

## Height and Distance

### Angle of Elevation:

Suppose a man from a point O looks up at an object P, placed above the level of his eye. Then, the angle which the line of sight makes with the horizontal through O, is called the angle of elevation of P as seen from O.

Angle of elevation of P from O =  $\angle AOP$ .

### Angle of Depression:

Suppose a man from a point O looks down at an object P, placed below the level of his eye, then the angle which the line of sight makes with the horizontal through O, is called the angle of depression of P as seen from O.

### Example

1. Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are  $30^\circ$  and  $45^\circ$  respectively. If the lighthouse is 100 m high, the distance between the two ships is:

- A. 173 m
- B. 200 m
- C. 273 m
- D. 300 m

2. The angle of elevation of a ladder leaning against a wall is  $60^\circ$  and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is:

- A. 2.3 m
- B. 4.6 m
- C. 7.8 m
- D. 9.2 m