MATHS

BOOKS - VK GLOBAL PUBLICATION MATHS (HINGLISH)

HEIGHT AND DISTANCE

Very Short Answer Questions

1. A pole of height 6 m casts a shadow $2\sqrt{3}$ m long on the ground. Find the sun's elevation.

2. An observer, $1.5m$ tall, is $20.5m$ away from a tower $22m$ high. Determine the angle of elevation of the top of the tower from the eye of the observer.

3. A ladder 15m long makes an angle of $60°$ with the wall. Find the height of the point ,

where the ladder touches the wall.

4. If the ratio of the height of a tower and the length of its shasdow is $\sqrt{3}:1$, then the angle of elevation of the Sun is $30°$. Is is true or false?
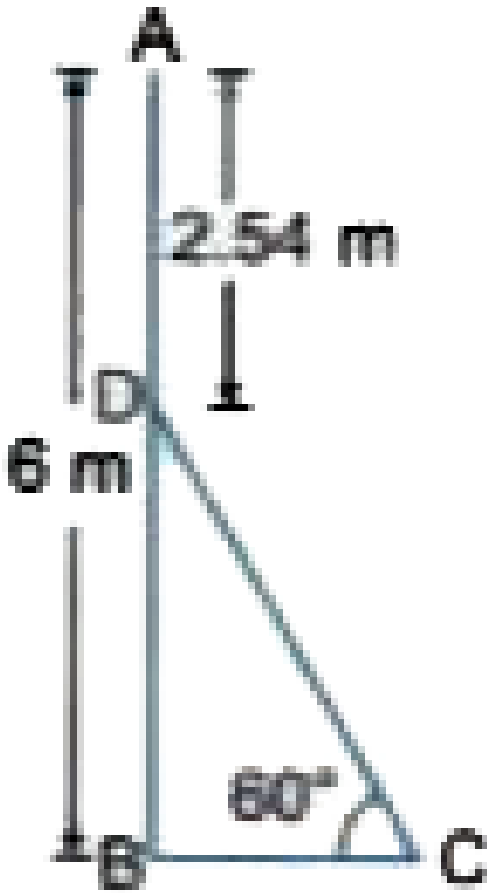
5. If the angle of elevation of a tower from a distance of 100 m from its foot is $60°$, then what will be the height of the tower?

6. In fig AB is a 6m high pole and CD is a ladder inclined at an angle of $60°$ to the horizontal and reaches up to a point D of pole. If AD=2.54m, find the length of the ladder. (use

$\sqrt{3} = 1.73$)

7. An observer 1.6 m tall is $20\sqrt{3}$ m away from a tower. The angle of elevation from his eye to the top of the tower is $30o$. The height of the tower is: (a) 21.6 m (b) 23.2 m (c) 24.72 m (d) None of these

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Short Answer Questions I

1. The angle of elevation of the top of a tower is $30°$. If the height of the tower is doubled, then the angle of elevation of its top will also be doubled.

2. If the height of a tower and the distance of the point of observation from its foot, both are increased by 10%, then the angle of elevation of its top remains unchanged.

3. If a man standing on a plat form 3 m above the surface of a lake observes a cloud and its reflection in the lake at this time the height of reflection of cloud in lake is (h+3) because in lake platform height is also added to reflection of cloud.

So, angle of depression is different in the lake from the angle of elevation of the cloud is equal to the angle of depressin of its reflection.

4. Find the angle of elevation of the Sun when the shadow of a pole h m high is $\sqrt{3}m$ long.

5. The height of a tower is 12m. What is the length of its shadow when Sun's altitude is $45°$?

6. A circus artists is climbing a 20m 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.

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Short Answer Questions Ii

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 $30°$. Find the height of the tower.

2. A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle $30o$ with it. The distance between the foot of the tree to the

point where the top touches the ground is 8 m. Find the height of

3. 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. Prove that the height of the tower is 6m.

4. Determine the height of a mountain if the elevation of its top at an unknown distance from the base is $30o$ and at a distance 10km further off from the mountain, along the same line, the angle of elevation is $15o$. (Use $\tan 15o = 0.27$)

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5. The shadow of a tower standing on a level ground is found to be 40 m longer when the

Suns altitude is $30o$than when it is $60o$. Find the height of the tower.

