

CHAPTER:- 9**SOME APPLICATIONS OF TRIGONOMETRY**

Q1.	If a tower 30 m high, casts a shadow $10\sqrt{3}$ m long on the ground, then what is the angle of elevation of the sun?		
(A)	30°	(B)	45°
(C)	60°	(D)	70°
Q2.	If the length of the shadow of a tree is decreasing then the angle of elevation is:		
(A)	Increasing	(B)	Decreasing
(C)	Remains the same	(D)	None of the above
Q3.	If the ratio of the height of a tower and the length of its shadow is $1:\sqrt{3}$, what is the angle of elevation of the Sun?		
(A)	90°	(B)	45°
(C)	60°	(D)	30°
Q4.	The angle formed by the line of sight with the horizontal when the point is below the horizontal level is called:		
(A)	Angle of elevation	(B)	Angle of depression
(C)	No such angle is formed	(D)	None of the above
Q5.	A ladder 15m long reaches a window which is a 9m above the ground on one side of the street. Keeping its foot at the same point, the ladder is turned to the other side of the street to reach a window 12m high. Find the width of the street.		
(A)	21m	(B)	23m
(C)	22m	(D)	25m
Q6.	The line drawn from the eye of an observer to the point in the object viewed by the observer is said to be:		
(A)	Angle of elevation	(B)	Angle of depression
(C)	Line of sight	(D)	None of the above
Q7.	If the height and length of a shadow of a tower are the same, then the angle of elevation of Sun is:		
(A)	60°	(B)	45°
(C)	30°	(D)	90°
Q8.	If the height of the building and distance from the building foot's to a point is increased by 10%, then the angle of elevation on the top of the building:		
(A)	Increases	(B)	Decreases
(C)	Do not change	(D)	None of the above

Q9.	A ladder makes an angle of 60° with the ground, when placed along a wall. If the foot of ladder is 8 m away from the wall, the length of ladder is:		
(A)	4 m	(B)	8 m
(C)	$8\sqrt{3}$ m	(D)	16 m
Q10.	The angle of depression of an object on the ground, from the top of a 25 m high tower is 30° . 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)	50 m
Q11.	The tops of two poles of height 20m and 14m are connected by a wire. If the wire makes an angle of 30 degree with horizontal, then the length of the wire is:		
(A)	8 m	(B)	12 m
(C)	10 m	(D)	14 m
Q12.	A tree breaks due to a storm and the broken part bends so that the top of the tree touches the ground making an angle of 30° with the ground. The distance between the foot of the tree to the point where the top touches the ground is 8 m. The height of the tree is		
(A)	$4\sqrt{3}$ m	(B)	$8\sqrt{3}$ m
(C)	$6\sqrt{3}$ m	(D)	$16\sqrt{3}$ m
Q13.	The angle of elevation of the top of a tower is 30° . If the height of the tower is tripled, then the angle of elevation of the top of a tower is:		
(A)	Greater than 60°	(B)	Equal to 30°
(C)	Less than 60°	(D)	Equal to 60°
Q14.	An observer 1.5 m tall is 28.5 m away from a tower and the angle of elevation of the top of the tower from the eye of the observer is 45° . The height of the tower is:		
(A)	27 m	(B)	30 m
(C)	28.5 m	(D)	29.5 m
Q15.	The angle of depression of an object on the ground, from the top of a 25 m high tower is 30° . The distance of the object from the base of the tower is		
(A)	$25\sqrt{3}$ m	(B)	$50\sqrt{3}$ m
(C)	$75\sqrt{3}$ m	(D)	50 m
Q16.	The angle of elevation of the top of a building from a point on the ground, which is 30 m away from the foot of the building, is 30° . The height of the building is		
(A)	10 m	(B)	$10\sqrt{3}$ m
(C)	$\sqrt{3}/10$ m	(D)	30 m

