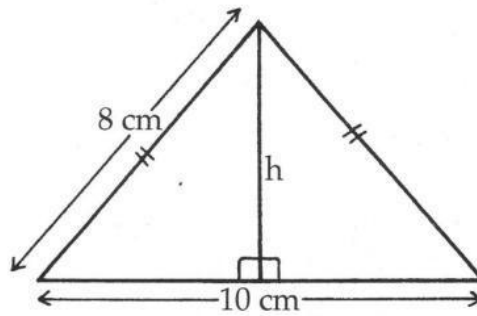
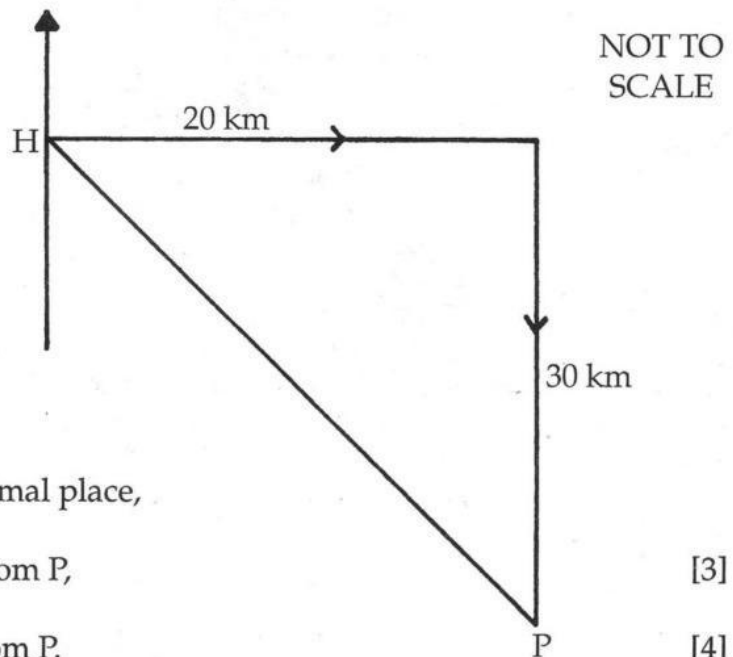


8. Calculate the height of this figure.

[4]

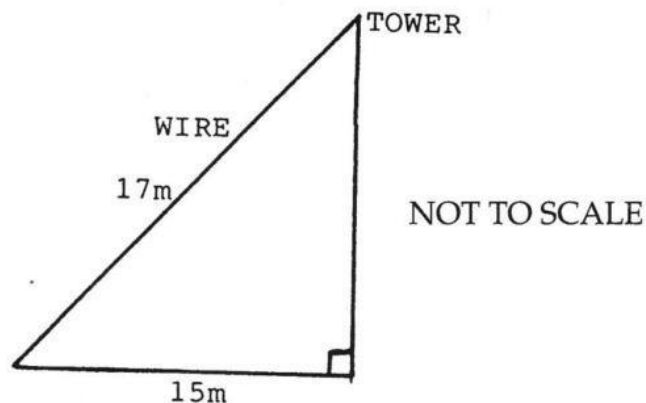


14. A boat sails from harbour H on a bearing of 090° for 20 km. It then changes course to a bearing of 180° , for 30 km to a point P.



Calculate, correct to 1 decimal place,

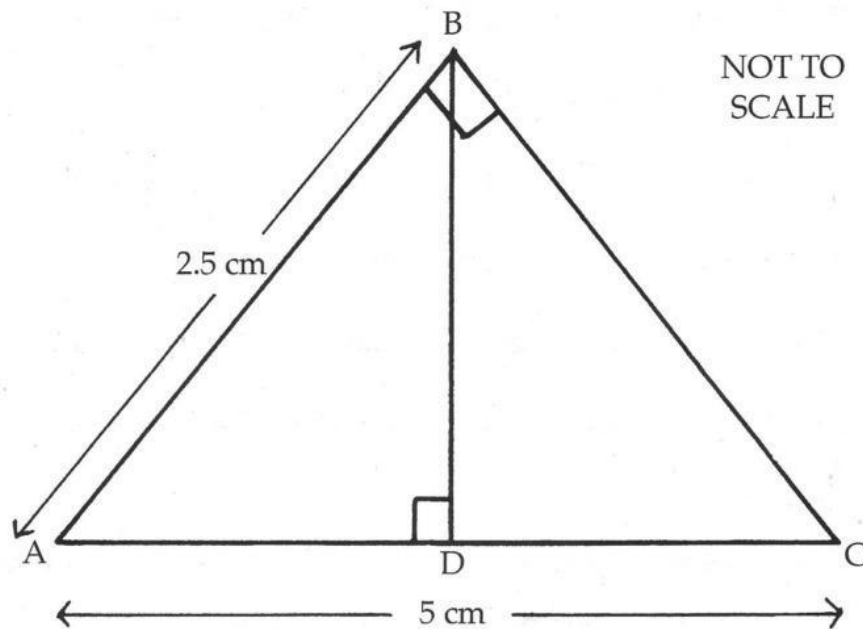
- (a) the distance of H from P, [3]
- (b) the bearing of H from P. [4]
15. (a)



