EduSahara™ Learning Center Assignment
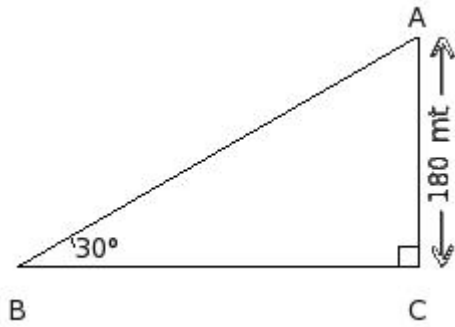
Grade : Class X, CBSE
Chapter : Some Applications of Trigonometry
Name : Heights and Distances

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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 180 mt, find the distance between the observation point and the top of the radio tower

(i)   362 mt (ii)   357 mt (iii)   361 mt

(iv)   360 mt (v)   359 mt

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2. 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 60°. If the height of the radio tower is 170 mt, find the distance between the observation point and the foot of the radio tower
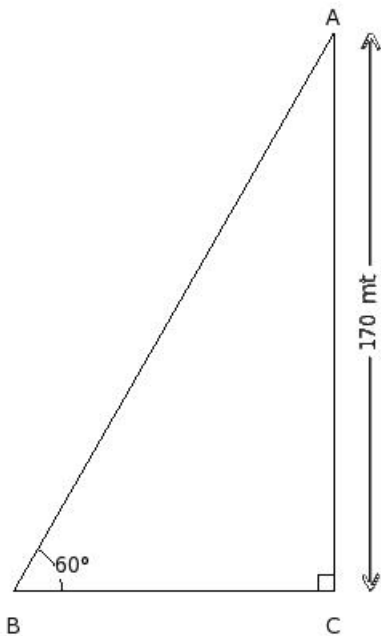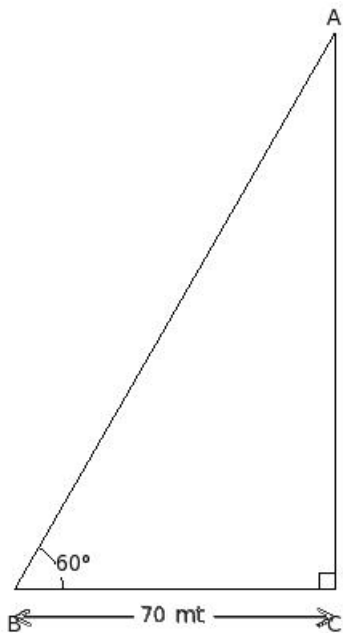

(i) $85 \sqrt{2}$ mt   (ii)   170 mt (iii) $\frac{170}{3} \sqrt{3}$ mt

(iv) $\frac{170}{3} \sqrt{18}$ mt (v) $\frac{170}{3}$ mt

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3. 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 60°. If the distance between the point and the foot of the building is 70 mt, find the distance between the observation point and the top of the building
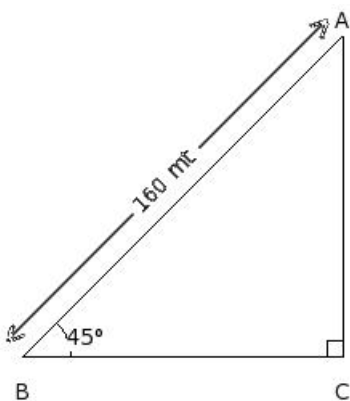
(i)   139 mt (ii)   142 mt (iii)   138 mt

(iv)   140 mt (v)   141 mt

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4. 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 30°. If the distance between the point and the foot of the chimney is 130 mt, find the height of the chimney
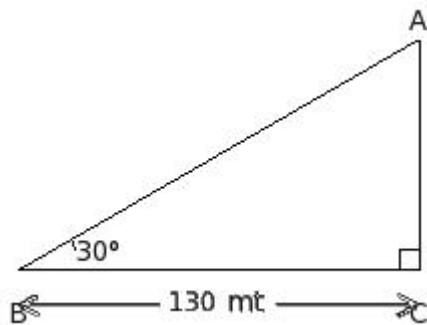

(i) $\dfrac{130}{3} \sqrt{3}$ mt (ii) $\dfrac{130}{3} \sqrt{18}$ mt (iii) $\dfrac{130}{3}$ mt

(iv) $65 \sqrt{2}$ mt   (v)   130 mt

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5. 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 45°. If the distance between the point and the top of the tower is 160 mt, find the height of the tower

