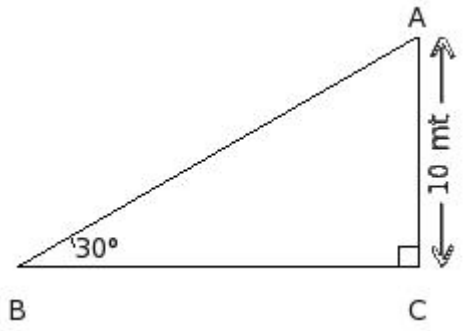
EduSahara™ Learning Center Assignment

Grade : Class X, ICSE
Chapter : Heights and Distances
Name : Heights and Distances

---

1. A radio tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the radio tower is found to be 30°. If the height of the radio tower is 10 mt, find the distance between the observation point and the top of the radio tower

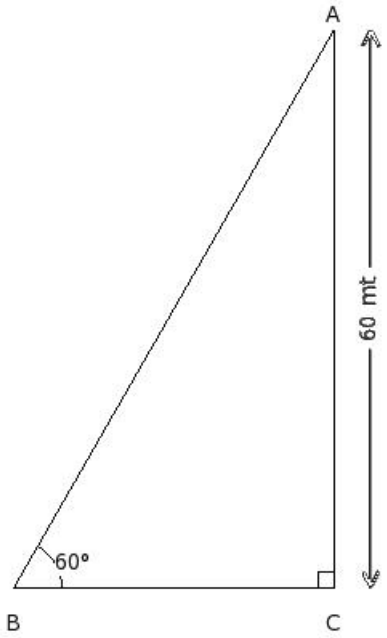


(i) 21 mt (ii) 20 mt (iii) 19 mt

(iv) 18 mt (v) 23 mt

---

2. A chimney stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the chimney is found to be 60°. If the height of the chimney is 60 mt, find the distance between the observation point and the foot of the chimney

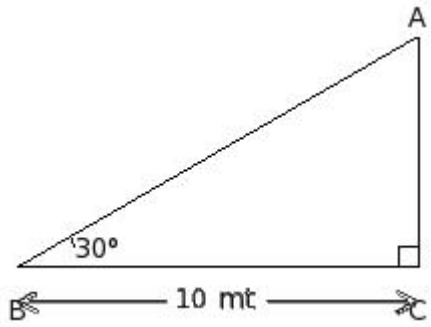


(i) 20 mt (ii) 60 mt (iii) $30\sqrt{2}$ mt

(iv) $20\sqrt{18}$ mt (v) $20\sqrt{3}$ mt

---

3. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be 30°. If the distance between the point and the foot of the tower is 10 mt, find the distance between the observation point and the top of the tower

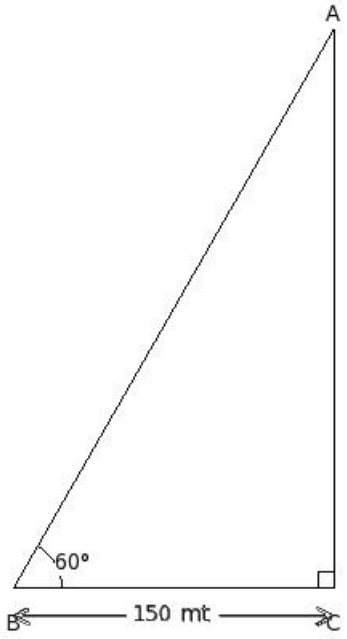


(i) $\frac{20}{3}\sqrt{3}$ mt (ii) $10\sqrt{2}$ mt (iii) $\frac{20}{3}\sqrt{18}$ mt

(iv) 20 mt (v) $\frac{20}{3}$ mt

---

4. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be 60°. If the distance between the point and the foot of the tower is 150 mt, find the height of the tower

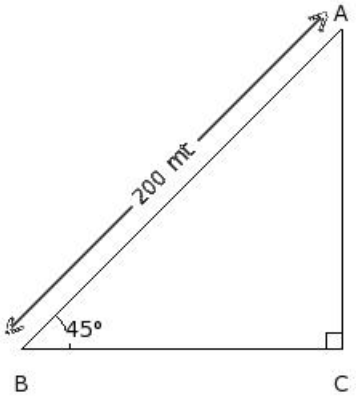


(i) 150 mt (ii) $150\sqrt{3}$ mt (iii) 450 mt

(iv) $225\sqrt{2}$ mt (v) $150\sqrt{18}$ mt

---

5. A building stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the building is found to be 45°. If the distance between the point and the top of the building is 200 mt, find the height of the building

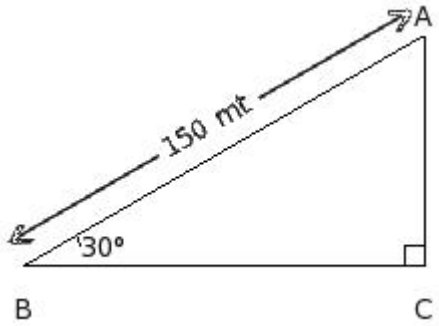


(i) 100 mt (ii) $50\sqrt{12}$ mt (iii) $200\sqrt{3}$ mt

(iv) $100\sqrt{2}$ mt (v) 200 mt

---

6. A building stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the building is found to be 30°. If the distance between the point and the top of the building is 150 mt, find the distance between the observation point and the foot of the building