A taut wire 17 m long is attached to the top of a tower and the ground. The wire is 15 m away from the base of the tower.

- (i) Calculate the height of the tower. [3]
- (ii) Calculate the size of the angle formed between the ground and the wire. Give the answer to the nearest degree. [3]

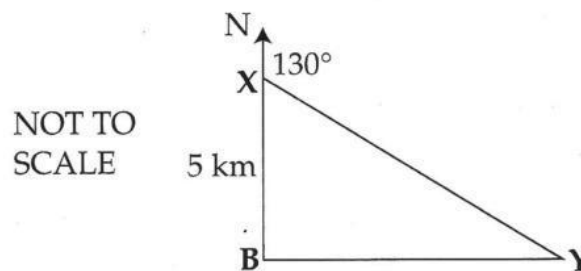
18.



Given that $AC = 5 \text{ cm}$ and $AB = 2.5 \text{ cm}$

Calculate,

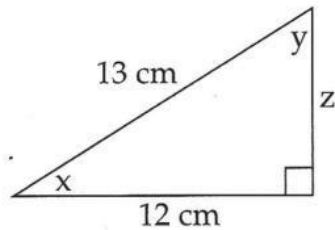
- (a) $\angle BAC$, [3]
- (b) BD correct to 2 decimal places, [4]
- (c) $\angle DBC$, [1]
- (d) DC , correct to 2 significant figures. [4]
- (b) A hiker sets out from base camp (**B**) heading due north, he walks for 5 km to a point **X** and then turns and walks on a bearing of 130° . He arrives at a check point (**Y**), which is due east of the base camp (**B**).



Calculate

- (i) $\angle BXY$, [1]
- (ii) the distance BY correct to 3 significant figures, [3]
- (iii) the bearing he must walk on from the check point (**Y**) back to base camp (**B**). [1]

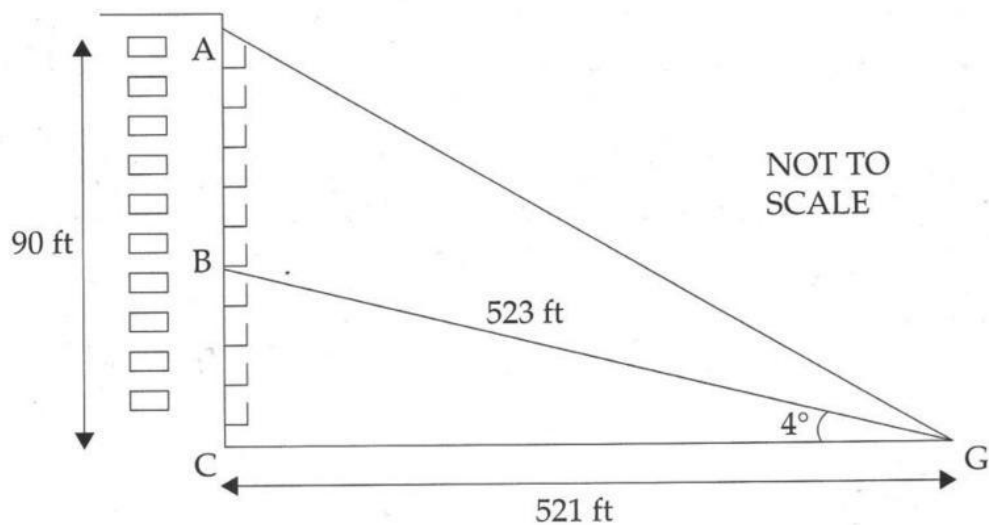
14. (a) Given the right-angled triangle below,



calculate

- (i) the length of side z , [3]
- (ii) angle y correct to one decimal place. [3]

15.



