KALYAN ACADEMY

BHARATH NAGAR, HYD-18

TRIGONOMETRY | CLASS X | WORKSHEET -3

Without using trigonometric table

1. **Evaluate a) Cosec31 – sec59 b) cot 34 – tan 56 c) cos 13 – sin 77**
2. **Evaluate a) cos 38 cos 52 - sin 38 sin 52 b) sec 70 sin 20 – cos 20 cosec 70**
3. **Prove that a) tan 48. Tan 23. Tan 42. Tan 67 =1 b) cot 12. Cot 38. Cot 52. Cot 60. Cot 78= $1/\sqrt{3}$**
4. **Prove that a) $\sin^2 48 + \sin^2 42 = 1$ b) $\tan^2 66 - \cot^2 24 = 0$ c) $\cos^2 57 - \sin^2 33 = 0$**
5. **Prove that $\sin 18/\cos 72 + \sqrt{3}(\tan 10. \tan 30. \tan 40. \tan 50. \tan 80) = 2$**
6. **If $\cos 2\theta = \sin 4\theta$, where 2θ and 4θ are acute angles , find the value of θ?**
7. **If sec 2A = cosec (A-42), where 2A is acute angle the find the value of A?**
8. **If sin 3A = cos (A-26), where 3A is acute angle the find the value of A?**
9. **If tan 2A = cot (A-12), where 2A is acute angle the find the value of A?**
10. **If $\sin(\theta + 34) = \cos\theta$, and $(\theta + 34)$ acute, show that $\theta = 28$?**
11. **Express the following in terms of trigonometric ratios of angles between 0^0 and 45^0**
    a) sin 75 + cos 75 b) sec 67 + cosec 58 c) cos 83 – sec 76
12. **If sin (A+B) = 1 and cos (A-B) = 1 , $0^0 \leq (A+B) \leq 90^0$ and A>B find A and B?**
13. **If tan (A-B) = $1/\sqrt{3}$ and tan (A+B) = $\sqrt{3}$, $0^0 \leq (A+B) \leq 90^0$ and A>B find A and B?**
14. **If tan (A+B) = $\sqrt{3}$ and tan (A-B) = 1, $0^0 \leq (A+B) \leq 90^0$ and A>B find A and B?**
15. **If sin (A+B) = 1 and cos (A-B) = $\sqrt{3}/2$, $0^0 \leq (A+B) \leq 90^0$ and A>B find A and B?**
16. **Find the value of θ a) $2\sin 2\theta = \sqrt{3}$ b) $2\cos 3\theta = 1$ c) $\sqrt{3}\tan^2\theta - 3 = 0$**
17. **If $\tan 3\theta = \sin 45 \cos 45 + \sin 30$ then find θ?**
18. **If A and B are acute angles and sin A = cos B prove that A+B =90.**
19. **If A,B,C are interior angles of a triangle ABC prove that $\tan(B+C/2) = \cot A/2$?**
20. **If A,B,C are interior angles of a triangle ABC prove that $\sin(A+B/2) = \cos C/2$?**