

Class 10 Maths

Chapter 9: Some Applications of Trigonometry

1. Introduction

In this chapter, we study how trigonometry is used in real life to find the heights and distances of various objects without actually measuring them (e.g., finding the height of a tower, a mountain, or the distance of a ship from a lighthouse).

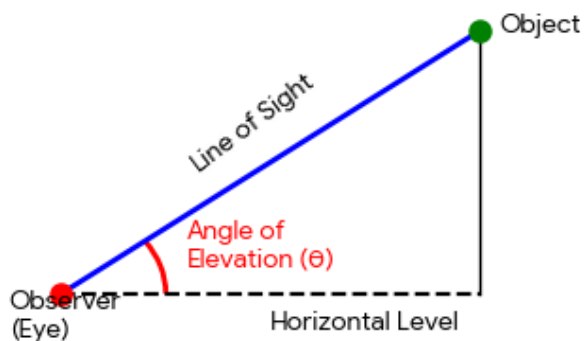
2. Line of Sight

The line of sight is the line drawn from the eye of an observer to the point in the object viewed by the observer.

3. Angle of Elevation

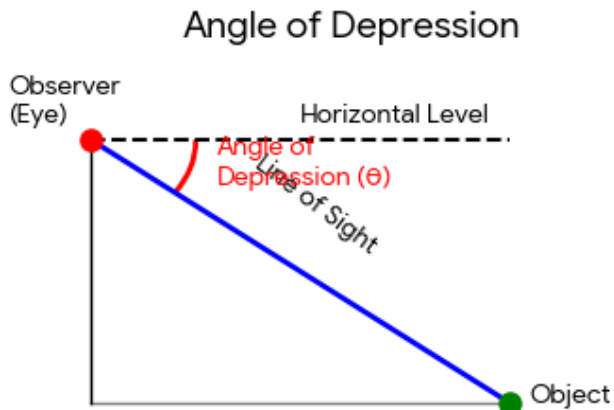
The angle of elevation of the point viewed is the angle formed by the line of sight with the horizontal when the point being viewed is above the horizontal level. (i.e., when we raise our head to look at the object).

Angle of Elevation



4. Angle of Depression

The angle of depression of a point on the object being viewed is the angle formed by the line of sight with the horizontal when the point is below the horizontal level. (i.e., when we lower our head to look at the object).



5. Important Points to Remember

- **Height of Observer:** If the height of the observer is not given in the problem, the observer is usually considered as a point on the ground.
- **Alternate Interior Angles:** The angle of elevation of a point A as seen from a point B is equal to the angle of depression of point B as seen from point A. This is because the horizontal levels at A and B are parallel to each other.
- **Right-Angled Triangle assumption:** Vertical objects like trees, buildings, and towers are assumed to be perfectly perpendicular (90°) to the ground.