

Class XI Mathematics Pre Finals Test

Trigonometry

ALL Q ARE OF FOUR MARKS

SEND PDF AT THE END

MAXIMUM MARKS : 40

TIME ALLOWED : 1 HOUR 15 MINUTES

- 1) If $\cos \theta = \frac{\cos \alpha - \cos \beta}{1 - \cos \alpha \cos \beta}$, show that $\tan \frac{\theta}{2} = \pm \tan \frac{\alpha}{2} \tan \frac{\beta}{2}$
- 2) Find the value of $\sqrt{3} \operatorname{cosec} 20^\circ - \sec 20^\circ$
- 3) Find the value of $2(\sin^6 x + \cos^6 x) - 3(\sin^4 x + \cos^4 x) + 1$
- 4) Prove that $\tan\left(\frac{\pi}{4} + x\right) + \tan\left(\frac{\pi}{4} - x\right) = 2 \sec 2x$
- 5) Find the solution of solution of the equation
 $\sec 4x - \sec 2x = 2$; in $-\pi \leq x \leq \pi$
- 6) Prove that $\sin 10^\circ \sin 30^\circ \sin 50^\circ \sin 70^\circ = \frac{1}{16}$
- 7) Prove that $4(\cos^3 10^\circ + \sin^3 20^\circ) = 3(\cos 10^\circ + \sin 20^\circ)$
- 8) Prove that $\cos^3 x \sin 3x + \sin^3 x \cos 3x = \frac{3}{4} \sin 4x$
- 9) Solve for x $3\cos^2 x - 2\sqrt{3} \sin x \cos x - 3\sin^2 x = 0$
- 10) Prove that $\cos \frac{2\pi}{7} + \cos \frac{4\pi}{7} + \cos \frac{6\pi}{7} = \frac{-1}{2}$