CLASS – 10

CHAPTER -9 Applications of Trigonometry

Heights and Distances

Horizontal Level and Line of Sight

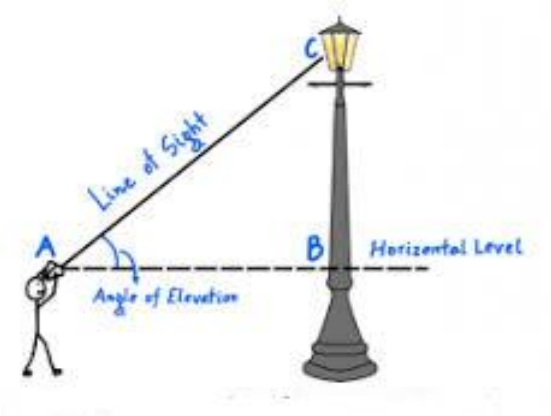
Line of sight and horizontal level

Line of sight is the line drawn from the eye of the observer to the point on the object viewed by the observer.

Horizontal level is the horizontal line through the eye of the observer.

Angle of elevation

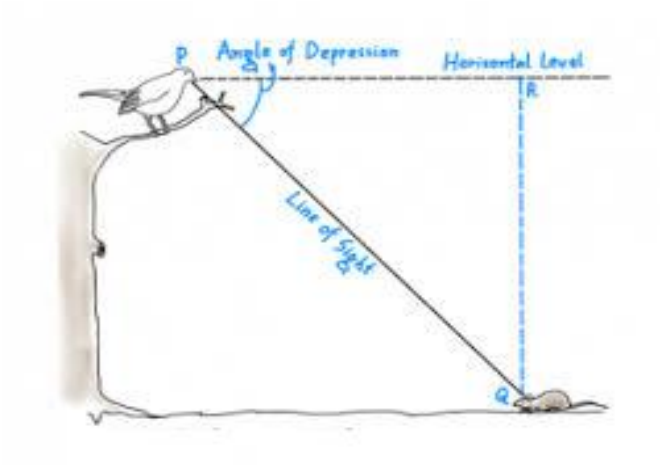
The **angle of elevation** is relevant for objects above horizontal level.
It is the **angle** formed by the **line of sight** with the **horizontal level**.



Angle of elevation

Angle of depression

The **angle of depression** is relevant for objects below horizontal level.
It is the **angle** formed by the **line of sight** with the **horizontal level**.



Angle of depression

Calculating Heights and Distances

To, calculate heights and distances, we can make use of trigonometric ratios.

Step 1: Draw a **line diagram** corresponding to the problem.

Step 2: Mark all known heights, distances and angles and denote unknown lengths by variables.

Step 3: Use the values of various **trigonometric ratios** of the angles to obtain the unknown lengths from the known lengths.

Measuring the distances of Celestial bodies with the help of trigonometry

Large distances can be measured by the **parallax method**. The **parallax angle** is half the angle between two lines of sights when an object is viewed from two different positions. Knowing the parallax angle and the distance between the two positions, large distances can be measured.