6. From a point P on the ground the angle of elevation of the top of a 10 m tall building is $30o$. A flag is hoisted at the top of the building and the angle of elevation of the top of the flagstaff from P is $45o$. Find the length of the flagstaff

7. A contractor plans to install two slides for the children to play in a park. For the children below the age of 5 years, she prefers to have a slide whose top is at a height of 1.5 m, and is inclined at an angle of 30° to the ground, whereas for

8. A kite is flying at a height of 60 m above the ground. The string arrached to the kite is

temporarily tied to a point on the ground. The inclination of the string with the ground is $60°$. Find the length of the string, assuming that there is no slack in the string.

9. A 1.5m tall boy is standing at some distance from a 30m tall building. The angle of elevation from his eyes to the top of the building increases from $30o$ to $60o$ as he walks

towards the building. Find the distance he walked towards the building.

10. From a point of a bridge across a riuver, the angles of depression of the banks on opposite sides of the river are $30°$ and $45°$, respectively. IF the bridge is at a height of 10 m from the banks, then find the width of the river. (Use $\sqrt{3} = 1.73$)

11. As observed from the top of a 75 m high lighthouse from the sea-level, the angles of depression of two ships are $30o$ and $45o$. If one ship is exactly behind the other on the same side of the lighthouse, find the distance between the two sh

12. Two ships are there in the sea on either side of a light house in such a way that the

ships and the light house are in the same straight line. The angles of depression of two ships are observed from the top of the light house are 60o and 45o respectively. If the height of the light house is 200 m, find the distance between the two ships. $(Use \sqrt{3} = 1.73)$

13. The angle of elevation of an airplane from a point on the ground is $60°$. After a flight of 30

seconds, the angle of elevation becomes $30°$. If the airplane is flying at a constant height of $3000\sqrt{3}$m, find the speed of the airplane.

14. From the top of a 60 m high building, the angles of depression of the top and the bottom of a tower are $45°$ and $60°$ respectively. Find the height of the tower. [Take $\sqrt{3} = 1.73$]

15. Two boats approach a light house in mid-sea from opposite directions. The angles of elevation of the top of the light house from two boats are $30^0 and 45^0$ respectively. If the distance between two boats is 100m, find the height of the light house.

16. Two men on either side of a 75 m high building and in line with base of buildig

observe the angle of elevation of the top of the building as $30°$ and $60°$. Find the distance between the two men. (Use $\sqrt{3} = 1.73$)

Long Answer Questions

1. From a point on the ground, the angles of elevation of the bottom and the top of a transmission tower fixed at the top of a 20 m

high building are 45° and 60° respectively. Find the height of the tower.

2. A statue, 1.6 m tall, stands on the top of a pedestal. From a point on the ground, the angle of elevation of the top of the statue is 60° and from the same point the angle of elevation of the top of the pedestal is 45°. Find the height of

3. From the top of a 7 m high building, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45°. Determine the height of the tower.

4. At a point, the angle of elevation of a tower is such that its tangent is $\dfrac{5}{12}$. On walking 240 m nearer to the tower, the tangent of the

angle of elevation becomes $\dfrac{3}{4}$. Find the height of the tower.

5. A 1.2 m tall girl spots a ballon moving with wind in a horizontal line at a height of 88.2 m from the ground. The angle of elevation of the balloon from the eyes of the girl at any instant is $60°$. After some time, the angle of elevation reduces to $30°$. Find the distance travelled by the balloon during the interval.

6. A straight highway leads to the foot of a tower. A man standing at the top of the tower observes a car at an angle of depression of $30o$, which is approaching the foot of the tower with a uniform speed. Six seconds later, the angle of depres

