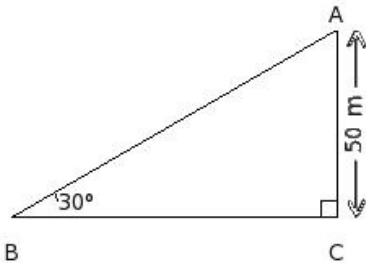


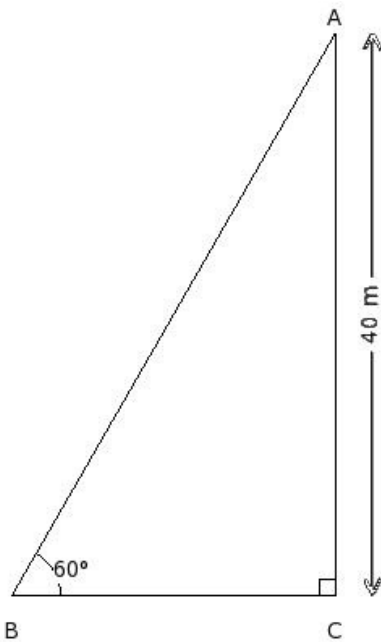


- A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower is found to be  $30^\circ$ . If the height of the tower is 50 m, find the distance between the observation point and the top of the tower.



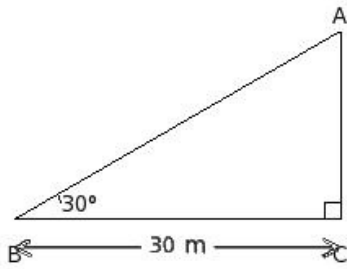
- (i) 101 m (ii) 103 m (iii) 97 m (iv) 99 m (v) 100 m

- 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  $60^\circ$ . If the height of the radio tower is 40 m, find the distance between the observation point and the foot of the radio tower.



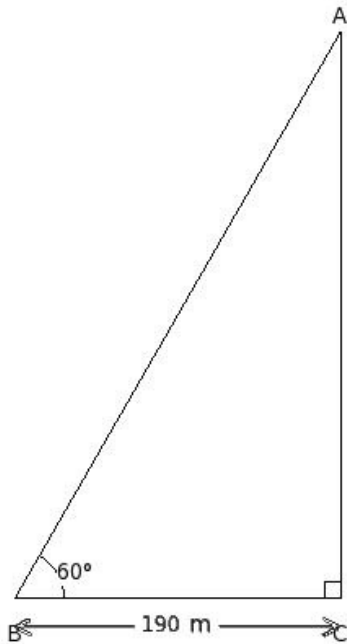
- (i)  $\frac{40}{3}$  m (ii)  $\frac{40}{3}\sqrt{18}$  m (iii) 40 m (iv)  $\frac{40}{3}\sqrt{3}$  m (v)  $20\sqrt{2}$  m

- 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  $30^\circ$ . If the distance between the point and the foot of the building is 30 m, find the distance between the observation point and the top of the building.



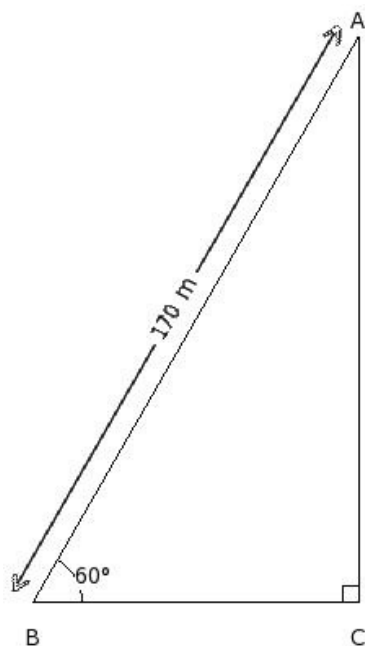
- (i)  $30\sqrt{2}$  m (ii) 60 m (iii)  $20\sqrt{18}$  m (iv)  $20\sqrt{3}$  m (v) 20 m

- 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  $60^\circ$ . If the distance between the point and the foot of the building is 190 m, find the height of the building.



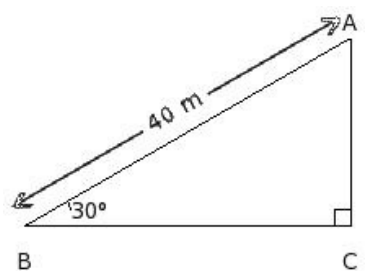
- (i) 190 m (ii) 570 m (iii)  $285\sqrt{2}$  m (iv)  $190\sqrt{3}$  m (v)  $190\sqrt{18}$  m

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  $60^\circ$ . If the distance between the point and the top of the tower is 170 m, find the height of the tower.



