



**INDIAN SCHOOL AL WADI AL KABIR**  
**Class X, Mathematics *Worksheet- Applications of Trigonometry***  
**30-10-2020**

1.	The angle of elevation of the top of a tower from a point on the ground is $45^\circ$ . If the observer is 42 m away from the foot of the tower, the height of the tower is. (A) 63 m                      (B) 21 m                      (C) 84 m                      (D) 42 m	D
2.	If a pole of height 6 m casts a shadow $2\sqrt{3}$ m long on the ground, then the sun's elevation is. (A) $30^\circ$ (B) $60^\circ$ (C) $45^\circ$ (D) $90^\circ$	B
3.	If the height and length of the shadow of a man are the same, then the angle of elevation of the sun is (A) $30^\circ$ (B) $60^\circ$ (C) $45^\circ$ (D) $15^\circ$	C
4.	If sun's elevation is $60^\circ$ then a pole of height 6 m will cast a shadow of length. (A) $6\sqrt{3}$ m                      (B) $\sqrt{3}$ m                      (C) $2\sqrt{3}$ m                      (D) $3\sqrt{2}$ m	C
5.	A tree casts a shadow 4 m long on the ground, when the angle of elevation of the sun is $45^\circ$ . The height of the tree (in metres) is : (A) 3                      (B) 4                      (C) 4.5                      (D) 5.2	4
6.	The Fig. 5, shows the observation of point C from point A. The angle of depression from A is :  <div style="text-align: center;"> <p>Fig. 5</p> </div> (A) $60^\circ$ (B) $30^\circ$ (C) $45^\circ$ (D) $75^\circ$	B
7.	If the angle of depression of an object from a 75 m high tower is $30^\circ$ , then the distance of the object from the base of tower is (A) $25\sqrt{3}$ m                      (B) $50\sqrt{3}$ m                      (C) $75\sqrt{3}$ m                      (D) 150 m	C
8.	The ratio of the length of a rod and its shadow is $1 : \sqrt{3}$ , then the angle of elevation of the sun is : (A) $30^\circ$ (B) $45^\circ$ (C) $60^\circ$ (D) $90^\circ$	A
9.	The shadow of a tower standing on a level ground is found to be 40 m longer when the sun's altitude is $30^\circ$ than when it is $60^\circ$ . Find the height of the tower.	$20\sqrt{3}m$

10.	A kite is flying at a height of 90 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 $60^\circ$ . Find the length of the string assuming that there is no slack in the string. [Take $\sqrt{3} = 1.732$ ]	103.92m
11.	A ladder 15 m long just reaches the top of a vertical wall. If the ladder makes an angle of $60^\circ$ with the wall, find the height of the wall.	7.5m
12.	A tower stands vertically on the ground. From a point on the ground which is 60 m away from the foot of the tower, the angle of elevation of the top of the tower is found to be $60^\circ$ . Find the height of the tower.	$60\sqrt{3}$ m
13.	If the shadow of a tower is 30 m long, when the sun's elevation is $30^\circ$ . What is the length of the shadow, when sun's elevation is $60^\circ$ ?	10m
14.	A boy 2 m tall is standing at some distance from a 30 m tall building. The angle of elevation from his eyes of the top of the building increases from $30^\circ$ to $60^\circ$ as he walks towards the building. Find the distance he walked towards the building.	$18.67\sqrt{3}$ m
15.	The angle of elevation of the top of a tower at a point on the ground is $45^\circ$ . After going 40 m towards the foot of the tower, the angle of elevation of the top of tower changes to $60^\circ$ . Find the height of the tower. (Use $\sqrt{3} = 1.73$ )	94.6m
16.	Two pillars of equal heights are on either side of a road, which is 100 m wide. The angles of elevation of the top of the pillars are $60^\circ$ and $30^\circ$ at a point on the road between the pillars. Find the position of the point between the pillars on the road and the height of the pillars.	75m 25m 43.25m
17.	From the top of a building 60 m high the angles of depression of the top and the bottom of a tower are observed to be $30^\circ$ and $60^\circ$ respectively. Find the height of the tower.	40m
18.	A tree is broken by the wind. The top struck the ground at an angle of $30^\circ$ and at a distance of 30 metres from its root. Find the whole height of the tree. (Use $\sqrt{3} = 1.732$ )	51.96m
19.	Find the height of a mountain if the elevation of its top at an unknown distance from the base is $60^\circ$ and at a distance 10 km further off from the mountain, along the same line, the angle of elevation is $30^\circ$ .	$5\sqrt{3}$ km
20.	From a window, 60 m high above the 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 $60^\circ$ and $45^\circ$ respectively. Show that the height of the opposite house is $60(1 + \sqrt{3})$ metres.	
21.	Two men on either side of a cliff, 60 m high, observe the angles of elevation of the top of the cliff to be $45^\circ$ and $60^\circ$ respectively. Find the distance between two men.	$20(3+\sqrt{3})$ m
22.	The shadow of a vertical tower on level ground increases by 16 m when the altitude of the sun changes from angles of elevation $60^\circ$ to $45^\circ$ . Find the height of the tower, correct to one place of decimal. (Take $\sqrt{3} = 1.73$ )	
23.	An aircraft is flying at a constant height with a speed of 360 km/hour. From a point on the ground, the angle of elevation at an instant was observed to be $45^\circ$ . After 20 seconds, the angle of elevation was observed to be $30^\circ$ . Determine the height at which the aircraft is flying. (use $\sqrt{3} = 1.732$ )	2.732km