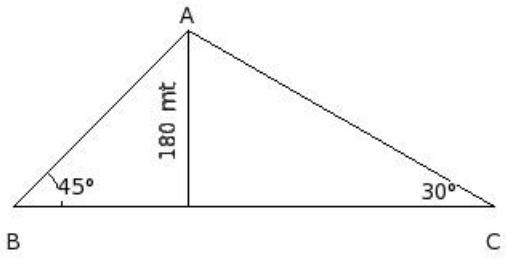


(i) $75\sqrt{18}$ mt (ii) $75\sqrt{3}$ mt (iii) $\frac{225}{2}\sqrt{2}$ mt

(iv) 225 mt (v) 75 mt

---

7. Two boys are on opposite sides of a tower of 180 mt height. They measure the angle of elevation of the top of the tower as 45° and 30° respectively. Find the distance between the two boys



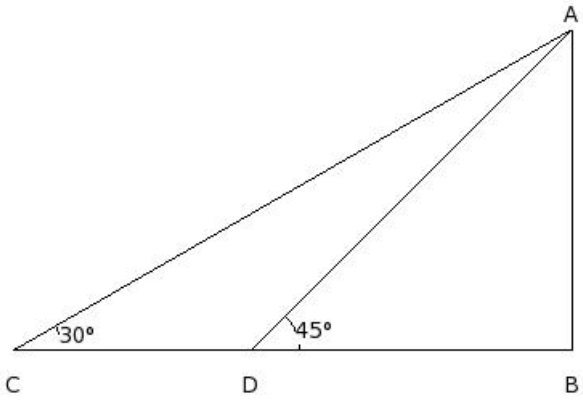
(i) $(180 + 180\sqrt{3})$ mt (ii) $(180\sqrt{6} + 180\sqrt{18})$ mt (iii) $(-2 - \sqrt{3})$ mt

(iv) $(90\sqrt{6} + 270\sqrt{2})$ mt (v) (-64800) mt

---

8. A person, walking 15 mt from a point toward a flagpost , observes that its angle of elevation changes from 30° to

45°. Find the height of the flagpost

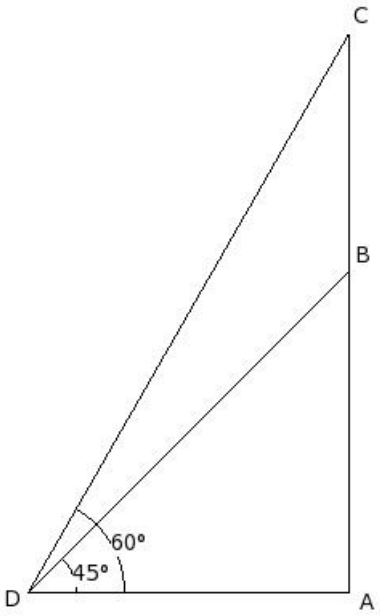


(i) $\left(\frac{15}{2}\sqrt{18}+\frac{15}{2}\sqrt{6}\right)$ mt (ii) $\frac{225}{2}$ mt (iii) $\left(\frac{15}{2}\sqrt{3}+\frac{15}{2}\right)$ mt

(iv) $\left(\frac{45}{4}\sqrt{2}+\frac{15}{4}\sqrt{6}\right)$ mt (v) $\left(2+\sqrt{3}\right)$ mt

---

9. A flagstaff stands on the top of a building at a distance of 35 mt away from the foot of building . The angle of elevation of the top of the flagstaff is 60° and the angle of elevation of the top of the building is 45°. Find the height of the flagstaff



(i) $\left(\frac{105}{2}\sqrt{2}-\frac{35}{2}\sqrt{6}\right)$ mt (ii) $\left(2-\sqrt{3}\right)$ mt (iii) 2450 mt

(iv) $\left(35\sqrt{18}-35\sqrt{6}\right)$ mt (v) $\left(35\sqrt{3}-35\right)$ mt

---

10. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be $\sin^{(-1)}\left(\frac{2}{3}\right)$. If the distance between the point and the top of the tower is 40 mt , find the height of the tower

(i) 23.67 mt (ii) 26.67 mt (iii) 29.67 mt

(iv) 21.67 mt (v) 31.67 mt

---

11. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be $\cos^{(-1)}(\frac{1}{2})$. If the distance between the point and the foot of the tower is 60 mt , find the distance between the observation point and the top of the tower

(i) 103.00 mt (ii) 120.00 mt (iii) 105.00 mt

(iv) 142.00 mt (v) 122.00 mt

---

12. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be $\tan^{(-1)}(\frac{5}{7})$. If the height of the tower is 50 mt , find the distance between the observation point and the foot of the tower

(i) 70.00 mt (ii) 67.00 mt (iii) 73.00 mt

(iv) 75.00 mt (v) 65.00 mt

---

13. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be $\text{cosec}^{(-1)}(\frac{8}{5})$. If the height of the tower is 200 mt , find the distance between the observation point and the top of the tower

