EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Applications of Trigonometry

Grade : SSC Grade X

1. The angles of depression of two boats from the top of a cliff 100 m high are 45° and 60° respectively. Find the distance between the boats, if the boats are on the opposite sides of the cliff .

(i) 170.74 m (ii) 133.74 m (iii) 172.74 m (iv) 157.74 m (v) 141.74 m

2. A man in a boat rowing away from a lighthouse 90 m high, takes 5 min to change the angle of elevation of the top of the lighthouse from 60° to 30°. Find the speed of the boat.

(i) 8.35 m/sec (ii) 7.35 m/sec (iii) 1.35 m/sec (iv) 0.35 m/sec (v) 2.35 m/sec

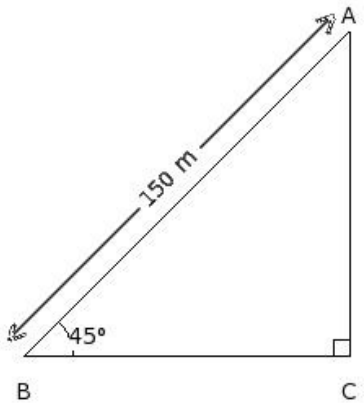
3. From the top of a light house which is 75 m high from the sea level, the angles of depression of two ships are 60° and 30°. If one ship is exactly behind the other on the same side of the light house , find the distance between the two ships.

(i) 89.59 m (ii) 83.59 m (iii) 86.59 m (iv) 81.59 m (v) 91.59 m

4. From the top of a 7 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.

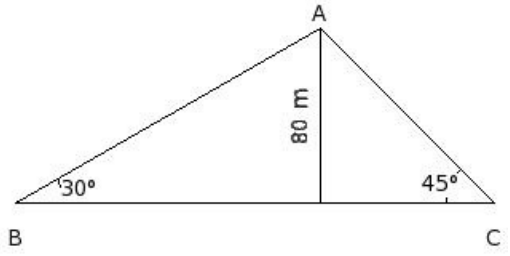
(i) 19.12 m (ii) 24.12 m (iii) 16.12 m (iv) 22.12 m (v) 14.12 m

5. 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 45°. If the distance between the point and the top of the chimney is 150 m, find the height of the chimney.



(i) $150\sqrt{3}$ m (ii) 75 m (iii) 150 m (iv) $75\sqrt{2}$ m (v) $\frac{75}{2}\sqrt{12}$ m

6. Two boys are on opposite sides of a tower of 80 m height. They measure the angle of elevation of the top of the tower as 30° and 45° respectively. Find the distance between the two boys.



(i) 12800 m (ii) $(80\sqrt{3}+80)$ m (iii) $(120\sqrt{2}+40\sqrt{6})$ m (iv) $(80\sqrt{18}+80\sqrt{6})$ m (v) $(2+\sqrt{3})$ m

7. Two poles of equal height are standing opposite to each other on either side of a road which is 40 m 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 = 15.64 m, distances away = 26.36 m, 15.64 m

(ii) height = 12.64 m, distances away = 23.36 m, 12.64 m

(iii) height = 13.64 m, distances away = 24.36 m, 13.64 m

(iv) height = 14.64 m, distances away = 25.36 m, 14.64 m

(v) height = 16.64 m, distances away = 27.36 m, 16.64 m

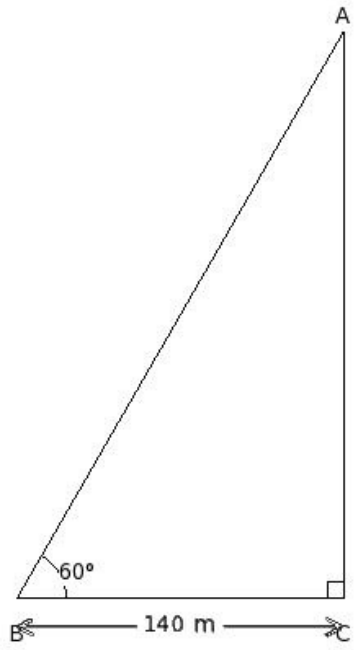
8. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 130 m high. As observed from the top of this temple, the angles of depression of the top and foot of the other temple are 30° and 60° respectively. Find the width of the river .

