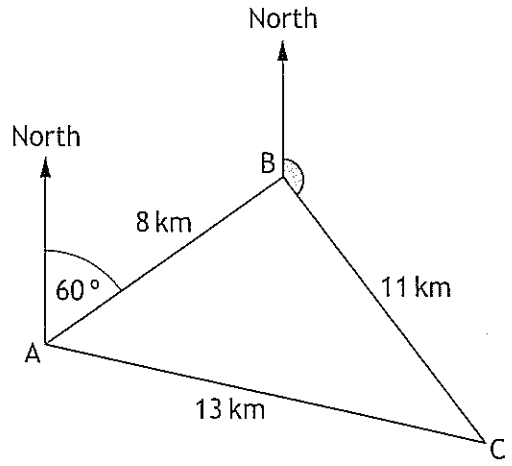
MARKS | DO NOT WRITE IN THIS MARGIN

10. In a race, boats sail round three buoys represented by A, B, and C in the diagram below.



B is 8 kilometres from A on a bearing of 060°.

C is 11 kilometres from B.

A is 13 kilometres from C.

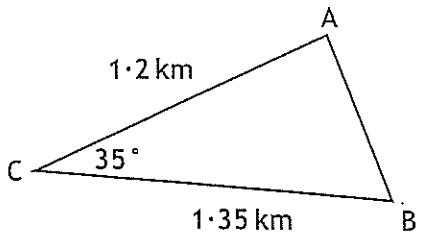
(a) Calculate the size of angle ABC. 3

(b) Hence find the size of the shaded angle. 2

Total marks 5

MARKS | DO NOT WRITE IN THIS MARGIN

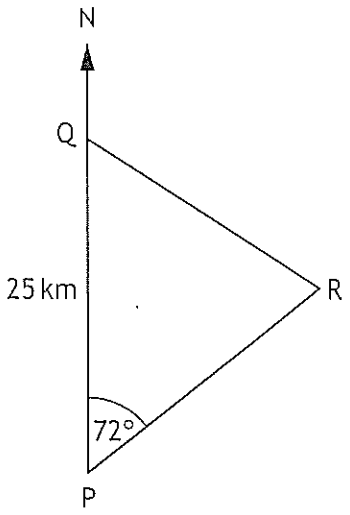
3. Triangle ABC is shown below.



Calculate the length of AB. 3

MARKS | DO NOT WRITE IN THIS MARGIN

13. In the diagram below P, Q and R represent the positions of Portlee, Queenstown and Rushton respectively.



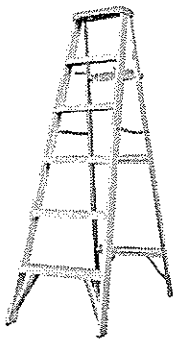
Portlee is 25 kilometres due South of Queenstown.
From Portlee, the bearing of Rushton is 072°.
From Queenstown, the bearing of Rushton is 128°.

Calculate the distance between Portlee and Rushton.

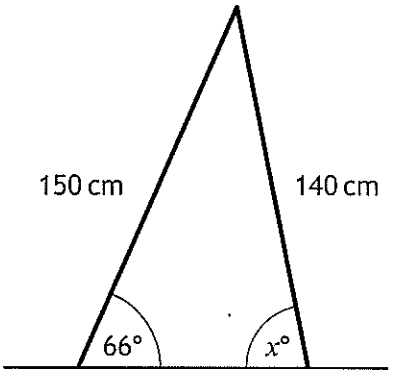
Do not use a scale drawing. 4

[Turn over

8. A set of stepladders has legs 150 centimetres and 140 centimetres long.



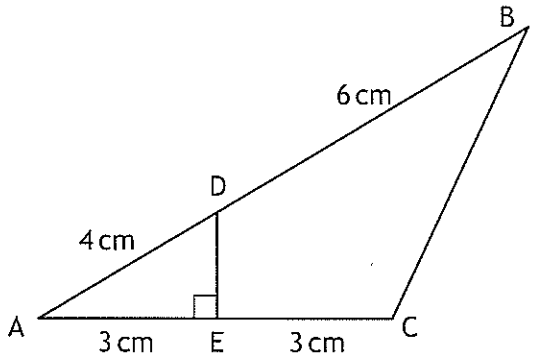
When the stepladder is fully open, the angle between the longer leg and the ground is 66°.



Calculate $x°$, the size of the angle between the shorter leg and the ground. 3

16. In the diagram below:

- DE is perpendicular to AC.
- AD = 4 centimetres.
- DB = 6 centimetres.
- AE = EC = 3 centimetres.



Calculate the length of BC.

