^2\left[\sin^{-1}\left(\frac{1}{2}\right)\right] + \cos^2[\tan^{-1}(2)]$.
19. . Prove that, $\cos\left[\sin^{-1}\left(\frac{3}{5}\right) + \cot^{-1}\left(\frac{3}{2}\right)\right] = \frac{6}{5\sqrt{13}}$
20. Evaluate : $\tan^{-1}\left[\sqrt{3} \sin\left\{3 \cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right\}\right]$.
21. Evaluate : $\tan^{-1}\left[2 \cos\left\{2 \sin^{-1}\left(\frac{1}{2}\right)\right\}\right]$.
22. Evaluate : $\sec^{-1}\left[\sqrt{3} \cos\left\{2 \tan^{-1}(\sqrt{3})\right\}\right]$.
23. Show that , $\cos[\tan^{-1}\{\sin(\cot^{-1}(x))\}] = \sqrt{\frac{1+x^2}{2+x^2}}$.
24. Find the value of $\tan^{-1}\left[\sqrt{3} \sin\left\{3 \cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right\}\right]$.
25. Find the value of $\cos\left[3 \sin^{-1}\left\{\frac{1}{2} \tan\left\{2 \cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right\}\right\}\right]$.