

CBSE TEST PAPER-04

CLASS - XI MATHEMATICS (Trigonometric Functions)

1. Find the value of $\tan \frac{19\pi}{3}$. [1]
2. Prove $\cos 4x = 1 - 8 \sin^2 x \cdot \cos^2 x$ [1]
3. Prove $\frac{\cos(\pi+x) \cdot \cos(-x)}{\sin(\pi-x) \cdot \cos\left(\frac{\pi}{2}+x\right)} = \cot^2 x$ [1]
4. Prove that $\tan 56^\circ = \frac{\cos 11^\circ + \sin 11^\circ}{\cos 11^\circ - \sin 11^\circ}$ [1]
5. Prove that $\cos 105^\circ + \cos 15^\circ = \sin 75^\circ - \sin 15^\circ$ [1]
6. If $\cot x = -\frac{5}{12}$, x lies in second quadrant find the values of other five trigonometric functions. [4]
7. Prove that $\frac{\sin 5x - 2\sin 3x + \sin x}{\cos 5x - \cos x} = \tan x$ [4]
8. Prove that $\sin x + \sin 3x + \sin 5x + \sin 7x = 4 \cos x \cdot \cos 2x \cdot \sin 4x$ [4]
9. Prove that $\cos^2 x + \cos^2\left(x + \frac{\pi}{3}\right) + \cos^2\left(x - \frac{\pi}{3}\right) = \frac{3}{2}$ [6]
10. Prove that $\cos 2x \cdot \cos \frac{x}{2} - \cos 3x \cdot \cos \frac{9x}{2} = \sin 5x \sin \frac{5x}{2}$ [6]