7. In fig ABDC is a trapezium in which $AB \mid\mid CD$. Line segments RN and LM are drawn parallel to AB such that AJ=JK =KP. If AB=0.5m and AP=BQ=1.8m, find the length of AC, BD, RN and LM.
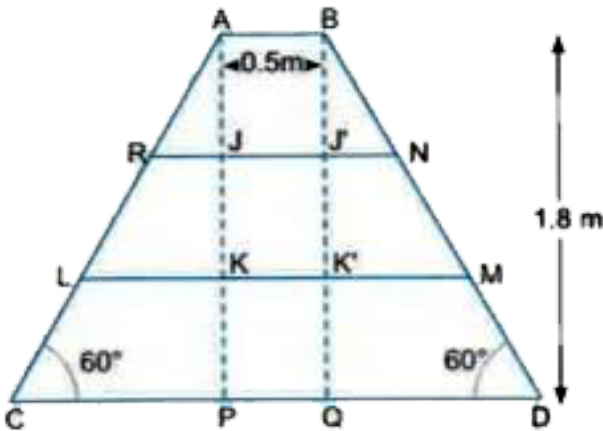
8. Two poles of equal heights are standing opposite to each other on either side of the road which is 80m wide. From a point between them on the road the angles of elevation of the top of the poles are $60o$ and $30o$ respectively. Find the height of the poles and the distances of the point from the poles.

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9. A TV tower stands vertically on a bank of a canal. From a point on the other bank directly

opposite the tower, the angle of elevation of the top of the tower is $60o$. From another point 20 m away from this point on the line joining this point t

10. A person standing on the bank of a river observes that the angle of elevation of the top of a tree standing on the opposite bank is 60^0. When he move 40 metres away from the bank, he finds the angle of elevation to be 30^0. Find

the height of the tree and the width of the river.

11. The angles of elevation oand depression of the top and bottom of a lighthouse from the top of a building, 60 m high, are $30°$ and $60°$ respectively. Find

(i) the difference between the heights of the lighthouse and the building.

(ii) distance between the lighthouse and the building.

12. From the top of a building AB, 60 metres hight, the angles of depression of the top and bottom of a vertical lamp post CD are observed to be $30°$ and $60°$, respectively. Find

(i) the horizontal distance between AB and CD.

(ii) the height of the lamp post.

13. A boy standing on a horizontal plane finds a bird flying at a distance of 100 m from him at an elevation of 30°. A girl standing on the roof of 20 metre high building, finds the angle of elevation of the same bird to be 45°. Both the boy and the girl are on opposite sides of the bird. Find the distance of bird from the girl.

14. The angles of depression of the top and the bottom of an 8 m tall building from the top of a multi-storeyed building are $30o$ and $45o$, respectively. Find the height of the multi-storeyed building and the distance between the two buildings.

15. The angle of elevation of the top of a tower at a distance of 120 m from a point A on the

ground is $45°$. If the angle of elevation of the top of a flagstaff fixed at the top of the tower, at A is $60°$, then find the height of the flagstaff. [Use $\sqrt{3} = 1.732.$]

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16. A round balloon of radius r subtends an angleα at the eye of the observer while the angle of elevation of its centre is β. Prove that the height of the centre of the balloon is

$r \sin(\beta) \cos ec\dfrac{\alpha}{2}$

17. A vertical tower stands on a horizontal plane and is surmounted by a flagstaff of height 5m. From a point on the ground the angles of elevation of the top and bottom of the flagstaff are $60°$ and $30°$ respectively. Find the height of the tower and the distance of the point from the tower. (Take $\sqrt{3} = 1.732$)

1. A man standing on the deck of a ship, which is 10m above water level. He observes the angle of elevation of the top of a 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 the height of the hill.

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2. The angle of elevation of the top of a building from the foot of the tower is $30°$ and the angle of elevation of the top of tower from the foot of the building is $60°$,If the tower is 50 m high, find the height of the building.

3. From a window (h metres high above the ground) of a house in a street, the angle of elevation and depression of the top and the

foot of another house on the opposite side of the street are θ and ϕ respectively. Show that the height of the opposite house is $h(1 + \tan\theta\cot\phi)$ metres.

4. The angle of elevation of an aeroplane from a point P on the ground is $60°$. After a flight of 15 seconds, the angle of elevation changes to $30°$. If the aeroplane is flying at a constant

height of $1500\sqrt{3}$ m, find the speed of the aeroplane

5. If the angle of elevation of a cloud from a point h metres above a lake is α and the angle of depression of its reflection in the take is β, prove that the height of the cloud is $\left(h\dfrac{\tan\beta + tan\alpha}{\tan\beta - tan\alpha}\right)$

6. 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 60^0. Find the angle between the sun rays and the ground at the time of longer shadow.

