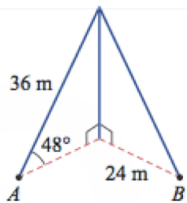


1. 3D Trigonometry

➤ 3D trigonometry including bearings

A vertical mast is supported at the top by two cables reaching from two points, A and B. The cable reaching from point A is 36 metres long and is at an angle of 48° to the horizontal. Point B is 24 metres from the base of the mast.



- a) Find the height of the mast, correct to 3 decimal places.

- b) Find the angle to the horizontal of the cable reaching from point B, to 2 dp.

The base of a tree is situated 50 metres due north of a point P. The angle of elevation of the top of the tree from P is 32°

a) Find the height of the tree, correct to one dp.

b) Q is a point 100 metres due East of P. Find

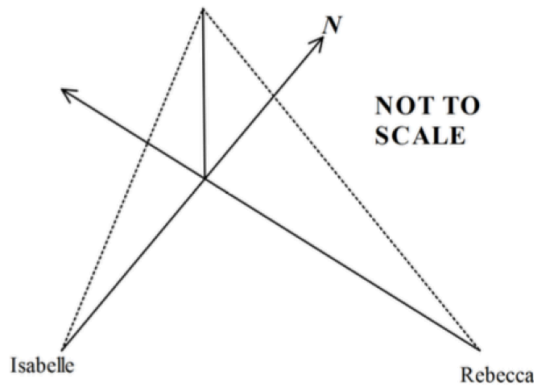
i. The distance of Q from the base of the tree.

ii. The angle of elevation of the top of the tree from Q, correct to one dp.

iii. The bearing of the tree from Q, correct to one dp.

Isabelle and Rebecca are both looking at a tower of height 20 metres. Isabelle is standing due south of the tower and measures the angle of elevation from the ground to the top of the tower to be 12° . Rebecca is standing due east of the tower and measures the angle of elevation from the ground to the top of the tower to be 20° .

- a) Complete the diagram below.



- b) What is the shortest distance between Isabelle and Rebecca?

- c) What is the bearing of Rebecca from Isabelle?

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