

Q1. At a point on a horizontal line 6. through the base of a monument the angle of elevation of the top of the monument is found to be such that its tangent is $\frac{1}{5}$. On walking 138 metres towards the monument the secant of the angle of elevation is found to be $\frac{\sqrt{193}}{2}$. The height of the monument (in metre) is

- (a) 42 (b) 49
(c) 35 (d) 56

Q2. The angle of elevation of the top of a building from the top and bottom of a tree are x and y respectively. If the height of the tree is h metre, then (in metre) the height of the building is

- (a) $\frac{h \cot x}{\cot x + \cot y}$ (b) $\frac{h \cot y}{\cot x + \cot y}$
(c) $\frac{h \cot x}{\cot x - \cot y}$ (d) $\frac{h \cot y}{\cot x - \cot y}$

Q3. The angle of elevation of the top of a tower from a point A on the ground is 30° . On moving a distance of 20 metres towards the foot of the tower to a point B, the angle of elevation increases to 60° . The height of the tower is

- (a) $\sqrt{3}$ m (b) $5\sqrt{3}$ m
(c) $10\sqrt{3}$ m (d) $20\sqrt{3}$ m

Q4. Two poles of equal height are standing opposite to each other on either side of a road which is 100m wide. From a point between them on road, angle of elevation of their tops are 30° and 60° . The height of each pole (in meter) is

- (a) $25\sqrt{3}$ (b) $20\sqrt{3}$
(c) $28\sqrt{3}$ (d) $30\sqrt{3}$

Q5. The angle of elevation of the top of a chimney and roof of the building from a point on the ground are 45° and x° respectively. The height of building is h metre. Then the height of the chimney, (in metre) is

- (a) $h \cot x + h$ (b) $h \cot x - h$
(c) $h \tan x - h$ (d) $h \tan x + h$

Q6. There are two vertical posts, one on each side of a road, just opposite to each other. One post is 108 metre high. From the top of this post the angle of depression of the top and foot of the other post are 30° and 60° respectively. The height of the other post (in metre) is

- (a) 36 (b) 72
(c) 108 (d) 110



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Q7. Two posts are x metres apart and the height of one is double that of the other. If from the mid-point of the line joining their feet an observer finds the angular elevations of their tops to be complementary, then the height (in metres) of the shorter post is

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

Q8. An aeroplane when flying at a height of 5000m from the ground passes vertically above another aeroplane at an instant, when the angles of elevation of the two aeroplanes from the same point on the ground are 60° and 45° respectively. The vertical distance between the aeroplanes at that instant is

- (a) $5000(\sqrt{3} - 1)$ m (b) $5000(3 - \sqrt{3})$ m
(c) $5000\left(1 - \frac{1}{\sqrt{3}}\right)$ m (d) 4500 m

Q9. A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30° . The man walks some distance towards the tower and then his angle of elevation of the top of the tower is 60° . If the height of tower is 30m, then the distance he moves is

- (a) 22 m (b) $22\sqrt{3}$ m
(c) 20 m (d) $20\sqrt{3}$ m

Q10. An aeroplane when flying at a height of 3125m from the ground passes vertically below another plane at an instant when the angle of elevation of the two planes from the same point on the ground are 30° and 60° respectively. The distance between the two planes at that instant is

- (a) 6520 m (b) 6000 m
(c) 5000 m (d) 6250 m

Q11. The shadow of the tower becomes 60 meters longer when the altitude of the sun changes from 45° to 30° . Then the height of the tower is

- (a) $20(\sqrt{3} + 1)$ m (b) $24(\sqrt{3} + 1)$ m
(c) $30(\sqrt{3} + 1)$ m (d) $30(\sqrt{3} - 1)$ m

Q12. A vertical post 15 ft. high is broken at a certain height and its upper part, not completely separated meets the ground at an angle of 30° . Find the height at which the post is broken

- (a) 10 ft (b) 5 ft
(c) $15\sqrt{3}(2 - \sqrt{3})$ ft (d) $5\sqrt{3}$ ft

Q13. The shadow of a tower is $\sqrt{3}$ times its height. Then the angle of elevation of the top of the tower is

- (a) 45° (b) 30°
(c) 60° (d) 90°

Q14. A man 6ft tall casts a shadow 4ft long. At the same time when a flag pole casts a shadow 50 ft long. The height of the flag pole is

- (a) 80 ft (b) 75 ft
(c) 60 ft (d) 70 ft

Q15. The angle of elevation of an aeroplane from a point on the ground is 60° . After 15 seconds flight, the elevation changes to 30° . If the aeroplane is flying at a height of $1500\sqrt{3}$ m, find the speed of the plane.

