

SELF ASSESSMENT TEST -1**CLASS 10+1****TRIGONOMETRIC FUNCTIONS**

1. Is the equation $\sin A = x + \frac{1}{x}$ possible
2. Prove that $\sec^2 \theta + \operatorname{cosec}^2 \theta \geq 4$ for all values.
3. Find the minimum value of $\sin^2 \theta + \operatorname{cosec}^2 \theta$
4. If $\tan x = t$, evaluate $\frac{\sin x}{\cos^3 x} + \frac{\cos x}{\sin^3 x}$
5. If $\sec x + \tan x = m$, prove that $\sin x = \frac{m^2 - 1}{m^2 + 1}$
6. Prove that $\sec^2 x \operatorname{cosec}^2 x \geq 4$ for all values of x .
7. If $\sec A = x + \frac{1}{4x}$ find the value of $\sec A$
8. $\cos x = \frac{7}{25}$ and x lies in fourth quad., find the value of $\cos x - \sin x$
9. Is the equation $2\sin^2 \theta - \cos \theta + 4 = 0$ possible ?
10. Find the minimum value of $\sin^2 \theta + \operatorname{cosec}^2 \theta$
11. If $\operatorname{cosec} x - \cot x = \frac{3}{2}$ find $\cos x$ and $\sin x$
12. If $5 \tan x = 4$ find the value of $\frac{5 \sin x - 3 \cos x}{5 \sin x + 3 \cos x}$

13. Show that the equation $\sin^2 \theta = \frac{(x+y)^2}{4xy}$ is possible when $x=y$

14. If $\sin x = \frac{3}{5}$ find the value of $\frac{\sec x - \tan x}{\sec x + \tan x}$

15. Find the value of $\tan^2 60^\circ + 4\cos^2 45^\circ + 3\sec^2 30^\circ + 5\cos^2 90^\circ$

16. If $\sin^4 \theta + \sin^2 \theta = 1$ then find the value of $\tan^4 \theta - \tan^2 \theta$

17. Evaluate (a) $\cos 1050^\circ$, (b) $\tan (-1575^\circ)$, (c) $\sin (-1410^\circ)$

18. Evaluate (a) $\tan \left(-\frac{15\pi}{4}\right)$, (b) $\tan \left(-\frac{19\pi}{3}\right)$, (c) $\sin \left(\frac{31\pi}{3}\right)$

19. Prove that $\tan (-225^\circ) \cot (-405^\circ) - \tan (-765^\circ) \cot (-675^\circ) = 0$

20. Prove that $\cos (570^\circ) \sin (510^\circ) + \sin (-330^\circ) \cos (-390^\circ) = 0$.