Applications of Trigonometry

Angle of Elevation Exercise

- Q.1 The ratio of the length of a rod and its shadow is $1 : \sqrt{3}$. Then find the angle of elevation of the sun.
- Q.2 Find the angle of elevation of the moon when the length of the shadow of a pole is equal to its height.
- Q.3 If the length of shadow of a pole on a level ground is twice the length of that pole, then find the angle of elevation of the sun.
- Q.4 The angle of elevation of a tower from a distance 100 m from its foot is 30°. Find the height of the tower.
- Q.5 In a rectangle, if the angle between a diagonal and a side is 30^o and the length of diagonal is 6 cm, then find the area of the rectangle.
- Q.6 The angles of elevation of an aeroplane flying vertically above the ground as observed from two consecutive stones 1 km apart are 45° and 60°. Find the height of the aeroplane above the ground in km.
- Q.7 On the level ground, the angle of elevation of a tower is 30°. On moving 20 m nearer, the angle of elevation is 60°. Then find the height of the tower.

- Q.8 The length of a string between a kite and a point on the ground is 90 m. The string makes an angle of 60° with the level ground. If there is no slack in the string. Find the height of the kite.
- Q.9 A, B, C are three collinear points on the ground such that B lies between A and C and AB = 10 m. If the angles of elevation of the top of a vertical tower at C are respectively 30° and 60° as seen from A and B, then find the height of the tower.
- Q.10 If the angles of elevation of a tower from two points distant a and b (a > b) from its foot and in the same straight line from it are 30° and 60° , then find the height of the tower.

ANSWER KEY

1. 30º 2. 45⁰ 90º 3. $\frac{100}{\sqrt{3}}$ m 4. $9\sqrt{3}$ cm² 5. $\frac{3+\sqrt{3}}{2}$ 6. 10/3 m 7. 45√3 m 8. 5√3 m 9. √ab 10.