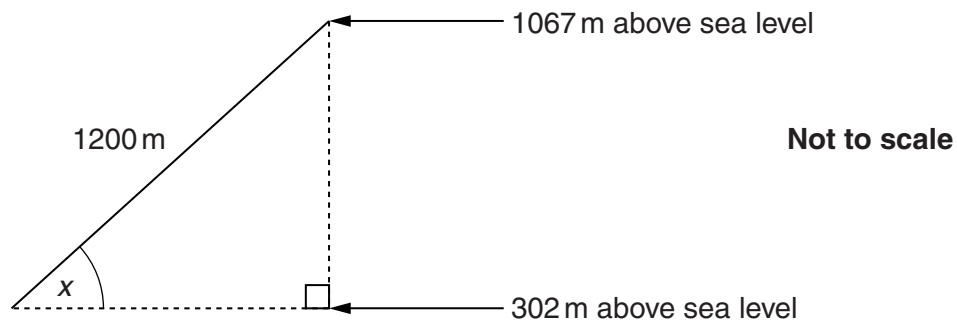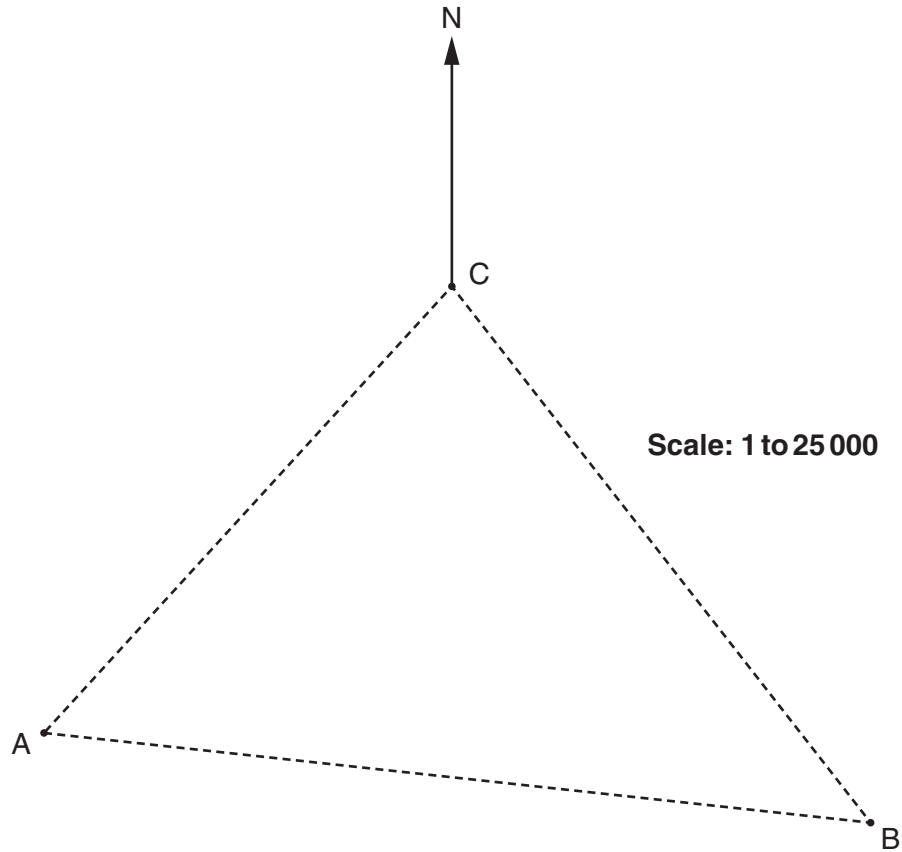**1**　　The cable car which goes up Table Mountain starts at a height of 302 m above sea level.
It goes to the top of the mountain at 1067 m above sea level.
The length of the cable is 1200 m.

Calculate x, the angle that the cable makes with the horizontal.

_____ ° **[4]**

2 **(a** This map shows three places A, B and C in some flat countryside.
They are joined by paths.

N

C

Scale: 1 to 25 000

A

B

(i) By measuring, find the bearing of A from C.

(a)(i) _____° **[1]**

(ii) Ruth and Joy are planning a walk.
They want to start at A, walk to B, then to C and then to A along the paths shown.
Joy cannot walk more than 8 km.

Can Joy complete this walk?
Show how you decide.

(ii) _____ **[4]**

(b) A different map has a squared grid printed on it.
The distance between the gridlines represents 1 km.
A magazine for walkers gives this information to help estimate distances:

The distance across a diagonal of a square
represents 1.5 km.