(i) 72.05 m (ii) 78.05 m (iii) 75.05 m (iv) 80.05 m (v) 70.05 m

9. 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 14 m, find the height of the flag staff .

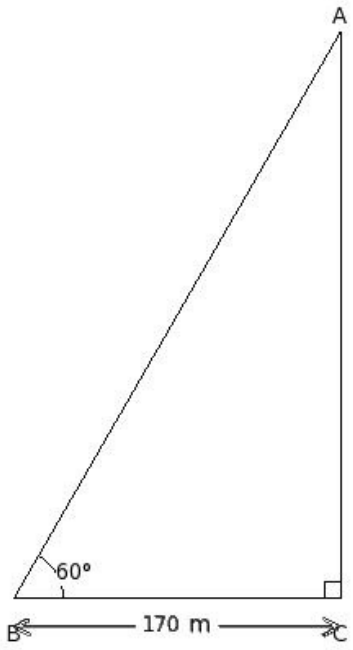
(i) 7.25 m (ii) 5.25 m (iii) 10.25 m (iv) 15.25 m (v) 13.25 m

10. 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 distance between the point and the foot of the radio tower is 140 m , find the distance between the observation point and the top of the radio tower .



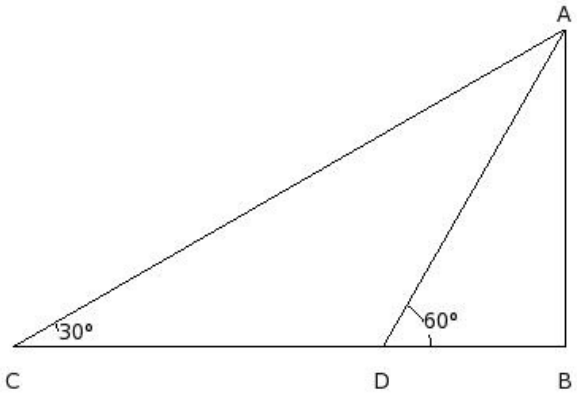
(i) 279 m (ii) 283 m (iii) 280 m (iv) 277 m (v) 281 m

11. 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 distance between the point and the foot of the radio tower is 170 m, find the height of the radio tower.



(i) 510 m (ii) $255\sqrt{2}$ m (iii) 170 m (iv) $170\sqrt{3}$ m (v) $170\sqrt{18}$ m

12. A person, walking 45 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) $\frac{45}{2}\sqrt{3}$ m (ii) $\frac{45}{2}$ m (iii) $\frac{45}{2}\sqrt{18}$ m (iv) $\frac{135}{2}$ m (v) $\frac{135}{4}\sqrt{2}$ m

13. 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 45° and 60° and the distance between them is 175 m , find the height of the cliff.

(i) 114.95 m (ii) 110.95 m (iii) 82.95 m (iv) 93.95 m (v) 125.95 m

14. Two vertical poles are on either side of a road. A 28 m long ladder is placed between the two poles. When the ladder rests against one pole, it makes an angle of 45° with the pole and when it is turned to rest against another pole, it makes an angle of 60° with the road. Find the width of the road.

(i) 36.80 m (ii) 38.80 m (iii) 33.80 m (iv) 28.80 m (v) 30.80 m

15. A tower stands vertically on the ground.

The height of the tower is $140\sqrt{3}$ m.

The distance between the observation point and its foot is 140 m.

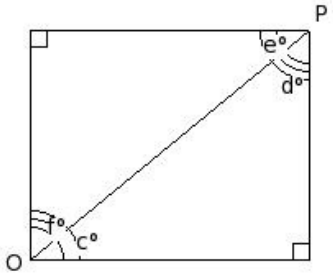
Find the angle of elevation.

