EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Applications of Trigonometry

Grade : SSC Grade X

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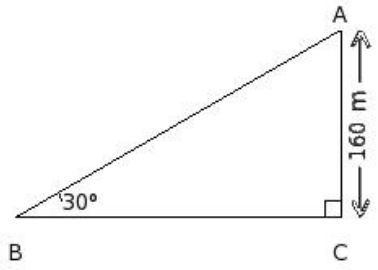
1. A flag is hoisted at the top of a building . From a point on the ground, the angle of elevation of the top of the flag staff is 60° and the angle of elevation of the top of the building is 30°. If the height of the flag staff is 14 m, find the height of the building .

(i) 6.00 m (ii) 9.00 m (iii) 8.00 m (iv) 5.00 m (v) 7.00 m

2. 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 height of the tower is 160 m, find the distance between the observation point and the foot of the tower.

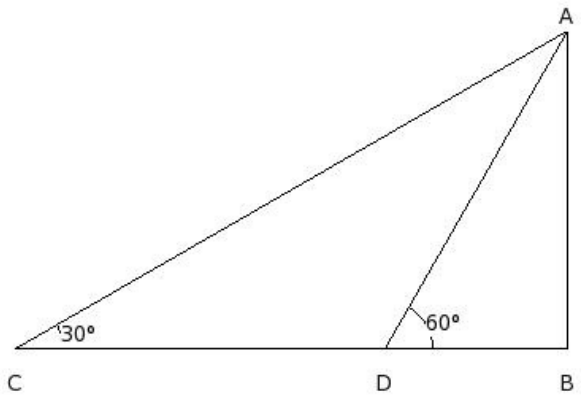


(i) $160\sqrt{18}$ m (ii) 160 m (iii) $160\sqrt{3}$ m (iv) 480 m (v) $240\sqrt{2}$ m

3. From the top of a light house which is 95 m 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.

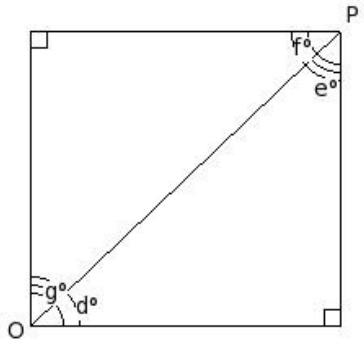
(i) 83.68 m (ii) 134.68 m (iii) 109.68 m (iv) 127.68 m (v) 103.68 m

4. A person, walking 15 m from a point toward a flagpost , observes that its angle of elevation changes from 30° to 60°. Find the height of the flagpost .



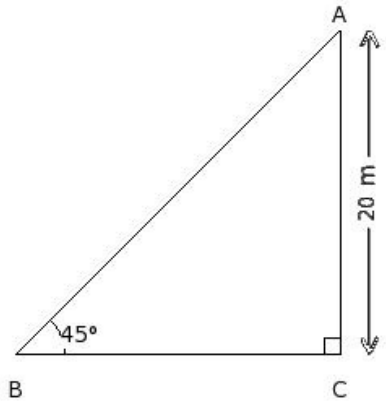
(i) $\frac{15}{2}\sqrt{3}$ m (ii) $\frac{45}{4}\sqrt{2}$ m (iii) $\frac{15}{2}$ m (iv) $\frac{45}{2}$ m (v) $\frac{15}{2}\sqrt{18}$ m

5. If P is the point of observation and the observed object is at point O, which of the following angles represent the angle of depression ?



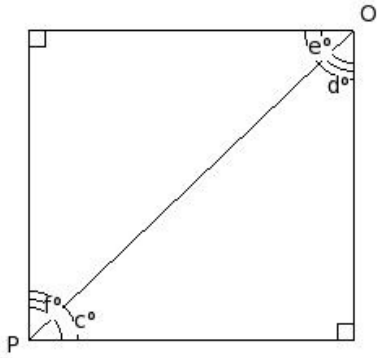
(i) ∠e (ii) ∠d (iii) ∠f (iv) ∠g

6. 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 45°. If the height of the radio tower is 20 m, find the distance between the observation point and the top of the radio tower.



