

LESSON PLAN

CLASS – X (MATHS)

TOPIC: INTRODUCTION TO TRIGONOMETRY

Brief Description

In this chapter students will study the ratio of the lengths of two sides of a right-angled triangle and three basic trigonometric identities.

UN Sustainable Goals to be achieved (if any):

Quality Education

Objectives: (According to Bloom's level)

I - Specific Objectives

Students will be able to:

1. Define T-Ratios (K)
2. Find values of T-Ratios for some specific angles (0° , 30° , 45° , 60° , 90°) (K, U)
3. Understand T – Ratios of complementary angles (U)
4. Derive Trigonometric Identities (U)
5. Apply Trigonometric Identities (A, An)

II - BEHAVIORAL OBJECTIVES:

1. Student will be able to calculate the values of T – Ratios of other angles (other than the specific angles) by dividing the two sides in proper order.

Process / Activities

Activity (to support learning)

- Students will draw right angle triangles of different lengths and one acute angle as 30° or 45° or 60° and then verify the values of T-Ratios for these specific angles.

Skills:

- Calculation
- Application

EXPECTED LEARNING OUTCOMES:

Students would be able to:

1. Define T-Ratios
2. Find values of T-Ratios for some specific angles (0° , 30° , 45° , 60° , 90°)
3. Understand T – Ratios of complementary angles
4. Derive Trigonometric Identities
5. Apply Trigonometric Identities

Assessment: (Acc to Bloom's level) :- 2 Marks for each question.

1. In a triangle ABC, right angled at A, if $AB = 5$, $AC = 12$ and $BC = 13$, find $\sin B$, $\cos C$ and $\tan B$. (K)
2. Evaluate $\operatorname{cosec} 30^\circ + \cot 45^\circ$ (K)
3. If $\sin 3A = \cos (A - 26^\circ)$, where $3A$ is an acute angle, find the value of A . (U)
4. Show that : $\tan 48^\circ \tan 23^\circ \tan 42^\circ \tan 67^\circ = 1$ (U)
5. Prove that :
 $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$ (A)

SOLO Taxonomy :

1. **Prestructural** – Students studied about triangles, and in particular, right triangles.
2. **Unistructural** – Students will learn about Trigonometry and Trigonometric ratios or T-Ratios.
3. **Multistructural** – Students will learn the values of T-Ratios at some specific angles and three basic trigonometric identities.
4. **Relational** – Students will be able to relate the concept of Pythagoras theorem and of T-Ratios for proving identities.
5. **Extended Abstract** – Students will be able to use these concepts in finding the height of building, and the distance of any point on the ground from any heighted object(e.g. distance of ship from light house)