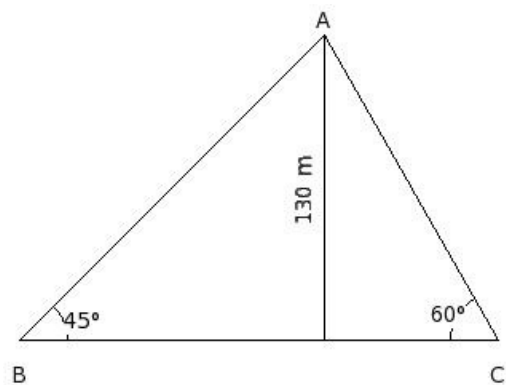
- (i)  $\frac{255}{2}\sqrt{2}$  m (ii) 85 m (iii)  $85\sqrt{18}$  m (iv) 255 m (v)  $85\sqrt{3}$  m

6. 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  $30^\circ$ . If the distance between the point and the top of the chimney is 40 m, find the distance between the observation point and the foot of the chimney.



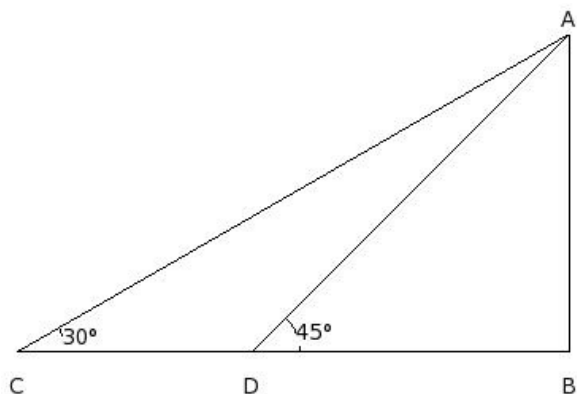
- (i) 60 m (ii)  $20\sqrt{3}$  m (iii)  $30\sqrt{2}$  m (iv)  $20\sqrt{18}$  m (v) 20 m

7. Two boys are on opposite sides of a tower of 130 m height. They measure the angle of elevation of the top of the tower as  $45^\circ$  and  $60^\circ$  respectively. Find the distance between the two boys.



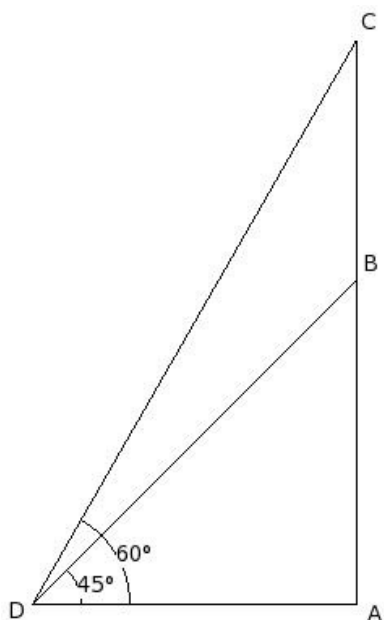
- (i)  $\frac{33800}{3}$  m (ii)  $(130 + \frac{130}{3}\sqrt{3})$  m (iii)  $(2 + \sqrt{3})$  m (iv)  $(65\sqrt{6} + 65\sqrt{2})$  m (v)  $(130\sqrt{6} + \frac{130}{3}\sqrt{18})$  m

8. A person, walking 25 m from a point toward a flagpost, observes that its angle of elevation changes from  $30^\circ$  to  $45^\circ$ . Find the height of the flagpost.



- (i)  $(2 + \sqrt{3})$  m (ii)  $(\frac{75}{4}\sqrt{2} + \frac{25}{4}\sqrt{6})$  m (iii)  $(\frac{25}{2}\sqrt{18} + \frac{25}{2}\sqrt{6})$  m (iv)  $\frac{625}{2}$  m (v)  $(\frac{25}{2}\sqrt{3} + \frac{25}{2})$  m

9. A flagstaff stands on the top of a building at a distance of 30 m away from the foot of building. The angle of elevation of the top of the flagstaff is  $60^\circ$  and the angle of elevation of the top of the building is  $45^\circ$ . Find the height of the flagstaff.



- (i)  $(2 - \sqrt{3})$  m (ii)  $(30\sqrt{3} - 30)$  m (iii)  $(45\sqrt{2} - 15\sqrt{6})$  m (iv)  $(30\sqrt{18} - 30\sqrt{6})$  m (v) 1800 m

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  $\sin^{-1}(\frac{3}{4})$ . If the height of the tower is 90 m, find the distance between the observation point and the top of the tower.

- (i) 92.00 m (ii) 135.00 m (iii) 120.00 m (iv) 126.00 m (v) 116.00 m

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 top of the tower is 40 m, find the distance between the observation point and the foot of the tower.