Q17.	The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Then the height of tower is		
(A)	36m	(B)	16m
(C)	6m	(D)	4m
Q18.	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° . Assuming that there is no slack in the string. The length of the string is:		
(A)	$40/\sqrt{3}$ m	(B)	$20\sqrt{3}$ m
(C)	$20/\sqrt{3}$ m	(D)	$40\sqrt{3}$ m
Q19.	A pole 6m high casts a shadow $2\sqrt{3}$ m long on the ground then the sun's elevation is:		
(A)	60°	(B)	45°
(C)	30°	(D)	90°
Q20.	The angle of depression of a car parked on the road from the top of 150 m high tower is 30° . The distance of the car from the tower (in metres) is:		
(A)	$50\sqrt{3}$ m	(B)	$150\sqrt{3}$ m
(C)	$150\sqrt{2}$ m	(D)	75 m
Q21.	From the top of a 120 m high tower, a man observes two cars on the opposite sides of the tower and in straight line with the base of tower with angles of depression as 60° and 45° . Then the distance between two cars is:		
(A)	$(40 + 120\sqrt{3})$ m	(B)	$(160\sqrt{3})$ m
(C)	$(120 + 40\sqrt{3})$ m	(D)	$(160\sqrt{3})$ m
Q22.	If two towers of height h_1 and h_2 subtends angles of 60° and 30° midpoint of the line joining their feet. Then what is $h_1:h_2$ is:		
(A)	1:2	(B)	2:1
(C)	1:3	(D)	3:1
Q23.	If two poles are 25m and 15m high and the line joining their tops makes an angle 45° with the horizontal. The distance between these poles is:		
(A)	10 m	(B)	20 m
(C)	30 m	(D)	$20\sqrt{3}$ m

Q24.	A vertical tower stands on horizontal plane and is surmounted by a vertical flag-staff of height 6 m. The angles at a point on the bottom and top of the flag-staff with the ground are 30° and 45° respectively. Then the height of the tower is:		
(A)	$\sqrt{3}(\sqrt{3}+1)$ m	(B)	$3(\sqrt{3}+1)$ m
(C)	$2(\sqrt{3}+1)$ m	(D)	$3(\sqrt{2}+1)$ m
Q25.	The shadow of a tower standing on a level plane is found to be 50 m longer when Sun's elevation is 30° than when it is 60° . Then the height of tower is:		
(A)	$20\sqrt{3}$	(B)	$25\sqrt{3}$
(C)	$10\sqrt{3}$	(D)	$30\sqrt{3}$
Q26.	The angle of elevation of the top of a tower from certain point is 30° . If the observer moves 20 metres towards the tower, the angle of elevation of the top increases by 15° . Find the height of the towe		
(A)	$10(\sqrt{3} + 1)$	(B)	$5\sqrt{3}$
(C)	$5(\sqrt{3} + 1)$	(D)	$10\sqrt{3}$
Q27.	The angle of elevation of the top of a vertical tower from a point on the ground is 60° . From another point 10 m vertically above the first, its angle of elevation is 45° . Then the height of the tower is:		
(A)	$5(\sqrt{3} + 3)$ m	(B)	$(\sqrt{3} + 3)$ m
(C)	$15(\sqrt{3} + 3)$ m	(D)	$5\sqrt{3}$ m
Q28.	The angle of elevation of an aeroplane from a point on the ground is 60° . After a flight of 30 seconds the angle of elevation becomes 30° . If the air plane is flying at a constant height of $3000\sqrt{3}$ m, Then the speed of the aeroplane is:		
(A)	250 m/sec	(B)	300 m/sec
(C)	200 m/sec	(D)	350 m/sec
Q29.	The height or length of an object or the distance between two distant objects can be determined with the help of:		
(A)	Trigonometry angles	(B)	Trigonometry identities
(C)	Trigonometry ratios	(D)	None of the above
Q30.	From a point on a bridge across a river the angle of depression of the banks on opposite sides of the river are 30° and 45° respectively. If the bridge is at the height of 30 m from the banks, the width of the river is		
(A)	$30(1 + \sqrt{3})$ m	(B)	$30(\sqrt{3} - 1)$ m
(C)	$30\sqrt{3}$ m	(D)	$60\sqrt{3}$ m

ANSWERS

1	(C)	60^0	2	(A)	Increasing	3	(D)	30^0
4	(B)	Angle of depression	5	(A)	21m	6	(C)	Line of sight
7	(B)	45^0	8	(C)	Do not change	9	(D)	16 m
10	(A)	$25\sqrt{3}$ m	11	(B)	12 m	12	(B)	$8\sqrt{3}$ m
13	(D)	Equal to 60^0	14	(A)	36	15	(A)	$25\sqrt{3}$ m
16	(B)	$10\sqrt{3}$ m	17	(C)	6m	18	(D)	$40\sqrt{3}$ m
19	(A)	60^0	20	(B)	$150\sqrt{3}$ m	21	(C)	$(120 + 40\sqrt{3})$ m
22	(D)	3:1	23	(A)	10 m	24	(B)	$3(\sqrt{3}+1)$ m
25	(B)	$25\sqrt{3}$	26	(A)	$10(\sqrt{3} + 1)$	27	(A)	$5(\sqrt{3} + 3)$ m
28	(C)	200 m/sec	29	(C)	Trigonometry ratios	30	(A)	$30(1 + \sqrt{3})$ m