7. From an aeroplane vertically above a straight horizontal road, the angles of depression of two consecutive mile stones on opposite sides of the aeroplane are observed

to be α and β. Show that the height in miles of

aeroplane above the road is give by

$$\frac{\tan \alpha \tan \beta}{\tan \alpha + \tan \beta}$$

8. The angle of elevation of a cliff from a fixed

point is θ. After going up a distance of k

meters towards the the top the cliff at an

angle of ϕ, it is found that the angle of

elevation is α. Show that the height of cliff is

$$k\frac{\cos \phi - \sin \phi \cot \alpha}{\cot \theta - \cot \alpha}$$

9. The angle of elevation of the top of a tower from a point A due south of the tower is α and from B due east of tower is β. If $AB = d$, show that the height of the tower is $\dfrac{d}{\sqrt{\cot^2 \alpha + \cot^2 \beta}}$.
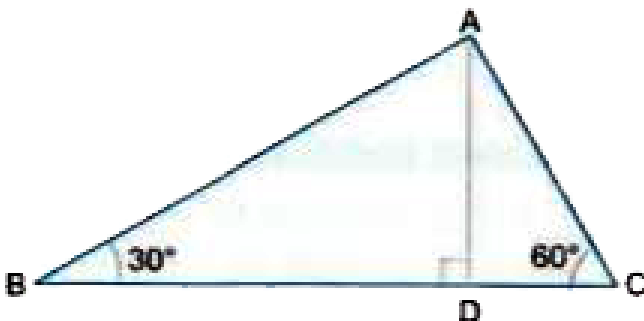
Proficiency Exercise Very Short Answer Questions I

1. What is 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 a tower of height $10\sqrt{3}$m?

2. In fig if $AD = 7\sqrt{3}$m, then BC.

3. A bridge in the shape of straight path across a river, makes an angle of 60° with the width of the river. If the length of the bridge is 100m, then find the width of the river.

4. A pole which is 6 m high cast a shadow $2\sqrt{3}$ on the ground. What is the sun's angle of elevation.

5. The ratio of height and shadow of a tower is $1 : \dfrac{1}{\sqrt{3}}$. What is the angle of elevation of the sun?

6. If two towers of height h_1 and h_2 subted angle of $60°$ and $30°$ respectively at the mid

point of the line joining their feet, then find

$h_1 : h_2$.

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7. The height of a tower is 100 m. When the angle of elevation of sun is $30°$, then what is the shadow of tower?

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8. The tops of two poles of height 16 m and 10 m are connected by a wire of length l metres. If the wire makes an angle of $30o$ with the horizontal, then $l =$ (a) 26 (b) 16 (c) 12 (d) 10

9. An observer, 1.5m tall, is 28.5 m away from a tower 30m high. Determine the angle of elevation of the top of the tower from his eye.

10. The angle of elevation of the top of a tower from a point P on the ground is α. After walking a distance d meter towards the foot of the tower, angle of elevation is found to be β. Which angle of elevation is greater?

11. What is the angle of elevation of Sun if the ratio of the length of a rod and its shadow is 1:1?

12. A ladder leaning against a wall makes an angle of 60º with the horizontal. If the foot of the ladder is 2.5 m away from the wall, find the length of the ladder.

Proficiency Exercise Short Answer Questions I

1. The angle of elevation of the sun when the length of the shadow of a vertical pole is equal to its height is 45°.

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2. If the length of the shadow of a tower is increasing, then the angle of elevation of the Sun is also increasing. Is it true?Justify your answer.

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3. The angle of elevation of the top of a pole is $60°$. If the height of the pole increases, the angle of elevation will also increase.

