INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet 2025-26

CLASS: X

SUBJECT: MATHEMATICS

Chapter No:9 – Applications of Trigonometry.

MCQ:

1-If the height of a vertical pole is $\sqrt{3}$ times the length of its shadow on the ground ,then the angle of elevation of the sun at that time is :

(a) 30^0 (b) 45^0 (c) 60^0 (d) 75^0

2-From the top of a cliff 20 m high ,the angle of elevation of the top of a tower is found to be equal to the angle of depression of the foot of the tower .the height of tower is :

(a) 20 m (b) 60 m (c) 40 m (d) 80 m

3-A ladder makes an angle of 60^0 with the ground when placed against a wall .If the foot of the ladder is 2 m away from the wall ,then the length of the ladder ,in metres is :

(a) $2\sqrt{2}$ (b) $\frac{2}{\sqrt{3}}$ (c) $2\sqrt{3}$ (d) 4

4-The angle of depression of a car standing on the ground from the top of a 75 m high tower is 30^0.The distance of the car from the base of tower (in m) is :

(a) $25\sqrt{3}$ (b) $75\sqrt{3}$ (c) $50\sqrt{3}$ (d) 150

5- A kite is flying at a height of 30 m from the ground .the length of string from the kite to the ground is 60 m . Assuming that there is no slack in the string ,the angle of elevation of the kite at the ground is :

(a) 30^0 (b) 45^0 (c) 60^0 (d) 90^0

6-At some point of time in the day ,the length of the shadow of a tower is equal to its height .

Then the sun's altitude at the time is :

(a) 30^0 (b) 45^0 (c) 60^0 (d) 90^0

7-A tower stands vertically on the ground . From a point on the ground which is 25 m away from the foot of the tower is found to be 45^0 . Then the height (in m) of the tower is:

(a) $25\sqrt{2}$ (b) $25\sqrt{3}$ (c) 25 (d) 12.5

8-The tops of two poles of height 24 m and 36 m are connected by a wire .If the wire makes an angle of 60^0 with the horizontal ,then the length of wire is :

(a) $8\sqrt{3}$ m (b) $6\sqrt{3}$ m (c) 8 m (d) 6 m

9- The shadow of a tower standing on a level plane is found to be 50 m longer when Sun's elevation is 30^0 , then it was 60^0 what is the height of the tower ?

(a) $25\sqrt{3}$ m (b) $\frac{25}{\sqrt{3}}$ m (c) 25 m (d) 30 m

10-AOBC is a rectangle whose three vertices are A(0,3) , O (0,0) , B (5,0) the length of diagonal is :

(a) $\sqrt{14}$ (b) $\sqrt{17}$ (c) $\sqrt{34}$ (d) $2\sqrt{17}$

Assertion and reasoning :

1-Assetion:In a right -angled triangle ABC ,right angled at B, If BC= 20m and $\angle ACB = 30^0$ then height AB is 11.56 m

Reason: $\tan\theta = \frac{AB}{BC} = \frac{perpendicular}{Base}$, where θ is the $\angle ACB$ in right triangle ACB

(a)Both Assertion and Reason are correct and Reason is the correct explanation for Assertion

(b)Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.

(c) Assertion is true but the reason is false.

(d)Both assertion and reason are false.

Subjective Questions:

1-The angle of elevation of an aeroplane from a point on the ground is c.after flight of 30 seconds ,the angle of elevation become 30^0.If the aeroplane is flying at a constant height of $3000\sqrt{3}$ m ,find the speed of an aeroplane.

2-Two ships are there in the sea on either side of light house are in the same straight line .The angles of depression of two ships as observed from the top of the lighthouse are 60^0 and 45^0.if the height of the lighthouse is 200 m , find the distance between two ships .(Use $\sqrt{3}$ =1.73)

3-A ladder of length 6 m makes an angle of 45^0 with the floor while leaning against one wall of a room .if the foot of the ladder is kept fixed on the floor and it makes to lean against the opposite wall of the room , it makes an angle of 60^0 with the floor.find the distance between these two walls of the room.

4-A man is standing on the deck of a ship, which is 10 m above water level .he observe the angle of elevation of the top of the hill as 60^0 and the angle of depression of the base of the hill as 30^0.Calculate the distance of the hill from the ship and height of the hill.

5-From a window A ,10 m above ground ,the angle of elevation of the top of C to tower is $x^{\,0}$ where $\tan x^0 = 5/2$ and the angle of depression of the foot D of the tower is $y^{\,0}$ where $\tan y^{\,0} = 1/4$. Calculate the height CD of the tower in meters .

6-A vertical tower stands on a horizontal plane and is surmounted by a vertical flagstaff of height 5 meters .At a point on the plane ,the angles of elevation of the bottom and the top of the flagstaff are respectively 30^0 and 60^0. Find the height of the tower.

7-The angle of elevation of the top of vertical tower from a point on the ground is 60^0. $From$ another point 10 m vertically above the first ,the angle of elevation is 30^0.find the height of the tower.

8-Amit , standing on a horizontal plane ,finds a bird flying at a distance of 200 m from him at an elevation of 30^0.Deepak standing on the roof of a 50 m high building ,Finds the angle of elevation of the same bird to be 45^0.Amit and Deepak are on opposite sides of the bird .find the distance of the bird from Deepak.

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