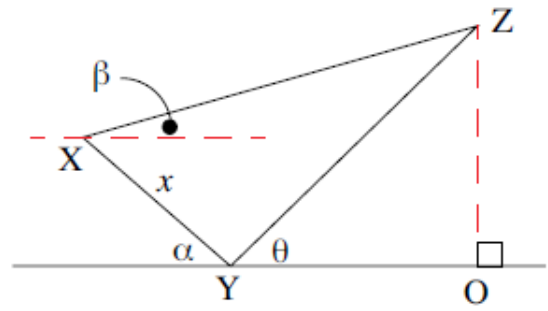


5. Show that $OZ = \frac{x \tan \theta (\sin \alpha + \cos \alpha \tan \beta)}{\tan \theta - \tan \beta}$

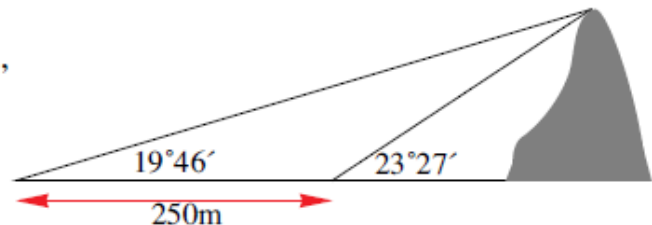


7. From two positions 400 m apart on a straight road, running in a northerly direction, the bearings of a tree are N36°40'E and E33°22'S. What is the shortest distance from the tree to the road?

5. From a point A, 100 m due South of a tower, the angle of elevation of the top of the tower is 40°. From a point B, due East of the tower, the angle of elevation of the top of the tower is 20°. How far apart are the points A and B?

10. The angle of elevation of the top of a tower from a point A due South of it is 68°. From a point B, due East of A, the angle of elevation of the top is 54°. If A is 50 m from B, find the height of the tower.

13. A surveying team are trying to find the height of a hill. They take a 'sight' on the top of the hill and find that the angle of elevation is 23°27'. They move a distance of 250 metres on level ground directly away from the hill and take a second 'sight'. From this point, the angle of elevation is 19°46'. Find the height of the hill, correct to the nearest metre.



2. A right pyramid with a rectangular base and a vertical height of 60 cm is shown in the diagram alongside. The points X and Y are the midpoints of the sides [AB] and [BC] respectively

Find

- the length, AP.
- the length of the edge [AV].
- the angle that the edge AV makes with the base ABCD.
- the length, YV .
- The angle that the plane BCV makes with the base.