4. The height of a tower is 15 m. The length of its shadow is $5\sqrt{3}$ m when Sun's altitude is $30°$.

Is it $True$ or $False$

5. An electrician has to repair an electric fault on a pole of height 4m. He needs to reach a point 1.3m below the top of the pole to undertake the repair work. What should be the length of the ladder that he should use which when inclined at an angle of $60o$ to the horizontal would enable him to reach the required position?
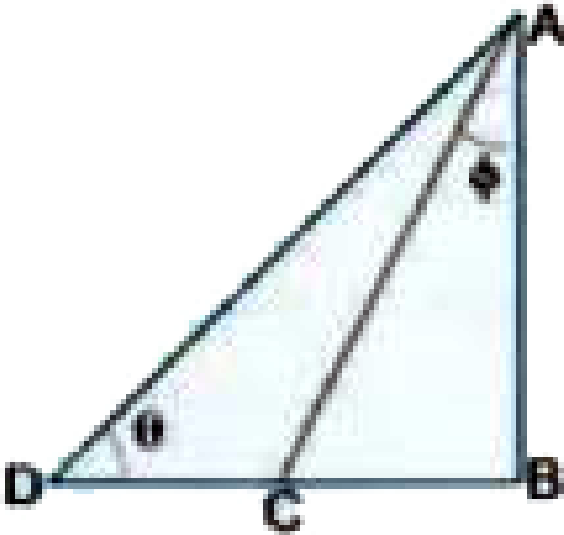
6. From a point on the ground, 20m away from the foot of a vertical tower, the angle of elevation of the top of the tower is $60o$, what is the length of the tower?

7. In fig what is the angle of elevation of point A from C and angle of depression of point D

from A?

8. A ladder makes an angle of $30°$ with a wall. If the foot of the ladder is 5 m away from the wall, find the length of the ladder.

9. When the ratio of the height of a telephone pole and the length of its shadow is $\sqrt{3}:1$, find the angle of the elevation of sun

10. In fig height of a building is $h+2$ and point C is h m from the foot of the building.

Find the angle of elevation of the top of the building from a point 2 m from point C.

Proficiency Exercise Short Answer Questions Ii

1. A tree is broken by the wind. The top of that tree struck the ground at an angle of $30°$ and at a distance of 30 m from the root. Find the height of the whole tree. ($\sqrt{3}$ = 1.73)

2. The shadow of a tower standing on a level plane is found to be 50 m longer when when sun's elevation is $30°$ than when it is $60°$. Find the height of the tower.

3. The angle of elevation of a ladder leaning against a wall is $60o$ and the foot of the ladder is 9.5m away from the wall. Find the length of the ladder.

4. An observer, $1.5m$ tall, is $20.5m$ away from a tower $22m$ high. Determine the angle of elevation of the top of the tower from the eye of the observer.

5. The angle of elevation of the top of a tower from two points distant s and t from its foot

are complementary. Prove that the height of the tower is $\sqrt{st}$.

6. From a window 15 metres high above the ground in a street, the angles of elevation and depression of the top and the foot of another house on the opposite side of the street are $30^0 and 45^0$ respectively show that the height of the opposite house is 23.66 metres $\left(take\sqrt{3} = 1.732\right)$

7. The angle of elevation of the top of a tower from a certain point is $30o$. If the observer moves 20 m towards the tower, the angle of elevation of the top of the tower increases by $15o$. The height of the tower is (a) 17.3 m (b) 21.9 m (c) 27.3 m (d) 30 m

8. An electric pole is 10m high. A steel wire tied to top of the pole is affixed at a point on the ground to keep the pole up right. If the wire makes an angle of $45o$ with the horizontal through the foot of the pole, find the length of the wire.

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9. A pole 5 m high is fixed on the top of a tower. The angle of elevation of the top of the

pole as observed from a point A on the ground is $60°$ and the angle of depression of the point A from the top of the tower is $45°$. Find the height of the tower.

10. A kite is flying at a height of 75 metres from the ground level, attached to a string inclined at $60o$ to the horizontal. Find the length of the string to the nearest metre.

11. The length of a string between a kite and a point on the ground is 90 metres. If the string makes an angle θ with the ground level such that $\tan \theta = \dfrac{15}{8}$, how high is the kite? Assume that there is no slack in the string.

12. The angle of elevation of the top of a vertical tower a point on the ground is $60°$ From another point 10 m vertical above the

first, its angle of elevation is $45°$. Find the height of the tower.

13. A man standing on the deck of a ship, which is 10 m above water level, observes the angle of elevation of the top of a hill as $60°$ and the angle of depression the base of hill as $30°$. Find the distance of the hill from the ship and the height of the hill.

14. The angles of depression of the and bottom of a 50 m high building from the top of a tower are $45°$ and $60°$ respectively. Find the height of the tower and the horixontal distance between the tower and the building. (Use $\sqrt{3} = 1.73$).

