

SELF ASSESSMENT TEST -5**CLASS 10+1**

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

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

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

4. Find x $\operatorname{cosec}(90^\circ + \theta) + x \cos \theta \cot(90^\circ + \theta) = \sin(90^\circ + \theta)$

5. Prove that $\sin^2 \frac{\pi}{8} + \sin^2 \frac{3\pi}{8} + \sin^2 \frac{5\pi}{8} + \sin^2 \frac{7\pi}{8} = 2$

6. Prove that $\tan 65^\circ = \tan 25^\circ + 2 \tan 40^\circ$

7. If $A - B = 45^\circ$, show that $(1 + \tan A)(1 + \tan B) = 2 \tan A$

8. Prove that $\tan\left(\frac{\pi}{4} + \theta\right) \tan\left(\frac{3\pi}{4} + \theta\right) = -1$

9. Prove that $\cos A - \sin A = \sqrt{2} \cos\left(A + \frac{\pi}{4}\right)$

10. If $\tan(A+B) = p$ and $\tan(A-B) = q$ then prove $\tan 2A = \frac{p+q}{1-pq}$

11. If $\frac{\sin(A+B)}{\sin(A-B)} = \frac{a+b}{a-b}$, then show that $\frac{\tan A}{\tan B} = \frac{a}{b}$