1 km

1.5 km

1 km
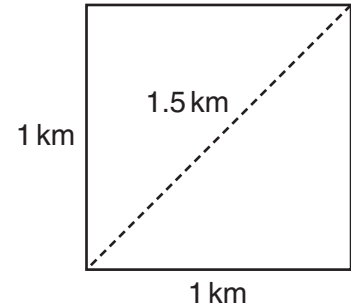
Use Pythagoras' theorem to calculate the length of a diagonal of a square and comment on
the accuracy of the magazine's information.

_____

_____ **[3]**

(c) Mike is walking up a path in hilly countryside.
The path increases in height by 400 m over
a horizontal distance of 600 m, as shown on
the diagram.

At the bottom of the path, Mike says:

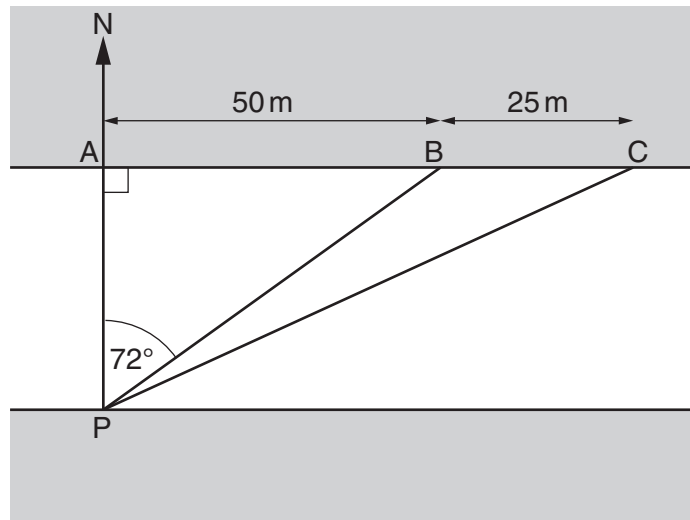It looks as if it goes up at 40° to
the horizontal.

400 m

Not to scale

600 m
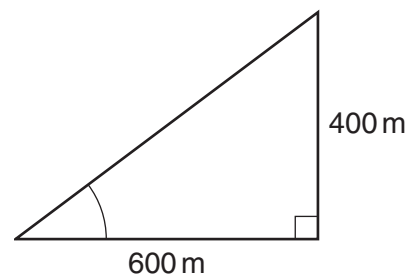
Calculate whether Mike's estimate is a good one.

_____

_____ **[3]**

3 Paul stands on one bank of a river at point P.
Aleysha stands on the other bank due North of Paul, at point A.
She then walks 50 m due East to point B.
At B her bearing from Paul is 072°.

Not to scale

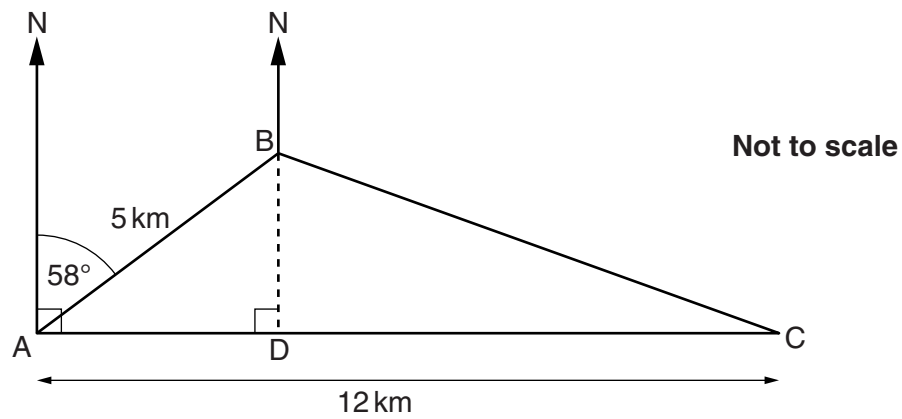**(a)** Calculate AP, the width of the river.

(a) _____ m **[3]**

(b) Aleysha walks 25 m further East to point C.

Calculate the bearing of C from P.

(b) _____ ° **[3]**

4   The diagram shows the journey of a boat starting from A.
To avoid rocks, the boat first travels 5 km on a bearing of 058° to B.
It then travels from B to C.
C is 12 km due east of A.

Not to scale

(a) Show by calculation that AD, the distance that B is east of A, is 4.24 km correct to
2 decimal places. **[3]**

(b) Calculate the bearing on which the boat travels from B to C.

(b) Bearing _____ ° **[6]**