

# CLASS 10 MATHS – CHAPTER 9

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## APPLICATIONS OF TRIGONOMETRY – ALL FORMULAE

### Basic Idea

- Practical use of Trigonometry
- Finds Heights & distances
- Not Direct measurement
- Real-life based chapter
- Uses right triangle concepts
- Based on trig ratios

### Lines of Sight

- Straight line from eye to object
- Connects observer and object
- Used to form angles
- Important in diagrams
- Base of all problems
- Represents direction of view
- Must be clearly identified
- Key concept

### Horizontal Level

- Straight line at eye level
- Acts as reference line
- Angles measured from it
- Above → elevation
- Below → depression
- Always horizontal
- Important in diagrams

### Angle of Elevation

- Object above eye level
- Angle formed while looking up
- Between line of sight & horizontal
- Used in height problems
- Example: tower, kite
- Always upward direction
- Positive angle

## Angle of Depression

- Object below eye level
- Angle formed while looking down
- Between line of sight & horizontal
- Equal to angle of elevation
- Used in bridge/building problems
- Downward direction

## Trigonometric Ratios

- $\sin \theta = \text{Opposite} / \text{Hypotenuse}$
- $\cos \theta = \text{Adjacent} / \text{Hypotenuse}$
- $\tan \theta = \text{Opposite} / \text{Adjacent}$
- $\tan \theta$  most commonly used
- $\tan \theta = \text{height} / \text{distance}$