- (a) 300 m/sec (b) 200 m/sec
(c) 100 m/sec (d) 150 m/sec

Q16. There are two temples, one on each bank of a river just opposite to each other. One temple is 54m high. From the top of this temple, the angles of depression of the top and the foot of the other temple are 30° and 60° respectively. The length of the temple is;

- (a) 18 m (b) 36 m
(c) $36\sqrt{3}$ m (d) $18\sqrt{3}$ m

Q17. The angle of elevation of the top of a tower from the point P and Q at distance of 'a' and 'b' respectively from the base of the tower and in the same straight line with it are complementary. The height of the tower is

- (a) \sqrt{ab} (b) $\frac{a}{b}$
(c) ab (d) a^2b^2

Q18. The angle of elevation of a tower from a distance 100 m from its foot is 30° . Height of the tower is

- (a) $\frac{100}{\sqrt{3}}$ m (b) $50\sqrt{3}$ m
(c) $\frac{200}{\sqrt{3}}$ m (d) $100\sqrt{3}$ m

Q19. A pole stands vertically inside a scalene triangular park ABC. If the angle of elevation of the top of the pole from each corner of the park is same, then in ΔABC , the foot of the pole is at the

- (a) centroid (b) circumcentre
(c) incentre (d) orthocentre

Q20. If the angle of elevation of a balloon from two consecutive kilometre-stones along a road are 30° and 60° respectively, then the height of the balloon above the ground will be

- (a) $\frac{\sqrt{3}}{2}$ km (b) $\frac{1}{2}$ km
(c) $\frac{2}{\sqrt{3}}$ km (d) $3\sqrt{3}$ km

Q21. A tower standing on a horizontal plane subtends a certain angle at a point 160 m apart from the foot of the tower. On advancing 100 m towards it, the tower is found to subtend an angle twice as before. The height of the tower is

- (a) 80 m (b) 100 m
(c) 160 m (d) 200 m





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Q22. The angle of elevation of a tower from a distance 50 m from its foot is 30° . The height of the tower is

- (a) $50\sqrt{3}$ m (b) $\frac{50}{\sqrt{3}}$ m
(c) $75\sqrt{3}$ m (d) $\frac{75}{\sqrt{3}}$ m

Q23. From two points on the ground lying on a straight line through the foot of a pillar, the two angles of elevation of the top of the pillar are complementary to each other. If the distance of the two points from the foot of the pillar are 9 metres and 16 metres and the two points lie on the same side of the pillar. Then the height of the pillar is

- (a) 5 m (b) 10 m
(c) 9 m (d) 12 m

Q24. The top of two poles of height 24m and 36 m are connected by a wire. If the wire makes an angle of 60° with the horizontal, then the length of the wire is

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

Q25. From the top of a hill 200 m high the angle of depression of the top and the bottom of a tower are observed to be 30° and 60° . The height of the tower is (in m);

- (a) $\frac{400\sqrt{3}}{3}$ m (b) $166\frac{2}{3}$ m
(c) $133\frac{1}{3}$ m (d) $200\sqrt{3}$ m

Q26. From a tower 125 metres high the angle of depression of two objects, which are in horizontal line through the base of the tower are 45° and 30° and they are on the same side of the tower. The distance (in metres) between the objects is

- (a) $125\sqrt{3}$ m (b) $125(\sqrt{3} - 1)$ m
(c) $125/(\sqrt{3} - 1)$ m (d) $125(\sqrt{3} + 1)$ m

Q27. From a point P on the ground the angle of elevation of the top of a 10m tall building is 30° . A flag is hoisted at the top of the building and the angle of elevation of the top of the flagstaff from P is 45° . Find the length of the flagstaff (Take $\sqrt{3} = 1.732$)

- (a) $10(\sqrt{30} + 2)$ m (b) $10(\sqrt{30} + 1)$ m
(c) $10\sqrt{3}$ m (d) 7.32 m

Q28. The angle of elevation of the top of a vertical tower situated perpendicularly on a plane is observed as 60° from a point P on the same plane. From another point Q, 10m vertically above the point P, the angle of depression of the foot of the tower is 30° . The height of the tower is

- (a) 15 m (b) 30 m
(c) 20 m (d) 25 m

Q29. From a point 20 m away from the foot of a tower, the angle of elevation of the top of the tower is 30° . The height of the tower is

(a) $10\sqrt{3}$ m

(b) $20\sqrt{3}$ m

(c) $\frac{10}{\sqrt{3}}$ m

(d) $\frac{20}{\sqrt{3}}$ m

Q30. The angle of elevation of ladder leaning against a house is 60° and the foot of the ladder is 6.5 metres from the house. The length of the ladder is

(a) $\frac{13}{\sqrt{3}}$ meters

(b) 13 meters

(c) 15 meters

(d) 3.25 meters

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