Name: Heights and Distances1

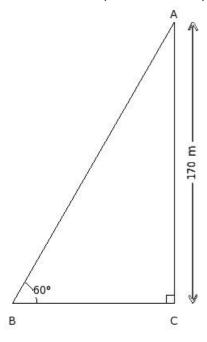
Chapter: Applications of Trigonometry

Grade: SSC Grade X

License: Non Commercial Use

Achimney stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the

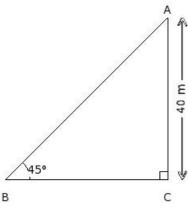
1. chimney is found to be 60° . If the height of the chimney is 170 m, find the distance between the observation point and the top of the chimney.



(i) $170\sqrt{2}\,\text{m}$ (ii) $340\,\text{m}$ (iii) $\frac{340}{3}\,\sqrt{3}\,\text{m}$ (iv) $\frac{340}{3}\,\text{m}$ (v) $\frac{340}{3}\,\sqrt{18}\,\text{m}$

Achimney stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the

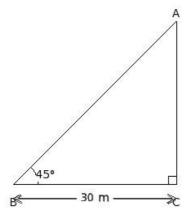
2. chimney is found to be 45° . If the height of the chimney is 40 m, find the distance between the observation point and the foot of the chimney.



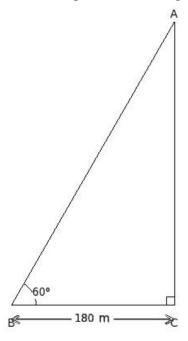
(i) 43 m (ii) 38 m (iii) 41 m (iv) 39 m (v) 40 m

Aradio towerstands vertically on the ground. From a point on the ground, the angle of elevation of the top of the

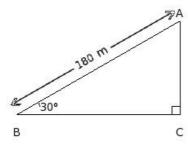
3. radio toweris found to be 45°. If the distance between the point and the foot of the radio toweris 30 m, find the distance between the observation point and the top of the radio tower.



- (i) $15\sqrt{12}\,m$ (ii) $60\sqrt{3}\,m$ (iii) $60\,m$ (iv) $30\,m$ (v) $30\sqrt{2}\,m$
- Abuilding stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the 4. building is found to be 60°. If the distance between the point and the foot of the building is 180 m, find the height of the building.



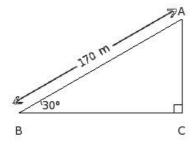
- (i) 540 m (ii) 180 m (iii) $180\sqrt{3}\,\text{m}$ (iv) $270\sqrt{2}\,\text{m}$ (v) $180\sqrt{18}\,\text{m}$
- Abuilding stands vertically on the ground. From a point on the ground, the angle of elevation of the top of the 5. building is found to be 30°. If the distance between the point and the top of the building is 180 m, find the height of the building.



(i) $92\,\mathrm{m}$ (ii) $90\,\mathrm{m}$ (iii) $87\,\mathrm{m}$ (iv) $91\,\mathrm{m}$ (v) $89\,\mathrm{m}$

Aradio towerstands vertically on the ground. From a point on the ground, the angle of elevation of the top of the

6. radio toweris found to be 30°. If the distance between the point and the top of the radio toweris 170 m, find the distance between the observation point and the foot of the radio tower.



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

Atowerstands vertically on the ground.

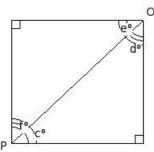
The distance between the observation point and its foottower is $10\sqrt{2}$ m .

The distance between the observation point and its top is $20\,\mathrm{m}$. Find the angle of elevation.

(i) 75° (ii) 60° (iii) 45° (iv) 30° (v) 105°

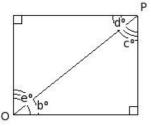
The upper part of a tree is broken into two parts without being detatched. It makes an angle of 30° with the 8. ground. The top of the tree touches the ground at a distance of 30 m from the foot of the tree. Find the height of the tree before it was broken.

- (i) 48.96 m (ii) 56.96 m (iii) 51.96 m (iv) 54.96 m (v) 46.96 m
- An observer 1.7 m tall, is 60 m away from a tower . The angle of elevation of the top of the tower from her eyes is 60° . Find the height of the tower .
 - (i) 92.63 m (ii) 123.63 m (iii) 105.63 m (iv) 78.63 m
- 10. A man 1.5 m tall stands at a distance of 5.7 m from a lamp post and casts a shadow of 1.8 m on the ground. Find the height of the lamp post \cdot
 - (i) 6.25 m (ii) 8.25 m (iii) 7.25 m (iv) 5.25 m (v) 4.25 m
- 11. 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

12. 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) ∠b (iv) ∠c

Assignment Key						
1) (iii)	2) (v)	3) (v)	4) (iii)	5) (ii)	6) (iv)	
7) (iii)	8) (iii)	9) (iii)	10) (i)	11) (iv)	12) (ii)	

Copyright © Small Systems Computing Pvt. Ltd.