(i)   80 mt   (ii)   160 mt   (iii)   40 $\sqrt{12}$ mt

(iv)   80 $\sqrt{2}$ mt (v)   160 $\sqrt{3}$ mt

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6. 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 top of the tower is 50 mt, find the distance between the observation point and the foot of the tower
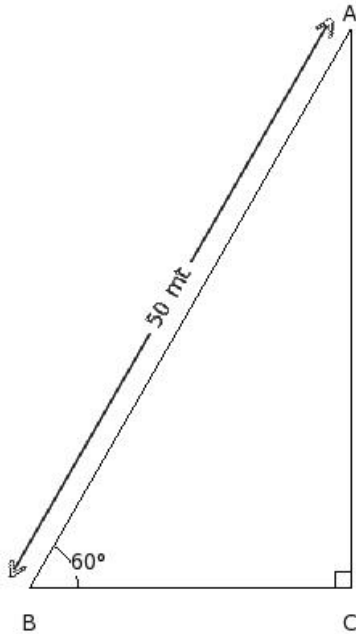
(i)   25 mt (ii)   23 mt (iii)   27 mt

(iv)   26 mt (v)   24 mt

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7. Two boys are on opposite sides of a tower of 200 mt height. They measure the angle of elevation of the top of the tower as 45° and 60° respectively. Find the distance between the two boys
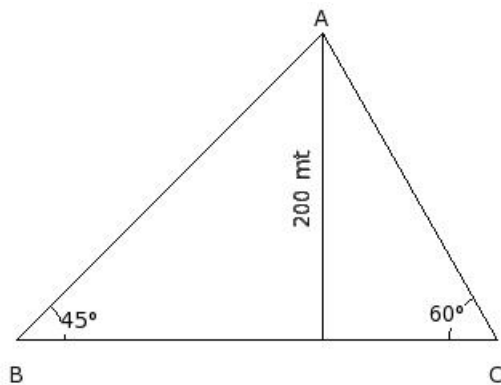
(i)   (200 $\sqrt{6}$ + $\frac{200}{3}$ $\sqrt{18}$) mt (ii) (200 + $\frac{200}{3}$ $\sqrt{3}$) mt   (iii) (2 + $\sqrt{3}$) mt

(iv) $\frac{80000}{3}$ mt   (v) (100 $\sqrt{6}$ + 100 $\sqrt{2}$) mt

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8. A person, walking 40 mt from a point toward a flagpost , observes that its angle of elevation changes from 30° to 45°. Find the height of the flagpost
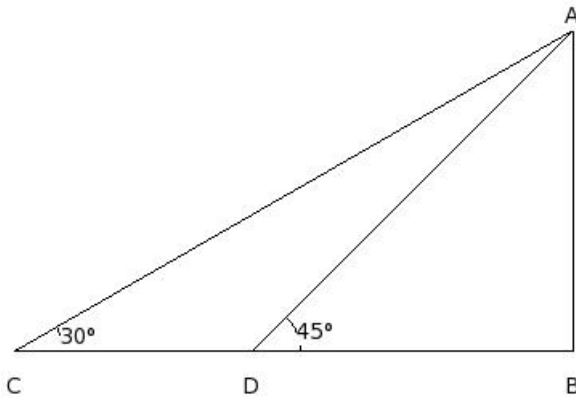
(i)   (30 $\sqrt{2}$ + 10 $\sqrt{6}$) mt   (ii) (20 $\sqrt{18}$ + 20 $\sqrt{6}$) mt   (iii) (2 + $\sqrt{3}$) mt

(iv) (20 $\sqrt{3}$ + 20) mt   (v)   800 mt

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9. A flagstaff stands on the top of a building at a distance of 50 mt away from the foot of building . The angle of elevation of the top of the flagstaff is 45° and the angle of elevation of the top of the building is 30°. Find the height of the flagstaff

(i)   (25 $\sqrt{6}$ − 25 $\sqrt{2}$) mt   (ii) $\dfrac{5000}{3}$ mt   (iii) (2 − $\sqrt{3}$) mt

(iv) (50 $\sqrt{6}$ − $\dfrac{50}{3}$ $\sqrt{18}$) mt (v) (50 − $\dfrac{50}{3}$ $\sqrt{3}$) mt

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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 $\sin^{(-1)}(\frac{1}{3})$.

If the height of the tower is 110 mt ,

find the distance between the observation point and the top of the tower

(i)   345.00 mt (ii) 358.00 mt (iii) 330.00 mt

(iv) 327.00 mt (v) 304.00 mt

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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 $\cos^{(-1)}(\frac{1}{7})$.

If the distance between the point and the top of the tower is 170 mt ,

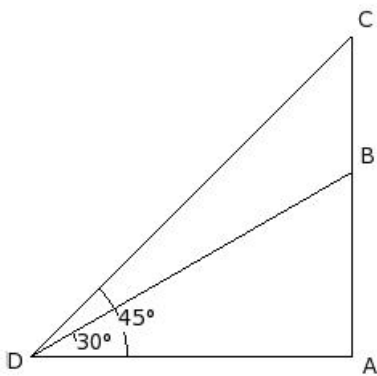find the distance between the observation point and the foot of the tower

(i)   27.29 mt   (ii) 24.29 mt   (iii) 19.29 mt

(iv) 29.29 mt   (v) 21.29 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 $\tan^{(-1)}(\frac{7}{9})$.

