INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2024-25

CLASS: X SUBJECT: MATHEMATICS DATE: 22-05-2024

LESSON:08- TRIGONOMETRY

Level 1

1. If cos A = $\frac{2}{3}$,find the value of 2 Sec^2A + 2 tan^2A – 9 (Ans: -2)
2. If $tan^2 45° - cos^2 30°$ = x sin45° cos45°,then x equals to------- (Ans: $\frac{1}{2}$)
3. If ∠A and ∠P are acute angles such that tan A = tan P, then show that ∠A = ∠P
4. Evaluate $\frac{Sin\ 30° - Sin\ 90° + 2\ Cos\ 0°}{\tan 30° \tan 60°}$ (Ans:$\frac{3}{2}$)
5. Prove that $2(\cos^2 45° + tan^2 60°) - 6(\ sin^2 45° - \tan^2 30°) = 6$
6. If A = 30° and B = 60°, Verify that

   a) Sin (A + B) = Sin A CosB + CosA SinB

   b) Cos (A + B) = Cos A Cos B —SinA SinB

7. If a cos θ + b sin θ = m and a sin θ- b cos θ = n, then prove that $a^2 + b^2 = m^2 + n^2$
8. If 4 tan θ = 3, Evaluate $\frac{4\ Sin\theta - Cos\ \theta + 1}{4Sin\ \theta + Cos\ \theta - 1}$ (Ans: $\frac{13}{11}$)
9. Cosθ + sinθ = $\sqrt{2}$cosθ,Show that cosθ – sinθ = $\sqrt{2}$sinθ
10. Prove that $sec^4\theta - sec^2\theta = tan^4\theta + \tan^2\theta$
11. If 2 cos 3θ = $\sqrt{3}$,Find the value of θ (Ans: 10°)

Level 2

12. If √3 Sin θ = Cos θ ,Find the value of $\frac{3\cos^2\theta + 2\cos\theta}{3\cos\theta +}$ (Ans: $\frac{\sqrt{3}}{2}$)
13. Prove that $\frac{(1 + \cot\theta + tan\theta\ )(\ Sin\theta - Cos\theta\ )}{Sec^3\theta - Cosec^3\theta}$ = $Sin^2\ \theta\ Cos^2\ \theta$
14. Prove that $(\frac{1}{Cos\theta} - \text{Cos}\ \theta)\ (\ \frac{1}{Sin\theta} - \text{Sin}\theta)\ = \frac{1}{tan\theta + cot\theta}$
15. If tan θ + $\frac{1}{tan\theta}$ = 2 Find the values of ($\tan^2\ \theta + \frac{1}{tan^2\theta}$) (Ans: 2)
16. Prove that $\frac{\text{Cot A} + \text{Cosec A} - 1}{\text{Cot A} - \text{Cosec A} + 1} = \frac{1 + \text{Cos A}}{\text{Sin A}}$

****