INDIAN SCHOOL DARSAIT
DEPARTMENT OF MATHEMATICS(NO:2)

Subject :MATHEMATICS Topic :INVERSE TRIGONOMETRIC FUNCTIONS Date :12-4-2017

Resource Person:PremelaIsac Date of submission :19-4-2017

Name of the Student: _____ Class &Division: Roll. Number:

Sl.No.	Questions	Marks
1.	Evaluate : $\sin(\frac{\pi}{3} - \sin^{-1}(-\frac{1}{2}))$	1
2.	Prove the following : $\tan^{-1}(\frac{1}{3}) + \tan^{-1}\frac{1}{5} + \tan^{-1}\frac{1}{7} + \tan^{-1}\frac{1}{8} = \frac{\pi}{4}$	4
3.	Solve for x : $\tan^{-1}(2x) + \tan^{-1}(3x) = \frac{\pi}{4}$.	4
4.	Solve for x : $\tan^{-1}(\frac{n-1}{n-2}) + \tan^{-1}(\frac{n+1}{n+2}) = \frac{\pi}{4}$.	4
5.	Solve for x : $\tan^{-1}(\frac{1-x}{1+x}) = \frac{1}{2}\tan^{-1}x$, x>0.	4
6.	Prove that $\tan(\frac{\pi}{4} + \frac{1}{2}\cos^{-1}(\frac{a}{b})) + \tan^{-1}(\frac{\pi}{4} - \frac{1}{2}\cos^{-1}\frac{a}{b})) = \frac{2b}{a}$.	4
7.	Find the value of $\tan^{-1}(\frac{x}{y}) - \tan^{-1}(\frac{x-y}{x+y})$.	4
8.	Prove the following $\tan^{-1}(\sqrt{x}) = \frac{1}{2}\cos^{-1}(\frac{1-x}{1+x})$; xϵ (0 , 1).	4
9.	Prove that ($\tan^{-1}\frac{C \quad x}{1+S \quad x}$) = $\frac{\pi}{4} - \frac{x}{2}$; x ∈ ($\frac{\pi}{2}\frac{\pi}{2}$).	4
10.	Find the value of , $\cot\frac{1}{2}\left(\cos^{-1}\frac{2x}{1+x^2} + \sin^{-1}\frac{1-y^2}{1+y^2}\right), \lvert x\rvert < 1, y > 0, \lvert xy\rvert < 1.$ (BOARD 2017)	4
11.	Prove that $\tan^{-1}\left(\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}\right) = \frac{®}{2} + \frac{1}{2}\cos^{-1}x^2$,-1< x < 1 (BOARD 2017)	4
12.	Prove that $\tan^{-1}1 + \tan^{-1}2 + \tan^{-1}3 = ®$	1

13.	Prove that $\tan^{-1}(2x)+\tan^{-1}\left(\frac{4x}{1-x^2}\right)=\tan^{-1}\left(\frac{6x-x^3}{1-12x^2}\right)$, $\lvert x\rvert<\frac{1}{2\sqrt{3}}$ (BOARD 2017)	4
14.	Solve for x , $\cos^{-1}\left(\frac{x^2-1}{x^2+1}\right)+\tan^{-1}\left(\frac{2x}{x^2-1}\right)=\frac{2®}{3}$	4
15.	If $\tan^{-1}(\frac{1}{1+1.2})$ + $\tan^{-1}\frac{1}{1+2.3}$+$\tan^{-1}(\frac{1}{1+x(x+1)})$ =$\tan^{-1}\theta$, find θ. (BOARD 2015)	4

Dear Children,
There is no substitute for hard work.
All the best. God Bless.