If the distance between the point and the foot of the tower is 80 mt ,

find the height of the tower

(i)   62.22 mt   (ii) 65.22 mt   (iii) 59.22 mt

(iv) 57.22 mt   (v) 67.22 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 $\operatorname{cosec}^{(-1)}(\frac{5}{3})$.

If the distance between the point and the top of the tower is 50 mt ,

find the height of the tower

(i)   35.00 mt   (ii) 27.00 mt   (iii) 25.00 mt

(iv) 33.00 mt   (v) 30.00 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 $\sec^{(-1)}(\frac{4}{3})$.

If the distance between the point and the foot of the tower is 200 mt ,

find the distance between the observation point and the top of the tower

(i)   268.67 mt   (ii) 239.67 mt   (iii) 266.67 mt

(iv) 282.67 mt   (v) 253.67 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 $\cot^{(-1)}(\frac{1}{3})$.

If the distance between the point and the foot of the tower is 170 mt ,

find the height of the tower

(i)   517.00 mt   (ii) 484.00 mt   (iii) 537.00 mt

(iv) 508.00 mt   (v) 510.00 mt

16.
A tower stands vertically on the ground.

The height of the tower is $130 \sqrt{2}$ mt .

The distance between the observation point and its top is   260 mt .

Find the angle of elevation

(i)   60°   (ii) 45°   (iii) 105°

(iv)   (v)

75°   30°

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17. The upper part of a tree is broken into two parts without being detatched. It makes an angle of 30° with the ground. The top of the tree touches the ground at a distance of 180 mt from the foot of the tree . Find the height of the tree before it was broken

(i)   303.78 mt (ii) 335.78 mt (iii) 311.78 mt

(iv) 297.78 mt (v) 316.78 mt

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18. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 40 mt high. As observed from the top of this temple, the angles of depression of the top and foot of the other temple are 45° and 60° respectively. Find the width of the river

(i)   20.09 mt (ii) 26.09 mt (iii) 28.09 mt

(iv) 18.09 mt (v) 23.09 mt

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19. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 60 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 60° respectively. Find the height of the other temple

(i)   40.00 mt (ii) 45.00 mt (iii) 43.00 mt

(iv) 37.00 mt (v) 35.00 mt

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20. An observer 1.4 mt tall, is 10 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)   8.40 mt   (ii) 14.40 mt (iii) 6.40 mt

(iv) 11.40 mt (v) 16.40 mt

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21. Two poles of equal height are standing opposite to each other on either side of a road which is 25 mt wide. From a point between them on the road, the angles of elevation of the top of the poles are 30° and 60° respectively. Find the height of each pole and the distances of the point from the two poles

(i)   height = 11.83 mt , distances away = 7.25 mt , 19.75 mt

(ii)   height = 9.83 mt , distances away = 5.25 mt , 17.75 mt

(iii) height = 10.83 mt , distances away = 6.25 mt , 18.75 mt

(iv)   height = 8.83 mt , distances away = 4.25 mt , 16.75 mt

(v)   height = 12.83 mt , distances away = 8.25 mt , 20.75 mt

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22. From the top of a light house which is 65 mt high from the sea level, the angles of depression of two ships are 60° 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)   75.05 mt

(ii) 72.05 mt

(iii) 80.05 mt

(iv) 78.05 mt

(v)   70.05 mt

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23. From the top of a 16 mt high building , the angle of elevation of the top of a cable tower is 60° and the angle of

depression of its foot is 30°. Find the height of the cable tower

(i)   59.00 mt

(ii) 61.00 mt

(iii) 67.00 mt

(iv) 69.00 mt

(v) 64.00 mt

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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 30°. If the height of the tower is 55 mt, find the height of the building

(i)   95.25 mt

(ii) 98.25 mt

(iii) 92.25 mt

(iv) 90.25 mt

(v) 100.25 mt

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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 60° and the angle of elevation of the top of the building is 30°. If the height of the building is 17 mt, find the height of the flag staff

(i)   34.00 mt

(ii) 29.00 mt

(iii) 39.00 mt

(iv) 31.00 mt

(v) 37.00 mt

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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 60° and the angle of elevation of the top of the building is 30°. If the height of the flag staff is 8 mt, find the height of the building

(i)   6.00 mt

(ii) 2.00 mt

(iii) 4.00 mt

(iv) 5.00 mt

(v) 3.00 mt

Assignment Key

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