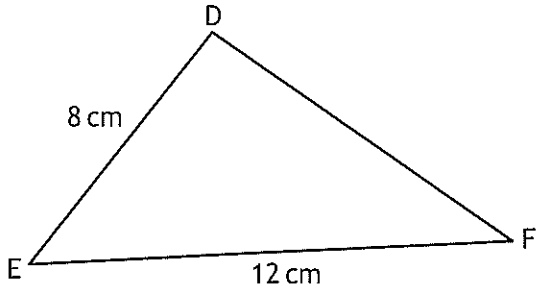
Give your answer correct to one decimal place. 4

[END OF QUESTION PAPER]

MARKS | DO NOT WRITE IN THIS MARGIN

7. In triangle DEF:

- DE = 8 centimetres
- EF = 12 centimetres
- $\sin E = \frac{2}{3}$

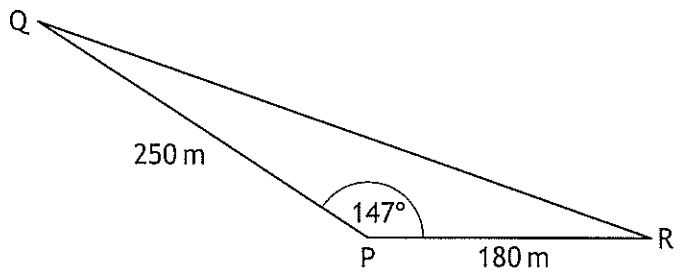


Calculate the area of triangle DEF. 2

[Turn over

MARKS | DO NOT WRITE IN THIS MARGIN

3. A piece of land is in the shape of a triangle as shown.

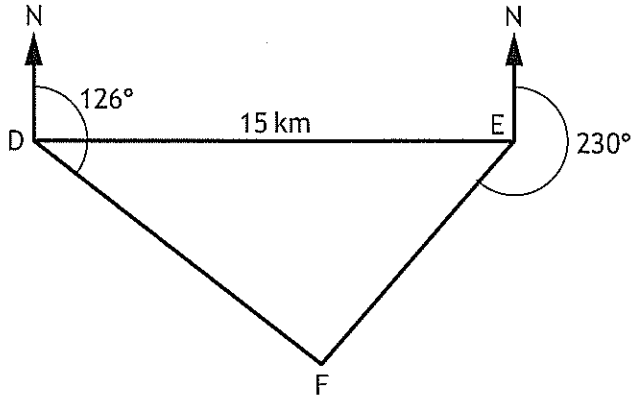


- PQ = 250 metres
- PR = 180 metres
- angle QPR = 147°

The owner wishes to build a fence along the side QR.
Calculate the length of the fence. 3

MARKS | DO NOT WRITE IN THIS MARGIN

10. In the diagram below D, E and F represent the positions of Dunbridge, Earlsford and Fairtown respectively.



Dunbridge is 15 kilometres west of Earlsford.

From Dunbridge, the bearing of Fairtown is 126°.

From Earlsford the bearing of Fairtown is 230°.

Calculate the distance between Dunbridge and Fairtown. 4

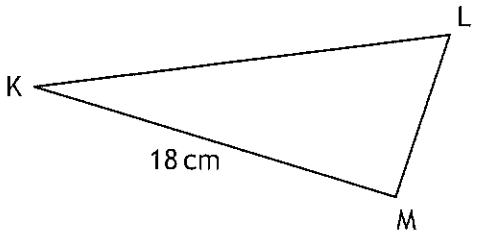
Do not use a scale drawing.

MARKS | DO NOT WRITE IN THIS MARGIN

5. In triangle KLM

- KM = 18 centimetres
- $\sin K = 0{\cdot}4$
- $\sin L = 0{\cdot}9$

Calculate the length of LM.



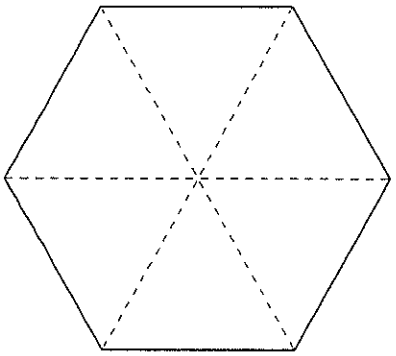
3

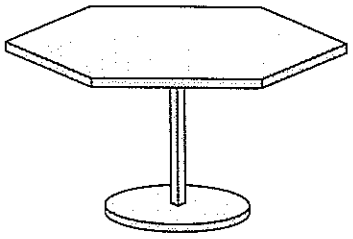
[Turn over

MARKS | DO NOT WRITE IN THIS MARGIN

11. The top of a table is in the shape of a regular hexagon.

The three diagonals of the hexagon which are shown as dotted lines in the diagram below each have length 40 centimetres.





Calculate the area of the top of the table. 4

[Turn over