

Pre-Content/content Post-Content	Learning Outcome/Objectives	
Pre-Content	General	Specific
Recall Trigonometric ratios and basic identities Content - Degree and radian measure of angle. - Trigonometric functions and its sign in different - Quadrants, domain and range of T-function. - Draw the graphs of trigonometric functions. - T-functions of sum and difference of two angles. - Trigonometric equations. Principle solution and general solution.	Students will be able to - recall the terminology and concepts related to trigonometry describe circular system of measurement of angles comprehend the concept of functions, domain and range. observe and analyse sign in different trigonometric functions appreciate the role of graph apply the knowledge learnt to find sum and difference develop the skill to solve solve HOTS questions	Students will be able to - recall the trigonometric ratios - recollect and apply basic trigonometric identities compare and apply the circular system of measurement of angles. identify the relationship between two measurement systems of angles. calculate all other trigonometric ratios if one of the ratio is given establish the relationship between the length of arc and the angle subtended at the center draw the graphs of trigonometric functions. define trigonometric functions. Prove trigonometric identities solve T-equations. Apply addition/subtraction formulae for trigonometric functions and identities involving angles of triangle

Home Work /Assignments

1. NCERT Exercise /solved examples given as home task
 2. Questions from sample papers to solve
- Selected questions from NCERT

Teacher's Activity	Student's Activity	Teacher's Observation And Remedial
Teacher will - help them recall the concept done in the previous class distinguish between the relation between degree and radian $180^\circ = \pi$ radians ANNEXURE – 4 - explain $\sin x = 0 \Rightarrow x = n\pi$ and $\cos x = 0 \Rightarrow x = (2n+1)\pi$ describe Sign of T-functions in 4 quadrants. explain graphs of T functions facilitate Students and show animations on trigonometric functions. motivate students to solve trigonometric equations: $\sin x = \sin \alpha \Rightarrow x = n\pi + (-1)^n \alpha$ $\cos x = \cos \alpha \Rightarrow x = 2n\pi \pm \alpha$ $\tan x = \tan \alpha \Rightarrow x = n\pi + \alpha$ with examples	Students will - recall and apply the concept already learnt in the previous class - apply the concept and solve questions given in the exercise ANNEXURE – 4 - apply the concept and solve questions given in the exercise - apply the concept and solve questions given in the exercise - apply the concept and solve questions given in the exercise Solve Questions from P-78, ex 3.4. Questions for principle solution and general solution solve questions from miscellaneous exercise	

Teaching Aids; Activeinspire, Modules, graph paper.

Methodology/Innovative Methods; ICR method, lecture and interpretation.

Interdisciplinary Links: Used in Science and Engineering.

Faculty Head

Coordinator

Vice-Principal

Principal

ANNEXURE - 4

Subject	MATHEMATICS
Class	XI
Chapter/Unit	Trigonometric functions
Topic	Degree and radian measure of angle
Time	40 min
Nature of Activity	Individual

What will I learn (Learning Outcome)?

To verify the relation between the degree measure and the radian measure of an angle.

Skills: Logical ability, Analytical thinking, Deductive reasoning, Creativity, Accuracy.

What I have to do?

Find a relation between degree measure and radians

What do I require?

Bangle, geometry box, protractor, thread, marker, cardboard, white paper.

What do I need to know?

Angles and its Degree measure

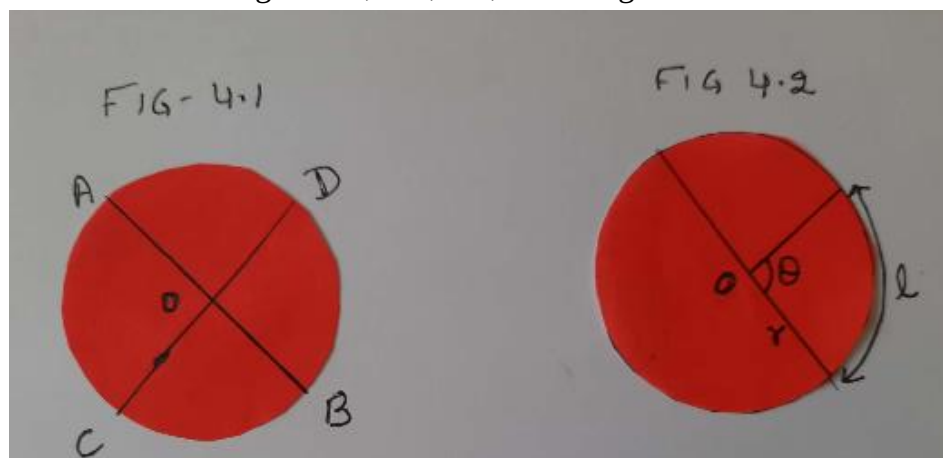
➤ **Teacher's Activity**

Teacher will explain the concept of Degree and Radian

- Let the radius of the circle be r and l be an arc subtending an angle θ at the centre C, as shown in Fig.4.2 $\theta = \frac{l}{r}$ radians.
- If Degree measure of $\theta = \frac{l}{2\pi r} \times 360$ degrees
then $\frac{l}{r}$ radians = $\frac{l}{2\pi r} \times 360$ degrees
or 1 radian = $\frac{180}{\pi}$ degrees
= 57.27 degrees.

How will I proceed?➤ **Student's Activity**

- Take a cardboard of a convenient size and paste a white paper on it.
- Draw a circle with centre O (Fig. 4.1). Let AB and CD be two diameters intersecting at O. The point O is the centre of the circle
- Thus OA = OB = OC = OD = radius.
- Measure arc lengths CA, AD, CB, BD using thread and record them



What have I observed?

S.No	Arc	length of arc (l)	radius of circle (r)	Radian measure
<u>1.</u>	$\widehat{CA}$	-----	-----	$\angle COA = \frac{\widehat{CA}}{r} = \underline{\hspace{2cm}}$
<u>2.</u>	$\widehat{AD}$	-----	-----	$\angle AOD = \frac{\widehat{AD}}{r} = \underline{\hspace{2cm}}$
<u>3.</u>	$\widehat{BD}$	-----	-----	$\angle BOD = \frac{\widehat{BD}}{r} = \underline{\hspace{2cm}}$
<u>4.</u>	$\widehat{CB}$	-----	-----	$\angle COB = \frac{\widehat{CB}}{r} = \underline{\hspace{2cm}}$

Use protractor, measure the angle in degrees and complete the table.

Angle	Degree measure	Radian Measure	Ratio = $\frac{\text{Degree measure}}{\text{Radian measure}}$
$\angle COA$	-----	-----	-----
$\angle AOD$	-----	-----	-----
$\angle BOD$	-----	-----	-----
$\angle COB$	-----	-----	-----

What have I learnt?

The value of one radian is equal to _____ degrees.

What am I curious to learn?

Apply this in study of trigonometric functions.

Let me evaluate myself

Q1. A circular wire of radius 3 cm is cut and bent so as to lie along the circumference of a hoop whose radius is 48 cm. Find the angle in degrees which is subtended at the centre of hoop.

Q2. Write the radian measure of $5^\circ 37' 30''$.

Q3 Write the degree measure of $\frac{11}{16}$ radian.

Q4. Write the value of $\tan \frac{19\pi}{3}$

Q5. What is the value of $\sin (-1125^\circ)$.
