CHITRA STUDY POINT
An Institute for Group Classes & Home Tuition

Class – Xth

Subject – Maths

Topic – Trigonometry

Time: 1:30hr **max.marks-25**

1. Evaluate each of the following (2×2=4)

   (a) $\cos^2 30^0 + \cos^2 45^0 + \cos^2 60^0 + \cos^2 90^0$

   (b) $\dfrac{\sin 30^0 - \sin 90^0 + 2\cos 0^0}{\tan 30^0 \tan 60^0}$

2. If $\tan\theta = \dfrac{5}{12}$ check whether $\dfrac{1-\cot^2\theta}{1+\cot^2\theta} = \sin^2\theta - \cos^2\theta$ or not. (2)

3. Prove the following identity. (any two) (2×2=4)

   a) (cosec A – cot A) = (1- cos A) /(1+ cos A)

   b) (sin A + cosecA) 2 + (cos A + sec A) 2 = 7 + tan 2A + cot 2A

   c) $\sqrt{(1+\sin A)/(1-\sin A)} = \sec A + \tan A$

4. Express the ratios cos A, tan A and sec A in the terms of sin A. (2)

5. If tan A = ¾ and A+B = 90°, than what is the value of Cot B? (2)

6. Without using trigonometric tables, show that tan 7° tan 23° tan 60° tan 67 o tan 83° = $\sqrt{3}$. (2)

7. Prove that $\sec^2\theta + \operatorname{cosec}^2\theta = \sec^2\theta.\operatorname{cosec}^2\theta$. (1)

8. If $\tan\theta + \sin\theta = m$, and $\tan\theta - \sin\theta = n$, show that $m^2 - n^2 = 4\sqrt{mn}$ (2)

9. If $\tan\theta = 1/\sqrt{3}$, find the value of sec θ. (1)

10. If $\cos\theta - \sin\theta = 0$ and $0° < \theta < 90°$, find the value of θ. (2)

11. Find the value of $9\tan^2 A - 9\sec^2 A$ (1)

12. Express $\sin 81^0 + \cos 81^0$ in terms of trigonometric ratios of angles lying between 0° and 45°. (1)

13. If A , B and C are the interior angles of a triangle ABC, show that (2)

$$Sec\ \frac{(C+A)}{2} = Cosec\ \frac{B}{2}$$