Draw the graph of $y = \cos(\frac{-\pi}{2} \le x \le \frac{\pi}{2})$



This document is a part of Main Course File Document No.: CFM – 8 SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY MANAGED

N. G. PATEL POLYTECHNIC

(CHEMICAL / COMPUTER / MECHNACAL / ELECTRICAL/			
IT ENGINEERING DEPARTMENT)			
FORMAT FOR ASSIGNMENTS			
Course Name (With Code): Mathematics (DI01000021)			
Semester / Year: First / First			
Assignment Number: 01 (Determinant, Function and Logarithm)			
Assignment CO Number: DI01000021.1			
	Sr. No. Questions related to Course Outcomes		
Part – A	Questions carrying 1 Marks $period of sin^2 39^0 + cos^2 39^0 =$		
1			
2	$\sin 2\theta =$		
3	$\sin^{-1} x + \cos^{-1} x =$		
4	$\sin^{-1}\left(\cos\frac{\pi}{3}\right) =$		
5	period of $\cos \frac{\pi}{6} =$		
6	$\sin 135^0 =$		
7	$period of \sin 3x =$		
8	216 ⁰ = radian		
Part – B	Questions carrying 3 Marks		
Part – B	Questions carrying 3 Marks Prove that $:\sin^2\frac{\pi}{4} + \sin^2\frac{3\pi}{4} + \sin^2\frac{5\pi}{4} + \sin^2\frac{7\pi}{4} = 2$		
1	Prove that $:\sin^2\frac{\pi}{4} + \sin^2\frac{3\pi}{4} + \sin^2\frac{5\pi}{4} + \sin^2\frac{7\pi}{4} = 2$		
2	Prove that $:\sin^2\frac{\pi}{4} + \sin^2\frac{3\pi}{4} + \sin^2\frac{5\pi}{4} + \sin^2\frac{7\pi}{4} = 2$ $P.T \frac{\sin(180^0 - A)\cdot\sin(270^0 - A)\cdot\cot(90^0 + A)}{\cos(270^0 + A)\cdot\cos(90^0 + A)\cdot\tan(360^0 - A)} = \cot A$		
2 3	Prove that : $\sin^2 \frac{\pi}{4} + \sin^2 \frac{3\pi}{4} + \sin^2 \frac{5\pi}{4} + \sin^2 \frac{7\pi}{4} = 2$ P.T $\frac{\sin(180^{\circ} - A) \cdot \sin(270^{\circ} - A) \cdot \cot(90^{\circ} + A)}{\cos(270^{\circ} + A) \cdot \cos(90^{\circ} + A) \cdot \tan(360^{\circ} - A)} = \cot A$ Prove that : $\tan 35^{\circ} + \tan 10^{\circ} + \tan 35^{\circ} \tan 10^{\circ} = 1$ Prove that: $\frac{\sin A + \sin 2A}{1 + \cos A + \cos 2A} = \tan A$		
1 2 3 4 5 6	Prove that : $sin^2 \frac{\pi}{4} + sin^2 \frac{3\pi}{4} + sin^2 \frac{5\pi}{4} + sin^2 \frac{7\pi}{4} = 2$ P.T $\frac{\sin(180^0 - A) \cdot \sin(270^0 - A) \cdot \cot(90^0 + A)}{\cos(270^0 + A) \cdot \cos(90^0 + A) \cdot \tan(360^0 - A)} = \cot A$ Prove that : $tan 35^o + tan 10^o + tan 35^o tan 10^o = 1$ Prove that: $\frac{\sin A + \sin 2A}{1 + \cos A + \cos 2A} = tan A$ Prove that : $tan^{-1} \frac{1}{2} + tan^{-1} \frac{1}{3} = \frac{\pi}{4}$ Prove that : $tan^{-1} \frac{1}{2} + tan^{-1} \frac{7}{24} = tan^{-1} \frac{1}{2}$		
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1 2 3 4 5 6 7	Prove that : $sin^2 \frac{\pi}{4} + sin^2 \frac{3\pi}{4} + sin^2 \frac{5\pi}{4} + sin^2 \frac{7\pi}{4} = 2$ P.T $\frac{\sin(180^0 - A) \cdot \sin(270^0 - A) \cdot \cot(90^0 + A)}{\cos(270^0 + A) \cdot \cos(90^0 + A) \cdot \tan(360^0 - A)} = \cot A$ Prove that : $tan 35^0 + tan 10^0 + tan 35^0 tan 10^0 = 1$ Prove that: $\frac{\sin A + \sin 2A}{1 + \cos A + \cos 2A} = tan A$ Prove that : $tan^{-1} \frac{1}{2} + tan^{-1} \frac{1}{3} = \frac{\pi}{4}$ Prove that : $tan^{-1} \frac{1}{2} + tan^{-1} \frac{7}{24} = tan^{-1} \frac{1}{2}$ Prove that: $2tan^{-1} \left(\frac{2}{3}\right) = tan^{-1} \left(\frac{12}{5}\right)$ Questions carrying 4 Marks Prove that: $\frac{sin(\frac{\pi}{2} + \theta)}{cos(2\pi - \theta)} + \frac{tan(\pi + \theta)}{cot(\frac{\pi}{2} - \theta)} + \frac{sec(\frac{3\pi}{2} + \theta)}{cosec(\pi - \theta)} = 3$		
1 2 3 4 5 6 7 Part - C	Prove that : $sin^2 \frac{\pi}{4} + sin^2 \frac{3\pi}{4} + sin^2 \frac{5\pi}{4} + sin^2 \frac{7\pi}{4} = 2$ P.T $\frac{\sin(180^0 - A) \cdot \sin(270^0 - A) \cdot \cot(90^0 + A)}{\cos(270^0 + A) \cdot \cos(90^0 + A) \cdot \tan(360^0 - A)} = \cot A$ Prove that : $tan 35^0 + tan 10^0 + tan 35^0 tan 10^0 = 1$ Prove that: $\frac{\sin A + \sin 2A}{1 + \cos A + \cos 2A} = tan A$ Prove that : $tan^{-1} \frac{1}{2} + tan^{-1} \frac{1}{3} = \frac{\pi}{4}$ Prove that : $tan^{-1} \frac{1}{2} + tan^{-1} \frac{7}{24} = tan^{-1} \frac{1}{2}$ Prove that: $2tan^{-1} \left(\frac{2}{3}\right) = tan^{-1} \left(\frac{12}{5}\right)$ Questions carrying 4 Marks Prove that: $\frac{sin(\frac{\pi}{2} + \theta)}{cos(2\pi - \theta)} + \frac{tan(\pi + \theta)}{cot(\frac{\pi}{2} - \theta)} + \frac{sec(\frac{3\pi}{2} + \theta)}{cosec(\pi - \theta)} = 3$		
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5	Prove that : $\tan 50^\circ = \tan 40^\circ + 2\tan 10^\circ$		
6	If A+B = $\frac{\pi}{4}$ then p. t $(\tan A + 1)(\tan B + 1) = 2$		
7	Prove that $\frac{\sin 4A + 2\sin 5A + \sin 6A}{\cos 4A + 2\cos 5A + \cos 6A} \tan 5A$		
8	Prove that: $\frac{\sin \theta + \sin 2\theta + \sin 3\theta}{\cos \theta + \cos 2\theta + \cos 3\theta} = \tan 2\theta$		
Prepared By: (Name of Faculty (ies)) with signature		Signature of Head of Department	