D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS)
APTITUDE TEST

HEIGHT AND DISTANCE – TEST 47

1. From the top of a building 60m high, the angle of elevation and depression of the top and the foot of another building are α and β respectively. Find the height of the second building.

a) 60(1+ tan α tanβ) b) 60(1+ cot α tanβ)

c) 60(1+ tan α cotβ) d) 60(1- tan αcotβ)

2. .From the top of a tower 75m high, the angles of depression of the top and bottom of a pole standing on the same plane as the tower are observed to be 30^0 and 45^0 respectively. Find the height of the pole.

a) 30.4m b) 35.9m

c) 28.6m d) 31.7m

3. A 10 m long flagstaff is fixed on the top of a tower on the horizontal plane. From a point on the ground, the angles of elevation of the top and bottom of the flagstaff are 60^0 and 45^0 respectively. Find the height of the tower.

a) 5(√3 + 1)m b) 5(√3 + 3)m

c) 10(√3 - 1)m d) 10(√3 + 1)m

4. The angles of elevation of the top of a tower from two points on the same side of the tower are α and β (α >β). If the distance between the two points is 40m, find the height of the tower.

a) 40cotαcotβ/(tanα + tanβ) b) 40cotαtanβ/(tanα - tanβ)

c) 40tanαtanβ/(tanα - tanβ) d) 40tanαtanβ/(tanα + tanβ)

5. The angle of elevation of the top of a tower from point A on the ground is 30^0. On moving a distance of 40m towards the foot of the tower, the angle of elevation increases to 45^0. Find the height of the tower.

a) 48.6m b) 42.84m

c) 54.64m d) 58.76m

6. An aeroplane, when 4000m high from the ground, pass vertically above another aeroplane at an instance when the angles of elevation of the two aeroplanes from the same point on the ground are 60^0 and 30^0 respectively. Find the vertical distance between the two aero planes.

a) 8000/3m b) 8000/7m

c) 6000/7m d) 1200m

7. A car is moving at uniform speed towards a tower. It takes 15 minutes for the angle of depression from the top of tower to the car to change from 30^0 to 60^0. What time after this, the car will reach the base of the tower?

a) 6 min b) 6.5 min

c) 7 min d) 7.5 min

8. A man is watching from the top of a tower, a boat speeding away from the tower. The angle of depression from the top of the tower to the boat is 60^0 when the boat is 80m from the tower. After 10 seconds, the angle of depression becomes 30^0. What is the speed of the boat? (Assume that the boat is running in still water).

a) 20 m/sec b) 10 m/sec

c) 16 m/sec d) 18 m/sec

9. Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30° and 45° respectively. If the lighthouse is 100 m high, the distance between the two ships is:

a) 173 m b) 200 m

c) 273 m d) 300 m

10. A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30° with the man's eye. The man walks some distance towards the tower to watch its top and the angle of the elevation becomes 60°. What is the distance between the base of the tower and the point P?

a) 4 √3 units b) 8 units
c) 12 units d) Data inadequate

11. The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is:

a) 2.3 m b) 4.6 m
c) 7.8 m d) 9.2 m

12. An observer 1.6 m tall is 20 √3 away from a tower. The angle of elevation from his eye to the top of the tower is 30°. The height of the tower is:

a) 21.6 m b) 23.2 m
c) 24.72 m d) None of these

13. From a point P on a level ground, the angle of elevation of the top tower is 30°. If the tower is 100 m high, the distance of point P from the foot of the tower is:

a) 149 m b) 156 m
c) 173 m d) 200 m

14. The angle of elevation of the sun, when the length of the shadow of a tree√ 3 times the height of the tree, is:

a) 30° b) 45°
c) 60° d) 90°

15. A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30° with the man's eye. The man walks some distance towards the tower to watch its top and the angle of elevation becomes 60°. What is the distance between the base of the tower and the point P?

a) 4 √3 units b) 8 units
c) 12 units d) Data inadequate

16. A man on the top of a vertical observation tower observers 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° to 45°, how soon after this will the car reach the observation tower?

a) 14 min, 35 sec. b) 15 min 49 sec.
c) 16 min. 23 s. d) 18 min. 5 sec.

17. The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is:

a) 2.3 m b) 4.6 m
c) 7.8 m d) 9.2 m

18. A man is watching from the top of a tower a boat speeding away from the tower. The boat makes an angle of depression of 45° with the man′s eye when at a distance of 60 metres from the tower. After 5 seconds, the angle of depression becomes 30°. What is the approximate speed of the boat, assuming that it is running in still water?

a) 32 kmph b) 36 kmph
c) 38 kmph d) 35 kmph

19. From a point P on a level ground, the angle of elevation of the top of a tower is 30°. If the tower is 100 m hight, the distance of point P from the foot of the tower is:

a) 149 m b) 156 m
c) 173 m d) 200 m

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20. Two ships are sailing in the sea on the two sides of a lighthouse. The angles of elevation of the top of the lighthouse as observed from the two ships are 30° and 45° respectively. If the lighthouse is 100 m hight, the distance between the two ships is:

a) 173 m b) 200 m
c) 273 m d) 300 m

21. The top of a 15 metre high tower makes an angle of elevation of 60° with the bottom of an electronic pole and angle of elevation of 30° with the top of the pole. What is the height of the electric pole?

a) 5 metres b) 8 metres
c) 10 metres d) 12 metres

22. Shadow of a man is 1/3 times the height of the man. What will be the sun's angle of elevation?

a) 135° b) 45°
c) 30° d) 60°

23. The angle of elevation of the top of a tower from a certain point is 30°. If the observer moves 20 m towards the tower, the angle of elevation of the top of the tower increases by 15°. The height of the tower is:

a) 17.3 m b) 21.9 m
c) 27.3 m d) 30 m

24. On the same side of a tower, two objects are located. Observed from the top of the tower, their angles of depression are 45° and 60°. If the height of the tower is 150 m, the distance between the objects is:

a) 63.5 m b) 76.9 m
c) 86.7 m d) 90 m

25. Raj stands in a corner of his square farm. Angle of elevation of a scarecrow placed in diagonally opposite corner is 60°. He starts walking backwards in a straight line and after 80ft he realizes that angle of elevation of the scarecrow now is 30°. What is area of the field?

a) 1600 sq.ft. b) 40 sq.ft.
c) 40/2 sq.ft. d) 800 sq.ft.