**askIITians**

ENGINEERING | MEDICAL | FOUNDATION

Class: X
Subject: Math's
Topic: Some Applications of trigonometry
No. of Questions: 20

Q.1   The angle of elevation of the top of a tower from a point on the ground, which is 30 m away from the foot of the tower, is 30^0. Find the height of the tower.

Q.2   A kite is flying at a height of 60 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is 60^0. Find the length of the string assuming that there is no slack in the string.

Q.3   A circus artist is climbing from the ground along a rope stretched from the top of a vertical pole and tied at the ground. The height of the pole is 12 m and the angle made by the rope with ground level is 30^0. Calculate the distance covered by the artist in climbing to the top of the pole.

Q.4   A circus artist is climbing a 20 m long rope, which is tightly stretched and tied from the top of a vertical pole to the ground. Find the height of the pole if the angle made by the rope with the ground level is 30^0.

Q.5   A bridge across a river makes an angle of 45° with the river bank as shown in the figure. If the length of the bridge across is 150m, what is the width of the river?
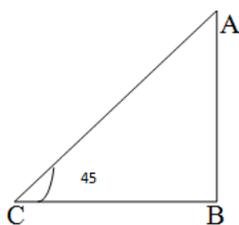
Q.6   An observer 1.5m tall is 28.5m away from a tower. The angle of elevation of the top of the tower her eyes is 45°. What is the height of the tower?

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

Q.7 A vertical tower stands on a horizontal plane and is surmounted by a vertical flag-staff of height h. At a point on the plane, the angles of elevation of the bottom and the top of the flag-staff are α and β respectively. Prove that the height of the tower is (h tan α) / (tan β – tan α)

Q.8 A tree is broken by the wind. The top struck the ground at an angle of 30° and at a distance of 30 metres from the root. Find the whole height of the tree.

Q.9 The angles of elevation of the top of a tower from two points at distances a and b metres from the base and in the same straight line with it are complimentary. Prove that the height of the tower is $\sqrt{ab}$ metres.   (CBSE-2004)

Q.10 At a point on level ground, the angles of elevation of a vertical tower are found to be such that its tangent is 5 / 12. On waling 192 metres towards the tower, the tangent of the angle of elevation is 3 / 4. Find the height of the tower.

Q.11 The shadow of a vertical tower on level ground increases by 10 metres, when the altitude of the sun changes from angle of elevation 45° and 30°. Find the height of the tower, correct to one place of decimal. (Take $\sqrt{3}$ = 1.73)

Q.12 From the top of a hill, the angles of depression of two consecutive kilometer stones due east are found to be 30° and 45°. Find the height of the hill.

Q.13 An aeroplane at an altitude of 1200 metres finds that two slips are sailing towards it in the same direction. The angles of depression of the ships as observed from the aeroplane are 60° and 30° respectively. Find the distance between the two ships.

Q.14 The shadow of a flag staff is three times as long as the shadow of the flag staff when the sun rays meet the ground at an angle of 60°. Find the angle between the sun rays and the ground at the time of longer shadow.

Q.15 An airplane at an altitude of 200 metres observes the angles of depression of opposite points on the two banks of a river to be 45° and 60°. Find the width of the river.

Q.16 As observed from the top of a light house, 100m above sea level, the angle of depression of a ship, sailing directly towards it, changes from 30° to 45°. Determine the distance travelled by the ship during the period of observation.   (CBSE-2004)

Q.17   From the top of a building 60m high the angles of depression of the top and the bottom of a tower are observed to be 30° and 60°. Find the height of the tower.

(CBSE-2005)

Q.18   The angles of elevation of a cloud from a point 60m above a lake is 30° and the angle of depression of the reflection of cloud in the lake is 60°. Find the height of the cloud.

Q.19   The horizontal distance between two towers is 140m. The angle of elevation of the top of the first tower when seen from the top of the second tower is 30°. If the height of the second tower is 60m, find the height of the first tower.

Q.20   An aeroplane when flying at a height of 4000 m from the ground passes vertically above another aeroplane at an instant when the angles the angles of the elevation of two planes from the same point on the ground are 60^0 and 45^0 respectively. Find the vertical distance between them at that instant.

(CBSE-2009)

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838