CLASS: 12	**INDIAN SCHOOL MUSCAT** **FIRST PERIODIC ASSESSMENT**	SUBJECT: MATHS
	SET - A	
QP.NO.	VALUE POINTS	SPLIT UP MARKS
1.	$\tan^{-1}\left(tan\left(\pi-\frac{2\pi}{5}\right)\right)=\tan^{-1}\left(-tan\frac{2\pi}{5}\right)$ $=\tan^{-1}\left(tan\left(-\frac{2\pi}{5}\right)\right)$ $=-\frac{2\pi}{5}\epsilon\left(-\frac{\pi}{2},\frac{\pi}{2}\right)$	½ + ½ ½ mk ½ mk
2.	$f(x_1)=f(x_2)\Rightarrow 2x_1=2x_2\Rightarrow x_1=x_2\Rightarrow f$ is one-one Let $y=2x\Rightarrow x=\frac{y}{2}\notin$ N (Eg: $y=3$) $\Rightarrow$ f is not onto	1 mk 1 mk
3.	$gof=g(8x^3)=(8x^3)^{1/3}=2x$ $fog=f\left(x^{1/3}\right)=8\left(x^{1/3}\right)^3=8x$	1 mk 1 mk
4.	Let $x=\sec\theta$ $\therefore$ $\cot^{-1}(\cot\theta)=\theta=\sec^{-1}x$	(1 + 1) mks
5.	Let $y=4x^2+12x+15=(2x+3)^2+6$ $\Rightarrow x=\frac{\sqrt{y-6}-3}{2}$ Proving $fog=y$ and $gof=x$ $\Rightarrow f$ is invertible $\therefore$ $f^{-1}=g=\frac{\sqrt{y-6}-3}{2}$	1 mk (1+1) mks ½ mk ½ mk
6.	For proving Reflexive For proving Symmetric For proving Transitive Conclusion	1 mk 1 mk 1 ½ mk ½ mk
7.	$\tan^{-1}\left(\frac{\frac{x-1}{x-2}+\frac{x+1}{x+2}}{1-\left(\frac{x-1}{x-2}\right)\left(\frac{x+1}{x+2}\right)}\right)=\frac{\pi}{4}$, $\frac{x^2-1}{x^2-4}<1$ Solving to get $2x^2-4=-3$ Final answer : $x=\pm\frac{1}{\sqrt{2}}$	2 mks 1 mk 1 mk