15. The angles of depression of the top and bottom of a building 50 metres high as

observedfrom the top of a tower are $30°$ and $60°$, respectively. Find the height of the tower and also the horizontal distance between the building and the tower.

16. 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 $\dfrac{h \tan \alpha}{\tan \beta - \tan \alpha}$

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17. The angle of elevation of the top of a tower 30 m high from the foot of another tower in the same plane is $60°$ and the angle of elevation of the top of the second tower from the foot of the first tower is $30°$. Find the distance between the two towers and also the height of the other tower.

18. A man on the top of a vertical tower observes a car moving at a uniform speed coming directly towards it. If it takes 12 minutes for the angle of depression to change from $30^0 \rightarrow 45^0$, how soon after this will the car reach the tower? Give your answer to the nearest second.

19. From the top of a tower h m high, angles of depression of two objects, which are in line with the foot of the tower are α and $\beta(\beta > \alpha)$. Find the distance between the two objects.

20. A ladder rests against a vertical wall at inclination α to the horizontal. Its foot is pulled away from the wall through a distance

p so that it's upper end slides q down the wall and then ladder make an angle β to the horizontal show that $\dfrac{p}{q} = \dfrac{\cos\beta - \cos\alpha}{\sin\alpha - \sin\beta}$.

21. The lower window of a house is at a height of 2m above the ground and its upper window is 4m vertically above the tower window. At certain instant the angles of elevation of a balloon from these windows are observed to balloon from these windows are observed to

be $60°$ and $30°$, respectively. Find the height of the balloon above the ground.

22. A window of a house is h metres above the ground. From the window, the angles of elevation and depression of the top and bottom of another house situated on the opposite side of the lane are found to be α and β respectively. Prove that the height of the house is $h(1 + \tan \alpha \cdot \tan \beta)$ metres.

23. 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.

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24. The angle of elevation of a jet plane from a point A on the grund is 60^0 . After and flight of 30 seconds, the angle of elevation changes to 30^0. If the jet plane is flying at a constant height of $3600\sqrt{3}m,$ find the speed of the jet plane.

25. An aeroplane when flying at a height of 4000m from the ground passes vertically

above another aeroplane at an instant when the angles of the elevation of the two planes from the same point on the ground are $60^0 \& 45^0$ respectively. Find the vertical distance between the aeroplanes at that instant.

26. On a horizontal plane there is a vertical tower with a flag pole on the top of the tower. At a point 9 metres away from the foot of the

tower the angle of elevation of the top and bottom of the flag pole are $60^0 and 30^0$ respectively. Find the height of the tower and the flag pole mounted on it.

27. The angle of elevation of the top of a tower as observed from a point in a horizontal plane through the foot of the tower is 32^0. When the observer moves towards the tower a distance of 100m, he finds the angle of elevation of the

top to be 63^0. Find the height of the tower and the distance of the first position from the tower. [Take

$\tan 32^0 = 06248 and tan 63^0 = 1.9626]$

28. The angle of elevation of a tower from a point on the same level as the foot of the tower is 30^0. On advancing 150 metres towards the foot of the tower, the angle of elevation of the tower becomes 60^0. Show that the height

of the tower is 129.9 metres (Use $\sqrt{3} = 1.732$).

29. The angle of elevation of the top of a tower from a point A on the ground is 30^0. On moving a distance of 20 metres towards the foot of the tower to a point B the angle of elevation increases to 60^0. Find the height of the ttower and the distance of the tower from the point A.

30. From the top of a building 15m high the angle of elevation of the top of tower is found to be $30°$. From the bottom of same building ; the angle of elevation of the top of the tower is found to be $60°$. Find the height of the tower and the distance between tower and building .

31. A statue, 1.6 m tall, stands on the top of a pedestal. From a point on the ground, the angle of elevation of the top of the statue is 60° and from the same point the angle of elevation of the top of the pedestal is 45°. Find the height of

32. The angles of depression of the top and bottom of 12,m tall building from the top of a

multistoried building are $30°$ and $45°$ respectively. Find the height of the multi storeyed building and the distance between the two buildings.

Proficiency Exercise Long Answer Questions Ii

1. From a balloon vertically above a straight road, the angle of depression of two cars at an instant are found to be $45°$ and $60°$. If the

cars are 100 m apart, find the height of the balloon.

