TRIGONOMETRIC IDENTITIES

Evaluate the following

1 . $2\sin^2 30^o - 3\cos^2 45^o + \tan^2 60^o$.

2 . $\tan 48^o \tan 23^o \tan 42^o \tan 67^o$

3 . $\cos 90^o \sin 0^o - \sin 0^o \cos 90^o$

4 . $\sin^2 20^o + \sin^2 70^o - \tan^2 45^o$

5. $\dfrac{\tan^2 60^o + 4\cos^2 45^o + 3\sec^2 30^o + 5\cos^2 90^o}{\cos ec 30^o + \sec 60^o - \cot^2 30^o}$

6 . $\dfrac{\sec 70^o}{\cos ec 30^o} + \dfrac{\sin 59^o}{\cos 31^0}$

7 . $\dfrac{\cos^2 20^o + \cos^2 70^o}{\sin^2 59^o + \sin^2 31^o} + \sin 35^o \sec 55^o$

8 . $\cos ec(65^o + \theta) - \sec(25^o - \theta) - \tan(55^o - \theta) + \cot(35^o + \theta)$

9 .If 4 **tanA** = 3 , then find the value of $\dfrac{\cos A - \sin A}{\cos A + 2\sin A}$

10. Find value of K , if $\dfrac{\cos 20^o}{\sin 70^o} + \dfrac{2\cos\theta}{\sin(90^o - \theta)} = \dfrac{k}{2}$

11. Evaluate $\left(\dfrac{3\cos 43^o}{\sin 47^o}\right)^2 - \dfrac{\cos 37^o \cos ec 53^o}{\tan 5^o \tan 25^o \tan 45^o \tan 65^o \tan 85^o}$

12. If sin(A - B) =0 , cos(A + B)=0 find value of A and B, where A and B are acute angle .

13. If $\tan(A+B) = \sqrt{3}, and . \tan(A-B) = 0$,find value of A and B , where A and B are acute angles.

14. if sec 2A = cosec(A – 42^o), where 2A is an acute angle, find value of A.

15. simplify : $(1+\tan^2 A)(1-\sin A)(1+\sin A)$

16.If A, B and C are the interior angles of a triangle ABC, then show that $\tan\left(\dfrac{B+C}{2}\right) = \cot\dfrac{A}{2}$

17.If $\sin(2A + 45^o) = \cos(30^o - A)$, find value of A .

PROVE THE IDENTITIES

18. $\tan^4 A + \tan^2 A = \sec^4 A - \sec^2 A$

19. (cosecA - sinA)(secA – cosA)(tanA + cotA) = 1

20. tan A + cot A = secA cosecA

21. $\sqrt{\frac{1-\cos\theta}{1+\cos\theta}} = \cos ec\theta - \cot\theta$

22 . $\frac{1}{\cos ecA - \cot A} - \frac{1}{\sin A} = \frac{1}{\sin A} - \frac{1}{\cos ecA + \cot A}$

23. $(\sec A - \tan A)^2 = \frac{1-\sin A}{1+\sin A}$

24 . (sinA + cosecA)^2 + (cosA + secA)^2 = 7 + tan^{2}A + cot^{2}A

25. $\frac{\cos A}{1+\sin A} + \frac{1+\sin A}{\cos A} = 2\sec A$ nd

26. $\frac{\cot A + \cos ecA - 1}{\cot A - \cos ecA + 1} = \frac{1+\cos A}{\sin A}$

27, If $\sin\theta + \cos\theta = \sqrt{3}$ **then prove that** $\tan\theta + \cos\theta = 1$

28. If sin(A – B) = ½ and cos (A + B) = ½ if $0 \langle A + B \le 90^O, A \langle B$ find A and B.

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

30. Prove that $\frac{\sqrt{\sec\theta - 1}}{\sqrt{\sec\theta + 1}} + \frac{\sqrt{\sec\theta + 1}}{\sqrt{\sec\theta - 1}} = 2\cos ec\theta$

31. prove that $\frac{1+\cos\theta+\sin\theta}{1+\cos\theta-\sin\theta} = \frac{1+\sin\theta}{\cos\theta}$

32. If x = r sinA cosC , y = r sinA sinC and z = r cosA prove that r^2 = x^2 + y^2 + z^2

Last date of submission 25th June 2016

Do it on the A-4 size ruled sheet

Attach one cover page showing Name ,class, subject and Title as Assignment.