

# Trigonometry Application Worksheet-1

## Question 1.

Match the Following

When an observer sees an object situated in upward direction, the angle formed by line of sight with horizontal line	Line of Sight
When an observer sees an object situated in downward direction the angle formed by line of sight with horizontal line	Angle of elevation
Line segment joining the object to the eye of the observer	Angle of Depression

## Question 2.

Match the Following

The tops of two poles of height of height 16m and 10 m connected by a wire of length of length L meters. The wire makes an angle of $30^\circ$ , the value of L is	$20/\sqrt{3}$ m
A ladder 50m long just reaches the top of a vertical wall. If the ladder makes an angle of $60^\circ$ with the wall, the height of the wall.	2.5 m
From a point 20m away from the foot of a tower, the angle of elevation of top of the tower is $30^\circ$ , the height of the tower is	25 m

## Question 3

The length of Shadow of a tower on the plane ground is  $\sqrt{3}$  times the height of the tower. The angle of the elevation of the sun is

- a)  $30^\circ$
- b)  $45^\circ$
- c)  $60^\circ$
- d)  $40^\circ$

### Question 4

From a window (9m above ground) of a house in a street, the angles of elevation and depression of the top and foot of another house on the opposite side of the street are  $30^\circ$  and  $60^\circ$  respectively. Find the height of the opposite house and width of the street.

### Question 5

A vertical tower stands on a horizontal plane and is surmounted by a vertical flag staff of height  $h$  m. At a point on the plane, the angles of elevation of the bottom and the top of the flag staff are  $\alpha$  and  $\beta$  respectively. Prove that the height of the tower is

$$\frac{htan\alpha}{tan\beta - tan\alpha}$$

### Answer

1)

When an observer sees an object situated in upward direction, the angle formed by line of sight with horizontal line	Angle of elevation
When an observer sees an object situated in downward direction the angle formed by line of sight with horizontal line	Angle of Depression
Line segment joining the object to the eye of the observer	Line of Sight

2)

The tops of two poles of height of height 16m and 10 m connected by a wire of length of length L meters. The wire makes an angle of $30^\circ$ , the value of L is	2.5 m
A ladder 50m long just reaches the top of a vertical wall. If the ladder makes an angle of $60^\circ$ with the wall, the height of the wall.	25 m
From a point 20m away from the foot of a tower, the angle of elevation of top of the tower is $30^\circ$ , the height of the tower is	$20/\sqrt{3}$ m

3) (a)

4)  $12\text{m}, 3\sqrt{m}$

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