A hotel guest, A, with a viewpoint 90 feet above the ground, notices a golf ball, G, on level ground 521 feet from the base of the hotel.

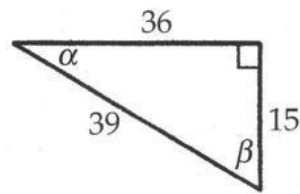
- (a) Calculate the value of the angle AGC. Give your answer correct to one decimal place. [4]

Another guest, B, also notices the same golf ball. His view length, BG, is 523 feet.

- (b) Calculate

- (i) the length of the side BC. Give the answer correct to three significant figures. [3]
- (ii) the distance between the two guests, A and B. [1]

9. (a)



NOT TO
SCALE

For the above diagram, calculate

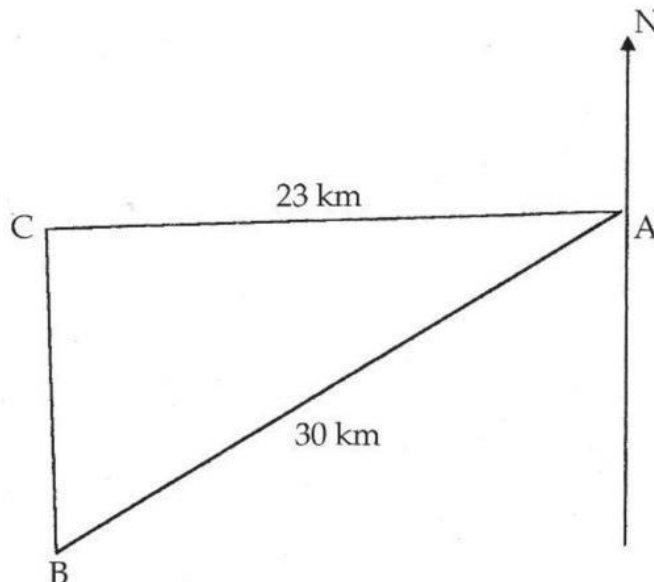
(i) the ratio $\tan \alpha$,

_____ [1]

(ii) the angle β .

_____ [2]

12. Town B is 30 km from town A. Town C is 23 km from town A and due west of town A. Town B is due south of town C.



NOT TO SCALE

Calculate

(a) the distance BC to one decimal place,

_____ [3]

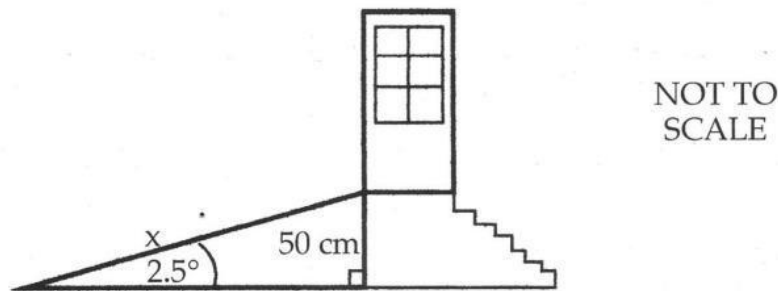
(b) the value of $\angle BAC$,

_____ [3]

(c) the bearing of B from A.