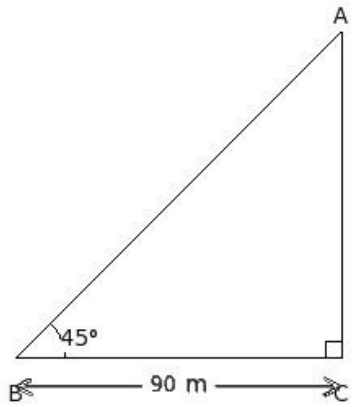
(i) 20 m (ii) 40 m (iii) $40\sqrt{3}$ m (iv) $10\sqrt{12}$ m (v) $20\sqrt{2}$ m

7. If P is the point of observation and the observed object is at point O, which of the following angles represent the angle of elevation ?



(i) ∠e (ii) ∠f (iii) ∠d (iv) ∠c

8. 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 foot of the tower is 90 m, find the distance between the observation point and the top of the tower.

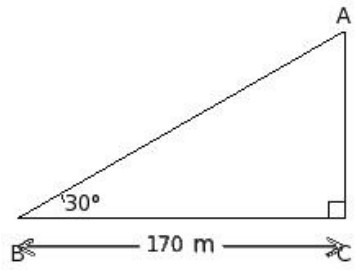


(i) 180 m (ii) $180\sqrt{3}$ m (iii) $90\sqrt{2}$ m (iv) $45\sqrt{12}$ m (v) 90 m

9. From a point 130 m away from a vertical cliff, the angles of elevation of the top and the foot of a vertical pillar at the top of the cliff are 60° and 30° respectively. Find the height of the cliff.

(i) 80.06 m (ii) 70.06 m (iii) 75.06 m (iv) 72.06 m (v) 78.06 m

10. 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 foot of the building is 170 m, find the height of the building.

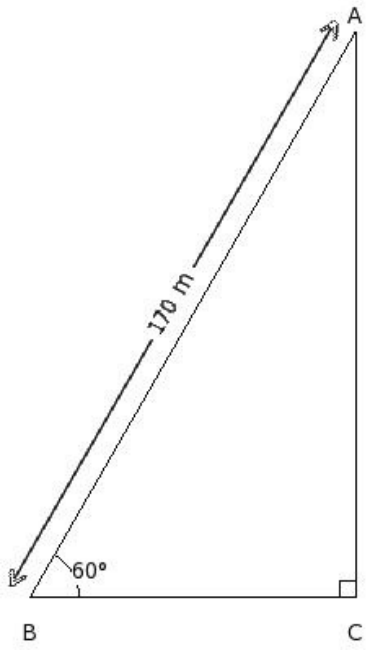


(i) $\frac{170}{3}$ m (ii) $\frac{170}{3}\sqrt{3}$ m (iii) $\frac{170}{3}\sqrt{18}$ m (iv) 170 m (v) $85\sqrt{2}$ m

11. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 80 m 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 height of the other temple.

(i) 38.81 m (ii) 36.81 m (iii) 30.81 m (iv) 28.81 m (v) 33.81 m

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 60°. If the distance between the point and the top of the tower is 170 m, find the distance between the observation point and the foot of the tower.

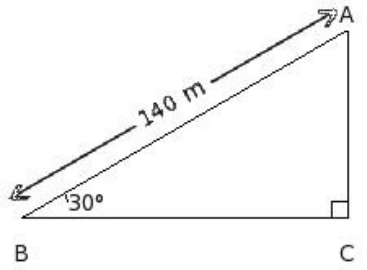


(i) 84 m (ii) 85 m (iii) 86 m (iv) 83 m (v) 87 m

13. The angles of depression of two boats from the top of a cliff 50 m high are 30° and 60° respectively. Find the distance between the boats, if the boats are on the opposite sides of the cliff .

(i) 102.48 m (ii) 115.48 m (iii) 129.48 m (iv) 89.48 m (v) 140.48 m

14. 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 top of the chimney is 140 m, find the height of the chimney.



