

LESSON PLAN

CLASS – X (MATHS)

TOPIC: SOME APPLICATIONS OF TRIGONOMETRY

Brief Description

In this chapter students will study Line of sight, Angle of elevation, Angle of depression, Heights and distances of objects using T - Ratios.

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 line of sight (K)
2. Define Angle of elevation (K)
3. Define Angle of depression (K)
4. Find Heights and distances of objects using T – Ratios (U, A, An)

II - BEHAVIORAL OBJECTIVES:

1. Student will be able to visualize the situation.
2. Student will calculate the heights and the lengths of objects (Like – Tree, Pole, Water tank, building etc.)
3. They will develop team spirit (By using clinometers Activity)

Process / Activities

Activity (to support learning)

- Students will make clinometers with the help of protractor under the guidance of the teacher.
- Students will find out the height of different objects (Like – Tree, Pole, Water tank, building etc.) through clinometers.

Skills (as per subject)

- Analytical skill
- Calculation
- Application
- Visualization

EXPECTED LEARNING OUTCOMES:

Students would be able to:

- Define line of sight
- Define Angle of elevation
- Define Angle of depression
- Find Heights and distances of objects using T – Ratios
- Analyze and visualize the given situation
- Draw the appropriate diagram

- Apply T – Ratios from the diagram
- Calculate the heights/distances of the given objects
- Decide (measure accurately) the angles by using clinometers
- Develop Team spirit
- Estimate

Assessment: (Acc to Bloom's level) : (4 Marks for each correct answer)

- The angle of elevation of the top of a tower from certain point is 30° . If the observer moves 20 m towards the tower, the angle of elevation of the top increases by 15° . Find the height of the tower.(U)
- The shadow of a tower standing on a level plane is found to be 50 m longer when Sun's elevation is 30° than when it is 60° . Find the height of the tower.(A)
- The angle of elevation of the top of a tower 30 m high from the foot of another tower in the same plane is 60° and the angle of elevation of the top of the second tower from the foot of the first tower is 30° . Find the distance between the two towers and also the height of the other tower. (An)
- The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Prove that the height of the tower is 6 m.
- A kite is flying at a height of 60 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is 60° . Find the length of the string, assuming that there is no slack in the string.

SOLO Taxonomy –

- 1. Prestructural** – Students studied about Trigonometry and Trigonometric ratios or T-Ratios.
- 2 Unistructural** – Students will learn about line of sight , Angle of elevation and Angle of depression .
- 3 Multistructural** – Students will learn to draw the diagrams on the basis of given situation.
- 4 Relational** – Students will be able to relate the concept of Pythagoras theorem and of T-Ratios for finding the height and distances of the given objects.
- 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)