_____ [1]

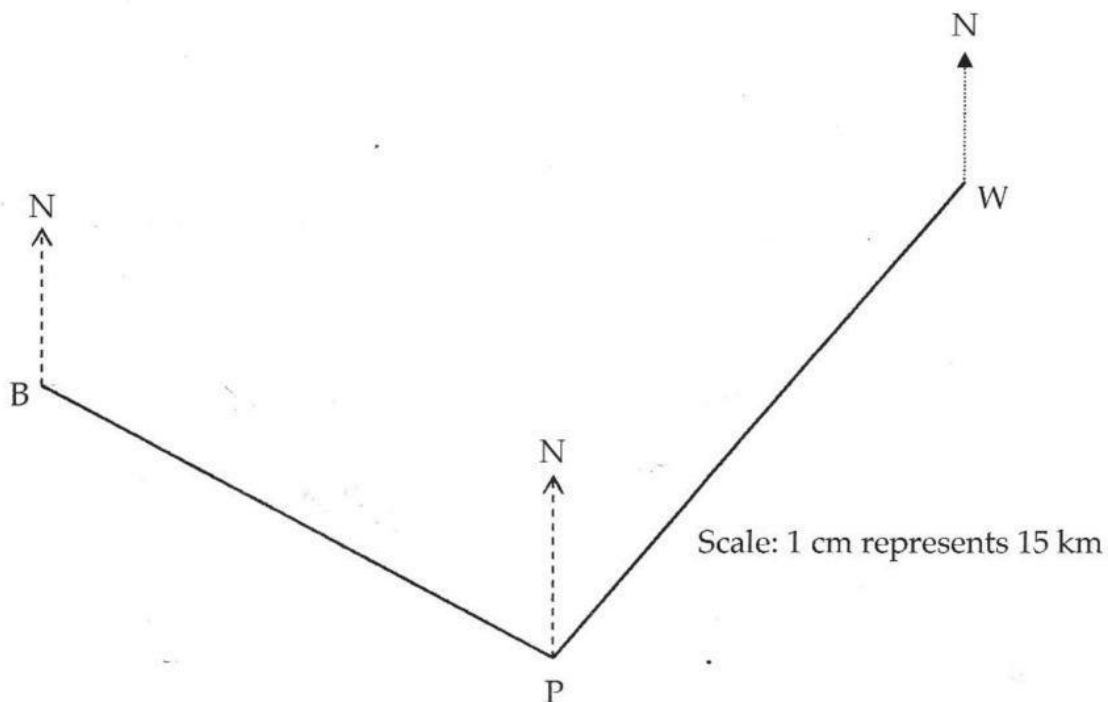
- (b) A store proprietor wants to offer wheelchair access to her store. The greatest angle the ramp (x) can have is 2.5° , and the height it needs to reach is 50 cm.



Calculate the length of the ramp, (x), in metres, correct to 1 decimal place.

[4]

13. The diagram is a **scale drawing** of a mailboat excursion from Port B to Port P and on to Port W.

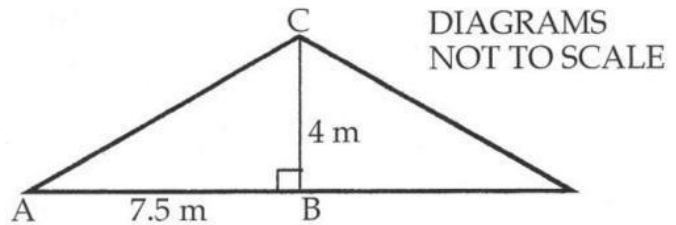


- (a) Give the shortest distance (in km) between Port B and Port W. [2]
 (b) State the bearing of Port P from Port B. [1]
 (c) Calculate the bearing of Port B from Port P. [2]

An uninhabited Cay (not shown on the diagram) lies 97.5 km north of Port P.

- (d) Give the length north from Port P that this would be on the scale drawing. [2]

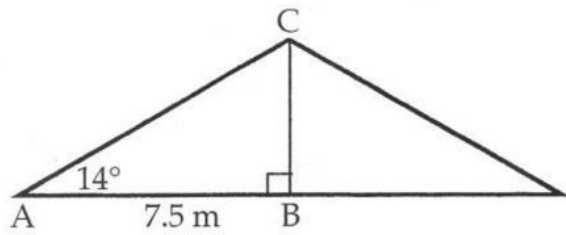
17. Mr. Jones plans to build a house. The diagram shows the initial plan of the cross-section for the roof.



(a) Calculate

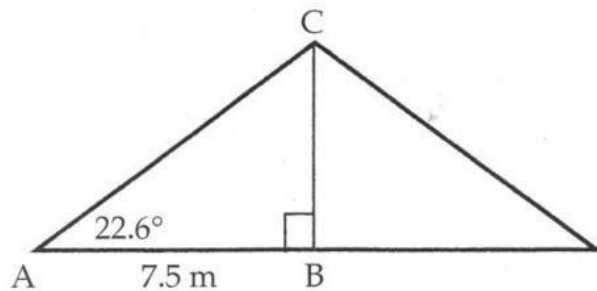
- (i) the length AC, [3]
- (ii) the angle of slope, $\angle CAB$. [3]

Mr. Jones considers the option of putting shingles on the roof. The building code requires that for shingles, the roof must have a slope of at least 14° .



(b) Calculate the least height that CB must be. [3]

In the end, Mr. Jones decides to install a Bermuda roof, which is less likely to be damaged in a hurricane. This roof is required to have a slope of at least 22.6° .



(c) Calculate the length of AC. [3]