2. If the angle of elevation of a cloud from a point h metres above lake is α and the angle of depression of its reflection in the lake be β, prove that the distance of the cloud from the point of observation is $\dfrac{2h \sec \alpha}{\tan \beta - \tan \alpha}$

3. A man on the deck of a ship 12 m above water level, observes that the angle of elevation of the top of a cliff is $60°$ and the angle of depression of the base of the is $30°$. Find the distance of the cliff from the ship and the height of the cliff. [use $\sqrt{3} = 1.732$)

4. The angle of elevation of the top of a hill from the foot of a 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, then what is the height of the hill?

5. The angle of elevation of cloud from a point 60 m 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 .

6. From the top of a 7 m high building, the angle of elevation of the top of a tower is 60º and the angle of depression of the foot of the tower is 30º. Find the height of the tower.

7. From the top of a tower, the angles of depression of two objects on the same side of the tower are found to be α and $\beta(\alpha > \beta)$. If the distance between the objects is p metres,

show that the height h of the tower is given

by $h = \dfrac{p \tan \alpha \tan \beta}{\tan \alpha - \tan \beta}$ metres.

8. A bird is sitting on the top of a 80 m high

tree. From a point on the ground, the angle of

elevation of the bird is $45°$. The bird flies away

horizontally in such a way that it remained at

a constant height from the ground. After 2

secounds, the angle of elevation of the bird

from the same point is $30°$. Find the speed of flying of the bird. (Take $\sqrt{3} = 1.732$).

9. Two poles of equal heights are standing opposite to each other on either side of the road which is 80 m wide. From a point P between them on the road, the angle of elevation of the top of one pole is $60°$ and the angle of depression from the top of another

pole is 30 and distances of the point P from the poles.

10. The angle of elevation of the top Q of a vertical tower PQ from a point X on the ground is $60°$. From a point Y, 40 m vertically above X, the angle of elevation of the top Q of tower is $45°$. Find the height of the tower PQ and the distance PX. (Use $\sqrt{3} = 1.73$).

11. From a point on the ground, the angle of elevation of the top of the tower is observed to be $60°$. Form a point 40 m vertically above the first point of observation, the angle of elevation of the top of the tower is $30°$. Find the height of the tower and its horizontal distance from the point of observation

1. Name the angle formed by the line of sight with the horizontal when the object viewed is below the horizontal level.

2. If the angle of elevation of top of a tower from a point on the ground which is $20\sqrt{3}$ m away from the foot of the tower is $30°$, then find the height of the tower.

3. A 1.6 m tall girl stands at distance of 3.2 m from a lamp post and casts shadow of 4.8 m on the ground, then what is the height of the lamp post?

4. If the ratio of the length of a pole and its shadow is 1:1 then find the angle of elevation of sun.

5. The angle of elevation of the top of a tower is $30°$. If the height of the tower is doubled, then the angle of elevation of its top will also be doubled.

6. The string of a kite is 250 m long and it makes an angle of $60°$ with the horizontal.

Find the height of the kite is assuming that there is no slackness in the string.

7. The angles of depression of two ships from the top of a light house are $45°$ and $30°$ towards east. If the ships are 200 m apart, find the height of light house.

8. At a point, the angle of elevation of a tower is such that its tangent is $\dfrac{5}{12}$. On walking 240 m nearer to the tower, the tangent of the angle of elevation becomes $\dfrac{3}{4}$. Find the height of the tower.

▶ **Watch Video Solution**

9. A tree breaks due to storm and the broken part bends so that the top of the tree touches the ground making an angle of $30o$ with the

ground. The distance between the foot of the tree to the point where the top touches the ground is 8m. Find the height of the tree.

10. A boy is standing on the ground and flying a kite with 150 m of string at an elevation of $30°$. Anotheer boy is tanding on the root of a 25 m high buildig and flying a kite at an elevation of $45°$. Find the length of string required by the second boy so that the two

kites just meet if both the boys are on opposite sides of the kites.

11. A fire at the building B is reported by a telephone to two fire stations F_1 and F_2, 10 km apart from each other on a straight road. F_1 and F_2 observe that the fire is at an angle of $60°$ and $45°$ respectively to the road, which station should send its team and how much will it have to travel?