(i) 45° (ii) 105° (iii) 90° (iv) 30° (v) 60°

16. There are two temples one on each bank of a river, just opposite to each other. One of the temples is 60 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) 20.36 m (ii) 25.36 m (iii) 28.36 m (iv) 22.36 m (v) 30.36 m

17. 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) ∠d (ii) ∠e (iii) ∠f (iv) ∠c

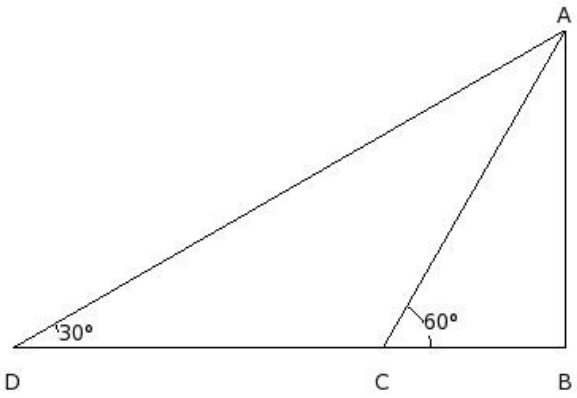
18. A flag is hoisted at the top of a building . From a point on the ground, the angle of elevation of the top of the flag staff is 60° and the angle of elevation of the top of the building is 45°. If the height of the flag staff is 18 m, find the height of the building .

(i) 29.59 m (ii) 19.59 m (iii) 27.59 m (iv) 24.59 m (v) 21.59 m

19. A man 1.7 m tall stands at a distance of 5.5 m from a lamp post and casts a shadow of 8.6 m on the ground. Find the height of the lamp post .

(i) 4.79 m (ii) 0.79 m (iii) 2.79 m (iv) 1.79 m (v) 3.79 m

20. The shadow of a vertical tower BA on a level ground is increased by 45 m, when the altitude of the sun changes from 60° to 30°. Find the height of the tower .



(i) 35.98 m (ii) 41.98 m (iii) 33.98 m (iv) 38.98 m (v) 43.98 m

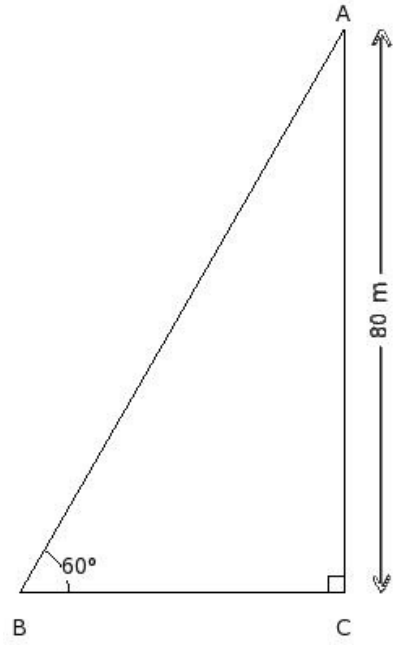
21. The angle of elevation of the top of a building from the foot of a tower is 30°. The angle of elevation of the top of the tower from the foot of the building is 45°. If the height of the tower is 40 m, find the height of the building .

(i) 26.10 m (ii) 20.10 m (iii) 18.10 m (iv) 28.10 m (v) 23.10 m

22. The upper part of a tree is broken into two parts without being detatched. It makes an angle of 45° with the ground. The top of the tree touches the ground at a distance of 110 m from the foot of the tree . Find the height of the tree before it was broken.

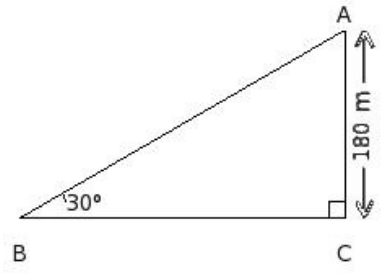
(i) 289.56 m (ii) 267.56 m (iii) 257.56 m (iv) 240.56 m (v) 265.56 m

23. 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 height of the tower is 80 m, find the distance between the observation point and the foot of the tower.



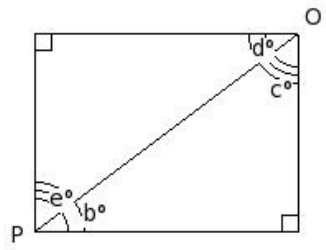
(i) $\frac{80}{3}$ m (ii) 80 m (iii) $\frac{80}{3}\sqrt{18}$ m (iv) $\frac{80}{3}\sqrt{3}$ m (v) $40\sqrt{2}$ m

24. 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 height of the building is 180 m, find the distance between the observation point and the top of the building.



(i) 361 m (ii) 358 m (iii) 360 m (iv) 363 m (v) 359 m

25. 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) ∠d (ii) ∠e (iii) ∠b (iv) ∠c

Assignment Key

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