

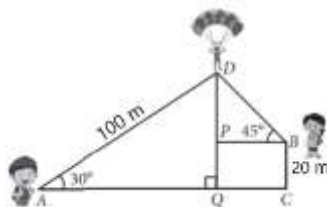


INDIAN SCHOOL AL WADI AL KABIR
Class X, Mathematics
WORKSHEET_SOME APPLICATIONS OF TRIGONOMETRY
M.C.Q AND CASESTUDY

OBJECTIVE TYPE (1 Mark)

Q.1.	If the angle of depression of an object from a 75m high tower is 30° , then the distance of the object from the tower is							
	A	$25\sqrt{3}$ m	B	$50\sqrt{3}$ m	C	$100\sqrt{3}$ m	D	$75\sqrt{3}$ m
Q.2.	The ratio between the height and the length of the shadow of a pole is $\sqrt{3}:1$, then the sun's altitude is							
	A	45°	B	60°	C	75°	D	30°
Q.3.	The angle of elevation of the top of a hill at the foot of the tower is 60° and the angle of elevation of the top of the tower from the foot of the hill is 30° . If the tower is 50 m high, what is the height of hill?							
	A	300 m	B	150 m	C	250 m	D	$100\sqrt{3}$ m
Q.4.	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
Q.5.	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 these
Q.6.	Two ships are sailing in the sea on the either side of the light-house, the angles of depression of two ships as observed from the top of the light-house are 60° and 45° respectively. If the distance between the ships is $200\left(\frac{\sqrt{3}+1}{\sqrt{3}}\right)$ metres, then the height of the light-house is							
	A	$200(\sqrt{3}-1)$ m	B	$200\sqrt{3}$ m	C	$200(\sqrt{3}+1)$ m	D	200 m
Q.7.	A kite is hovering in strong winds, 30 m vertically above the ground. It is being held in place by a taut, 60 m length of rope from the kite to the ground then the angle that the rope makes with the ground is							
	A	45°	B	30°	C	90°	D	60°
Q.8.	A guy wire(tension cable) reaches from the top of a 120 m television transmitter tower to the ground. The wire makes a 60° angle with the ground, then the length of the guy wire							
	A	$160\sqrt{3}$ m	B	$85\sqrt{3}$ m	C	$80\sqrt{3}$ m	D	80 m
Q.9.	The angle of depression of a car from the top of a hill is 45 degrees. If the height of the hill is 50 meters, then what is the distance of the car from the foot of the hill?							
	A	100 m	B	70 m	C	50 m	D	60 m
Q.10.	A 60 m pole is leaning against a wall. The foot of the pole is $30\sqrt{3}$ m from the wall. Find the angle the pole makes with the ground							
	A	30°	B	90°	C	45°	D	60°

Q.11.	You are flying a kite and have let out 80 m of string. The kite's angle of elevation with the ground is 45° . If the string is stretched straight, how high is the kite above the ground?							
	A	$40\sqrt{3} \text{ m}$	B	$80\sqrt{3} \text{ m}$	C	$80\sqrt{2} \text{ m}$	D	$40\sqrt{2} \text{ m}$
Q.12.	A helicopter is hovering over a landing pad 100 m from where you are standing. The helicopter's angle of elevation with the ground is 30° . What is the altitude of the helicopter?							
	A	$\frac{50}{\sqrt{3}} \text{ m}$	B	$50\sqrt{3} \text{ m}$	C	$\frac{100}{\sqrt{3}} \text{ m}$	D	$\frac{25}{\sqrt{3}} \text{ m}$
	ASSERTION AND REASONING							
	DIRECTION: A statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true but Reason (R) is false. (d) Assertion (A) is false but Reason (R) is true.							
Q.13.	Assertion(A): If the angle of elevation of Sun, above a perpendicular line (tower) decreases, then the shadow of tower increases. Reason(R): It is due to decrease in slope of the line of sight							
Q.14.	Assertion(A): If the length of shadow of a vertical pole is equal to its height, then the angle of elevation of the sun is 45°. Reason (R) : According to Pythagoras theorem, $h^2 = l^2 + b^2$, where h = hypotenuse, l = length and b = base.							
Q.15.	Assertion(A): When we move towards the object, angle of elevation decreases. Reason (R) : As we move towards the object, it subtends large angle at our eye than before.							
	CASE STUDY QUESTIONS							
	CASE STUDY QUESTION 1: There is fire incident in the house. The house door is locked so, the fireman is trying to enter the house from the window. He places the ladder against the wall such that its top reaches the window.  Based on the above information, answer the following questions.							

Q.16.	If window is 6 m above the ground and angle made by the foot of ladder to the ground is 30° , then find length of the ladder.							
Q.17.	What is the angle of elevation observed, if length of the ladder is $\frac{10}{\sqrt{3}}m$ and fireman places the ladder 5m away from the wall?							
Q.18.	If fireman places the ladder 2.5 m away from the wall and angle of elevation is observed to be 60° , then find the height of the window. (Take $\sqrt{3} = 1.73$)							
Q.19.	If the height of the window is 8 m above the ground and angle of elevation is observed to be 45° , then find the horizontal distance between the foot of ladder and wall.							
	CASE STUDY QUESTION 2: Karan and his sister Riddhima visited at their uncle’s place-Bir, Himachal Pradesh. During day time Karan, who is standing on the ground spots a paraglider at a distance of 100 m from him at an elevation of 30° . His sister Riddhima is also standing on the roof of a 20 m high building observes the elevation of the same paraglider as 45° . Karan and Riddhima are on the opposite sides of the paraglider. Based on the above information, answer the following questions.							
Q.20.	Make a labelled figure on the basis of the given information.							
Q.21.	Calculate the distance of paraglider from the ground.							
Q.22.	Calculate the distance between the paraglider and the Riddhima.							
Q.23.	What is the angle of elevation if the distance between paraglider and Karan becomes half of the previous distance.							
	ANSWERS							
	Q.1.	D	Q.2.	B	Q.3.	B	Q.4.	A
	Q.5.	C	Q.6.	D	Q.7.	B	Q.8.	C
	Q.9.	C	Q.10.	A	Q.11.	D	Q.12.	C
	Q.13.	a	Q.14.	b	Q.15.	d	Q.16.	12 m
	Q.17.	30°	Q.18.	4.325 m	Q.19.	8m		
	Q.20.				Q.21.	50m	Q.22.	$30\sqrt{2}$ m
	Q.23.	90°						