(i) 322.00 mt (ii) 345.00 mt (iii) 320.00 mt

(iv) 302.00 mt (v) 307.00 mt

---

14. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be $\sec^{(-1)}(\frac{3}{2})$. If the distance between the point and the top of the tower is 90 mt , find the distance between the observation point and the foot of the tower

(i) 63.00 mt (ii) 55.00 mt (iii) 60.00 mt

(iv) 65.00 mt (v) 57.00 mt

---

15. A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be $\cot^{(-1)}(\frac{1}{8})$. If the distance between the point and the foot of the tower is 180 mt , find the height of the tower

(i) 1270.00 mt (ii) 1700.00 mt (iii) 1320.00 mt

(iv) 1470.00 mt (v) 1440.00 mt

---

16. A tower stands vertically on the ground.
The height of the tower is .

130 mt

The distance between the observation point and its foot is 130 mt .

Find the angle of elevation

(i) 30° (ii) 75° (iii) 60°

(iv) 45° (v) 105°

---

17. The upper part of a tree is broken into two parts without being detatched. It makes an angle of 60° with the ground. The top of the tree touches the ground at a distance of 90 mt from the foot of the tree . Find the height of the tree before it was broken

(i) 360.89 mt (ii) 335.89 mt (iii) 319.89 mt

(iv) 343.89 mt

---

18. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 180 mt high. As observed from the top of this temple, the angles of depression of the top and foot of the other temple are 30° and 45° respectively. Find the width of the river

(i) 196.00 mt (ii) 180.00 mt (iii) 163.00 mt

(iv) 192.00 mt (v) 157.00 mt

---

19. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 140 mt high. As observed from the top of this temple, the angles of depression of the top and foot of the other temple are 30° and 45° respectively. Find the height of the other temple

(i) 62.16 mt (ii) 56.16 mt (iii) 64.16 mt

(iv) 54.16 mt (v) 59.16 mt

---

20. An observer 1.9 mt tall, is 110 mt away from a tower . The angle of elevation of the top of the tower from her eyes is 45°. Find the height of the tower

(i) 96.90 mt (ii) 111.90 mt (iii) 124.90 mt

(iv) 89.90 mt (v) 139.90 mt

---

21. Two poles of equal height are standing opposite to each other on either side of a road which is 35 mt wide. From a point between them on the road, the angles of elevation of the top of the poles are 45° and 30° respectively. Find the height of each pole and the distances of the point from the two poles

(i) height = 14.81 mt , distances away = 24.19 mt , 14.81 mt

(ii) height = 12.81 mt , distances away = 22.19 mt , 12.81 mt

(iii) height = 11.81 mt , distances away = 21.19 mt , 11.81 mt

(iv) height = 13.81 mt , distances away = 23.19 mt , 13.81 mt

(v) height = 10.81 mt , distances away = 20.19 mt , 10.81 mt

---

22. From the top of a light house which is 80 mt high from the sea level, the angles of depression of two ships are 45° and 30°. If one ship is exactly behind the other on the same side of the light house , find the distance between the two ships

(i) 63.55 mt

(ii) 55.55 mt

(iii) 61.55 mt

(iv) 53.55 mt

(v) 58.55 mt

---

23. From the top of a 14 mt high building , the angle of elevation of the top of a cable tower is 45° and the angle of depression of its foot is 30°. Find the height of the cable tower

(i) 38.25 mt

(ii) 33.25 mt

(iii) 35.25 mt

(iv) 41.25 mt

(v) 43.25 mt

---

24. The angle of elevation of the top of a building from the foot of a tower is 45°. The angle of elevation of the top of the tower from the foot of the building is 60°. If the height of the tower is 55 mt, find the height of the building

(i) 31.75 mt

(ii) 36.75 mt

(iii) 28.75 mt

(iv) 34.75 mt

(v) 26.75 mt

---

25. A flag is hoisted at the top of a building . From a point on the ground, the angle of elevation of the top of the flag staff is 45° and the angle of elevation of the top of the building is 30°. If the height of the building is 6 mt, find the height of the flag staff

(i) 3.39 mt

(ii) 6.39 mt

(iii) 4.39 mt

(iv) 2.39 mt

(v) 5.39 mt

---

26. A flag is hoisted at the top of a building . From a point on the ground, the angle of elevation of the top of the flag staff is 45° and the angle of elevation of the top of the building is 30°. If the height of the flag staff is 7 mt, find the height of the building

(i) 8.56 mt

(ii) 10.56 mt

(iii) 7.56 mt

(iv) 11.56 mt

(v) 9.56 mt

Assignment Key

1) (ii)
2) (v)
3) (i)
4) (ii)
5) (iv)
6) (ii)
7) (i)
8) (iii)
9) (v)
10) (ii)
11) (ii)
12) (i)
13) (iii)
14) (iii)
15) (v)
16) (iv)
17) (ii)
18) (ii)
19) (v)
20) (ii)
21) (ii)
22) (v)
23) (i)
24) (i)
25) (iii)
26) (v)