

G.S.C.E
Chapter Covered HEIGHT & DISTANCE
(25 Questions with Options)

Q1

On the same side of a tower, two objects are located. Observed from the top of the tower, their angles of depression are 45° and 60° . If the height of the tower is 600 m, distance between the objects is approximately equal to :

- A. 272 m
B. 254 m
C. 288 m
D. 284 m

Q2

A ladder 10 m long just reaches the top of a wall and makes an angle of 60° with the wall. Find the distance of the foot of the ladder from the wall ($\sqrt{3} = 1.73$)

- A. 5 m
B. 17.3 m
C. 8.65 m
D. 4.32 m

Q3

From a tower of 80 m high, the angle of depression of a bus is 30° . How far is the bus from the tower?

- A. 40 m
B. 138.4 m
C. 46.24 m
D. 160 m

Q4

The angle of elevation of the top of a lighthouse 60 m high, from two points on the ground on its opposite sides are 45° and 60° . What is the distance between these two points?

- A. 30 m
B. 94.6 m
C. 45 m
D. 103.8 m

Q5

From the top of a hill 100 m high, the angles of depression of the top and bottom of a pole are 30° and 60° respectively. What is the height of the pole?

- A. 52 m
B. 66.67 m
C. 50 m
D. 33.33 m

Q6

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° and 45° respectively. If the lighthouse is 100 m high, the distance between the two ships is:

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

Q7

A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30° with the man's eye. The man walks some distance towards the tower to watch its top and the angle of the elevation becomes 45° . What is the distance between the base of the tower and the point P?

- A. 9 units
B. Data inadequate
C. 12 units
D. $3\sqrt{3}$ units

Q8

From a point P on a level ground, the angle of elevation of the top tower is 30° . If the tower is 200 m high, the distance of point P from the foot of the tower is:

- A. 346 m B. 400 m
C. 298 m D. 312 m

Q9

The angle of elevation of the sun, when the length of the shadow of a tree is equal to the height of the tree, is:

- A. 45° B. 30°
C. None of these D. 60°

Q10

An observer 2 m tall is $10\sqrt{3}$ m away from a tower. The angle of elevation from his eye to the top of the tower is 30° . The height of the tower is:

- A. 14 m B. 12 m
C. None of these D. 10 m

Q11

The elevation of the summit of a mountain from its foot is 45° . After ascending 2 km towards the mountain upon an incline of 30° , the elevation changes to 60° . What is the approximate height of the mountain?

- A. 0.6 km B. 2.7 km
C. 1.2 km D. 1.4 km

Q12

Two persons are on either sides of a tower of height 50 m. The persons observe the top of the tower at an angle of elevation of 30° and 60° . If a car crosses these two persons in 10 seconds, what is the speed of the car?

- A. $\frac{20\sqrt{3}}{3}$ km/hr B. $\frac{24}{\sqrt{3}}$ km/hr
C. None of these D. $24\sqrt{3}$ km/hr

Q13

Find the angle of elevation of the sun when the shadow of a pole of 18 m height is $6\sqrt{3}$ m long?

- A. 30° B. 60°
C. 45° D. None of these

Q14

The angle of elevation of the top of the tower from a point on the ground is $\sin^{-1}\left(\frac{3}{5}\right)$

. If the point of observation is 20 meters away from the foot of the tower, what is the height of the tower?

- A. 15 m
B. 12 m
C. 9 m
D. 18 m

Q15

A person, standing exactly midway between two towers, observes the top of the two towers at angle of elevation of 22.5° and 67.5° . What is the ratio of the height of the taller tower to the height of the shorter tower? (Given that $\tan 22.5^\circ = \sqrt{2} - 1$)

- A. $3 - 2\sqrt{2} : 1$
B. $1 + 2\sqrt{2} : 1$
C. $1 - 2\sqrt{2} : 1$
D. $3 + 2\sqrt{2} : 1$

Q16

The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 12.4 m away from the wall. The length of the ladder is:

- A. 14.8 m
B. 6.2 m
C. 12.4 m
D. 24.8 m

Q17

A man on the top of a vertical observation tower observes a car moving at a uniform speed coming directly towards it. If it takes 8 minutes for the angle of depression to change from 30° to 45° , how soon after this will the car reach the observation tower?

- A. 12 min 23 second
B. 14 min 34 second
C. 10 min 57 second
D. 8 min 17 second

Q18

A man is watching from the top of a tower a boat speeding away from the tower. The boat makes an angle of depression of 45° with the man's eye when at a distance of 100 metres from the tower. After 10 seconds, the angle of depression becomes 30° . What is the approximate speed of the boat, assuming that it is running in still water?

- A. 32.42 km/hr
B. 26.28 km/hr
C. 24.22 km/hr
D. 31.25 km/hr

Q19

The top of a 15 metre high tower makes an angle of elevation of 60° with the bottom of an electronic pole and angle of elevation of 30° with the top of the pole. What is the height of the electric pole?

- A. 12 metres
B. 5 metres
C. 8 metres
D. 10 metres

Q20

The angle of elevation of the top of a tower from a certain point is 30° . If the observer moves 40 m towards the tower, the angle of elevation of the top of the tower increases by 15° . The height of the tower is:

- A. 62.2 m
B. 64.2 m
C. 52.2 m
D. 54.6 m

Q21

A vertical tower stands on ground and is surmounted by a vertical flagpole of height 18 m. At a point on the ground, the angle of elevation of the bottom and the top of the flagpole are 30° and 60° respectively. What is the height of the tower?

- A. 10.40 m
C. 9 m
- B. 15.57 m
D. 12 m

Q22

A balloon leaves the earth at a point A and rises vertically at uniform speed. At the end of 2 minutes, John finds the angular elevation of the balloon as 60° . If the point at which John is standing is 150 m away from point A, what is the speed of the balloon?

- A. 2.16 meter/sec
C. 0.63 meter/sec
- B. 0.72 meter/sec
D. 3.87 meter/sec

Q23

The angles of depression and elevation of the top of a wall 11 m high from top and bottom of a tree are 60° and 30° respectively. What is the height of the tree?

- A. None of these
C. 33 m
- B. 22 m
D. 44 m

Q24

Two vertical poles are 200 m apart and the height of one is double that of the other. From the middle point of the line joining their feet, an observer finds the angular elevations of their tops to be complementary. Find the heights of the poles.

- A. 65 m and 130 m
C. 141 m and 282 m
- B. 130 m and 260 m
D. 70.5 m and 141 m

Q25

To a man standing outside his house, the angles of elevation of the top and bottom of a window are 60° and 45° respectively. If the height of the man is 180 cm and he is 5 m away from the wall, what is the length of the window?

- A. 3.65 m
C. 8.65 m
- B. 2.5 m
D. 2 m