



INDIAN SCHOOL DARSAIT

DEPARTMENT OF MATHEMATICS



Subject : Mathematics Topic : Trigonometry Date of Worksheet :22/5/2018

Resource Person: Premela Issac Date of submission:29/5/2018

Name of the Student : _____ Class & Division : XI Roll Number : ____

S.No.	Questions	Marks
Section A (Basics):		
Refer the formulae sheet provided.		
Section B :		
1.	Prove that : $\tan 225^\circ \cot 405^\circ + \tan 765^\circ \cot 675^\circ = 0$	2
2.	Find the value of $\sin\left(\frac{31\pi}{3}\right)$	1
3.	If $\cot x = -\frac{5}{12}$, x lies in second quadrant, find the value of $\sec x$.	2
4.	If $\tan \alpha = \frac{m}{m+1}$ and $\tan \beta = \frac{1}{2m+1}$, prove that $\alpha + \beta = \frac{\pi}{4}$	4
5.	Prove that : $\frac{\tan(A+B)}{\cot(A-B)} = \frac{\sin^2 A - \sin^2 B}{\cos^2 A - \sin^2 B}$	2
6.	Prove that: $2\tan 50^\circ + \tan 20^\circ = \tan 70^\circ$	4
7.	Prove that: $\frac{1 - \cos 2A}{\sin 2A} = \tan A$. Deduce the value of $\tan 22\frac{1}{2}^\circ$	4
8.	Show that $\sqrt{2 + \sqrt{2 + \sqrt{2 + 2\cos 8\theta}}} = 2 \cos \theta$	4
9.	Prove that: $\frac{\sin 3x + \sin 5x + \sin 7x + \sin 9x}{\cos 3x + \cos 5x + \cos 7x + \cos 9x} = \tan 6x$	6
10.	Prove that: $\frac{\cos 4x + \cos 3x + \cos 2x}{\sin 4x + \sin 3x + \sin 2x} = \cot 3x$	4
11.	Find the principal solutions of the equation: $2 \sin^2 \theta = 3 \cos \theta$.	4
12.	Solve: $\frac{2}{1 + \tan^2 x} + \frac{3}{\operatorname{cosec} x} = 0$	6
Section C (Hots):		
1.	If $\sin \theta = n \sin (\theta + 2\alpha)$, prove that $\tan (\theta + \alpha) = \frac{1+n}{1-n} \tan \alpha$.	6
2.	Prove that: $\cos A \cos 2A \cos 2^2 A \cos 2^3 A \dots \dots \dots \cos 2^{n-1} A = \frac{\sin 2^n A}{2^n \sin A}$	6