(i) 70 m (ii) 69 m (iii) 68 m (iv) 73 m (v) 71 m

15. From the top of a 19 m high building , the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45°. Find the height of the cable tower.

(i) 56.91 m (ii) 54.91 m (iii) 48.91 m (iv) 46.91 m (v) 51.91 m

16. Two vertical poles are on either side of a road. A 25 m long ladder is placed between the two poles. When the ladder rests against one pole, it makes an angle of 60° with the pole and when it is turned to rest against another pole, it makes an angle of 30° with the road. Find the width of the road.

(i) 29.15 m (ii) 37.15 m (iii) 31.15 m (iv) 34.15 m (v) 39.15 m

17. A man on the top of a vertical observation tower observes a car moving at a uniform speed coming directly towards him. If it takes 17 min for the angle of depression to change from 30° to 45°, how soon after this, will the car reach the observation tower?

(i) 22 min 13 sec (ii) 20 min 11 sec (iii) 26 min 16 sec (iv) 23 min 14 sec (v) 24 min 15 sec

18. The angle of elevation of the top of a building from the foot of a tower is 60°. The angle of elevation of the top of the tower from the foot of the building is 45°. If the height of the tower is 50 m, find the height of the building .

(i) 86.61 m (ii) 81.61 m (iii) 91.61 m (iv) 83.61 m (v) 89.61 m

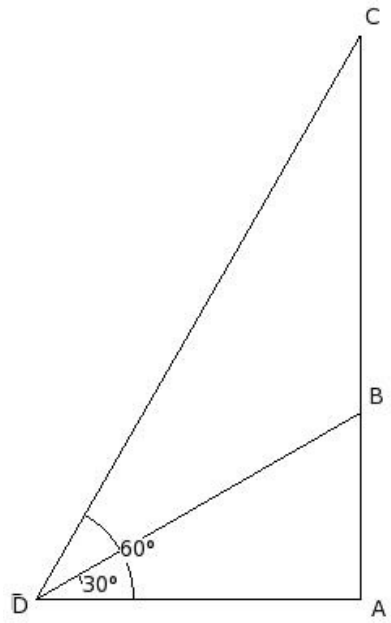
19. A boy standing on a vertical cliff in a jungle observes two rest houses in line with him on opposite sides deep in the jungle below. If their angles of depression are 30° and 45° and the distance between them is 245 m , find the height of the cliff.

(i) 86.68 m (ii) 84.68 m (iii) 89.68 m (iv) 94.68 m (v) 92.68 m

20. A man in a boat rowing away from a lighthouse 75 m high, takes 2.5 min to change the angle of elevation of the top of the lighthouse from 60° to 45°. Find the speed of the boat.

(i) 2.21 m/sec (ii) 0.21 m/sec (iii) 1.21 m/sec (iv) 8.21 m/sec (v) 7.21 m/sec

21. A flagstaff stands on the top of a building at a distance of 25 m 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 30°. Find the height of the flagstaff .



(i) $50\,\text{m}$ (ii) $25\sqrt{2}\,\text{m}$ (iii) $\frac{50}{3}\sqrt{18}\,\text{m}$ (iv) $\frac{50}{3}\,\text{m}$ (v) $\frac{50}{3}\sqrt{3}\,\text{m}$

22. From a point 170 m away from a vertical cliff, the angles of elevation of the top and the foot of a vertical pillar at the top of the cliff are 60° and 30° respectively. Find the height of the pillar.

(i) 198.30 m (ii) 182.30 m (iii) 219.30 m (iv) 196.30 m (v) 179.30 m

23. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 70 m 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 width of the river .

(i) 35.41 m (ii) 43.41 m (iii) 40.41 m (iv) 37.41 m (v) 45.41 m

24. An observer 1.6 m tall, is 50 m away from a tower . The angle of elevation of the top of the tower from her eyes is 30°. Find the height of the tower .

(i) 27.47 m (ii) 33.47 m (iii) 35.47 m (iv) 25.47 m (v) 30.47 m

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 12 m, find the height of the flag staff .

(i) 19.00 m (ii) 29.00 m (iii) 24.00 m (iv) 27.00 m (v) 21.00 m

Assignment Key

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