- (i) 23.00 m (ii) 15.00 m (iii) 17.00 m (iv) 25.00 m (v) 20.00 m

- A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower
12. is found to be  $\tan^{-1}\left(\frac{1}{2}\right)$ . If the distance between the point and the foot of the tower is 50 m, find the height of the tower.
- (i) 25.00 m (ii) 30.00 m (iii) 28.00 m (iv) 22.00 m (v) 20.00 m
- 
- A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower
13. is found to be  $\operatorname{cosec}^{-1}\left(\frac{8}{5}\right)$ . If the distance between the point and the top of the tower is 30 m, find the height of the tower.
- (i) 23.75 m (ii) 15.75 m (iii) 21.75 m (iv) 13.75 m (v) 18.75 m
- 
- A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower
14. is found to be  $\sec^{-1}\left(\frac{3}{2}\right)$ . If the distance between the point and the top of the tower is 120 m, find the distance between the observation point and the foot of the tower.
- (i) 77.00 m (ii) 85.00 m (iii) 80.00 m (iv) 75.00 m (v) 83.00 m
- 
- A tower stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the tower
15. is found to be  $\cot^{-1}\left(\frac{1}{2}\right)$ . If the distance between the point and the foot of the tower is 170 m, find the height of the tower.
- (i) 313.00 m (ii) 362.00 m (iii) 336.00 m (iv) 342.00 m (v) 340.00 m
- 
- A tower stands vertically on the ground.
16. The distance between the observation point and its foot tower is 30 m.  
The distance between the observation point and its top is 60 m.  
Find the angle of elevation.
- (i)  $105^\circ$  (ii)  $30^\circ$  (iii)  $90^\circ$  (iv)  $60^\circ$  (v)  $45^\circ$
- 
- The upper part of a tree is broken into two parts without being detached. It makes an angle of  $45^\circ$  with the
17. ground. The top of the tree touches the ground at a distance of 100 m from the foot of the tree. Find the height of the tree before it was broken.
- (i) 239.42 m (ii) 226.42 m (iii) 257.42 m (iv) 253.42 m (v) 241.42 m
- 
- There are two temples one on each bank of a river, just opposite to each other. One of the temples is 190 m high.
18. As observed from the top of this temple, the angles of depression of the top and foot of the other temple are  $45^\circ$  and  $60^\circ$  respectively. Find the width of the river.
- (i) 134.69 m (ii) 82.69 m (iii) 107.69 m (iv) 109.69 m (v) 125.69 m
- 
- There are two temples one on each bank of a river, just opposite to each other. One of the temples is 160 m high.
19. As observed from the top of this temple, the angles of depression of the top and foot of the other temple are  $30^\circ$  and  $60^\circ$  respectively. Find the height of the other temple.
- (i) 106.66 m (ii) 103.66 m (iii) 112.66 m (iv) 89.66 m (v) 131.66 m
- 
- An observer 1.8 m tall, is 20 m away from a tower. The angle of elevation of the top of the tower from her eyes is  $30^\circ$ . Find the height of the tower.
20. (i) 18.35 m (ii) 10.35 m (iii) 8.35 m (iv) 16.35 m (v) 13.35 m

Two poles of equal height are standing opposite to each other on either side of a road which is 35 m wide. From a point between them on the road, the angles of elevation of the top of the poles are  $60^\circ$  and  $30^\circ$  respectively. Find the height of each pole and the distances of the point from the two poles .

- (i) height = 15.16 m, distances away = 26.25 m, 8.75 m
- (ii) height = 17.16 m, distances away = 28.25 m, 10.75 m
- (iii) height = 16.16 m, distances away = 27.25 m, 9.75 m
- (iv) height = 14.16 m, distances away = 25.25 m, 7.75 m
- (v) height = 13.16 m, distances away = 24.25 m, 6.75 m

From the top of a light house which is 35 m high from the sea level, the angles of depression of two ships are  $60^\circ$  and  $45^\circ$ . If one ship is exactly behind the other on the same side of the light house , find the distance between the two ships.

- (i) 14.79 m (ii) 9.79 m (iii) 19.79 m (iv) 17.79 m (v) 11.79 m

From the top of a 9 m high building , the angle of elevation of the top of a cable tower is  $60^\circ$  and the angle of depression of its foot is  $45^\circ$ . Find the height of the cable tower.

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

The angle of elevation of the top of a building from the foot of a tower is  $45^\circ$ . The angle of elevation of the top of the tower from the foot of the building is  $30^\circ$ . If the height of the tower is 50 m, find the height of the building .

- (i) 86.60 m (ii) 81.60 m (iii) 83.60 m (iv) 91.60 m (v) 89.60 m

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  $60^\circ$  and the angle of elevation of the top of the building is  $45^\circ$ . If the height of the building is 7 m, find the height of the flag staff .

- (i) 4.12 m (ii) 6.12 m (iii) 5.12 m (iv) 3.12 m (v) 7.12 m

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  $45^\circ$  and the angle of elevation of the top of the building is  $30^\circ$ . If the height of the flag staff is 15 m, find the height of the building .

- (i) 20.49 m (ii) 23.49 m (iii) 15.49 m (iv) 25.49 m (v) 17.49 m

## Assignment Key

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