JAIPUR EDUCATION PLUS
Not Just Education but Education Plus....
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1. From a window 20m high above the ground in a street, the angle of elevation and depression of the top and the foot of another house opposite side of the street are 60° and 45° respectively. Find the height of opposite house.

2. An aeroplane flying at a height of 1800m observes angles of depressions of two points on the opposite bank of the river to be 60° and 45°, find the width of the river.

3. The angle of elevation of the top of the tower from two points *A* and *B* which are 15m apart, on the same side of the tower on the level ground are 30° and 60° respectively. Find the height of the tower and distance of point *B* from he base of the tower. $\left(\text{Take } \sqrt{3} = 1.732\right)$

4. The angle of elevation of the top of a 10m high building from a point *P* on the ground is 30°. A flag is hoisted at the top of the building and the angle of elevation of the top of the flag staff from *P* is 45°. Find the length of the flag staff and the distance of the building from point *P.*

5. The angle of elevation of a bird from a point 12 metres above a lake is 30° and the angle of depression of its reflection in the lake is 60°. Find the distance of the bird from the point of observation.

6. The shadow of a vertical tower on level ground increases by 10 mtrs. When sun's attitude changes from 45° to 30°. Find the height of the tower, upto one place of decimal $\left(\sqrt{3} = 1.73\right)$.

7. A man on a cliff observes a boat at an angle of depression of 30°, which is approaching the shore to point '*A*' immediately beneath the observer with a uniform speed, 12 minutes later, the angle of depression of the boat is found to be 60°. Find the time taken by the boat to reach the shore.

8. A man standing on the deck of a ship, 18m above the water level observes that the angle of elevation and depression of the top and the bottom of a cliff are 60° and 30° respectively. Find the distance of the cliff from the ship and height of the cliff.

9. 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°. When

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he moves 40m away from the bank he finds the angle of elevation to be 30°. Find the height of the tree and the width of the river.

10. An aeroplane, when 300 m high, passes vertically above another plane at an instant when the angle of elevation of two aeroplanes from the same point on the ground are 60° and 45° respectively. Find the vertical distance between the two planes.

11. The angle of depression of the top and bottom of a 10m tall building from the top of a tower are 30° and 45° respectively. Find the height of the tower and distance between building and tower.

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

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

14. The angle of elevation of a building from two points *P* and *Q* on the level ground on the same side of the building are 36° and 54° respectively. If the distance of the points *P* and *Q* from the base of the building are 10m and 20m respectively, find the height of the building. $\left(\text{Take } \sqrt{2} = 1.414\right)$

15. 6.83 m

16. $30\left(\sqrt{3}-1\right)$ m

17. $30\sqrt{3}$ m

19. 20 m/sec.

20. 2598 m

21. $20\left(\sqrt{3}+1\right)$ m

22. $600\left(3+\sqrt{3}\right)$ m

23. Height = 12.97 m, distance = 7.5 m

24. Length of flag staff = $10\left(\sqrt{2}-1\right)$ m, Distance of the building = $10\sqrt{3}$ m.

25. $24\sqrt{3}$ m

26. 13.6 mts.

27. 18 minutes

28. $18\sqrt{3}$ m, 72 m

29. Height = 34.64 m, Width of the river = 20 m.

30. $1000\left(3-\sqrt{3}\right)$ m

31. Height = $5\left(3+\sqrt{3}\right)$ m, distance = $5\left(3+\sqrt{3}\right)$ m

32. 30 m

33. Distance = $10\sqrt{3}m$, Height of the hill = 40 m

34. 14.14 m