

Three buoys K , L and M show the course of a boat race.
 $MK = 4$ km, $KL = 9$ km and angle $MKL = 108^\circ$.

(a) Calculate the distance ML .

Answer(a) $ML =$ km [4]

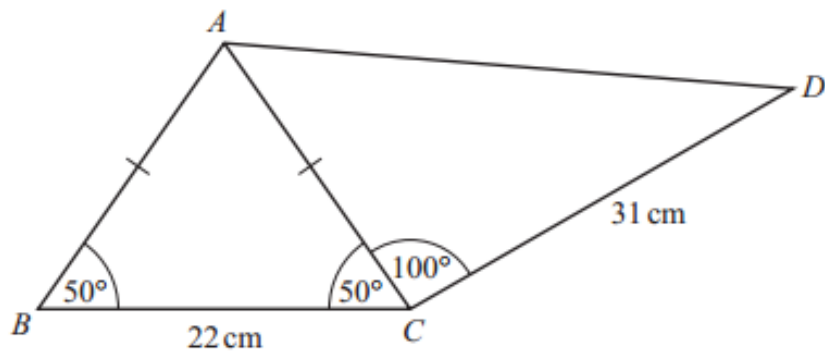
(b) The bearing of L from K is 125° .

(i) Calculate how far L is south of K .

Answer(b)(i) km [3]

(ii) Find the three figure bearing of K from M .

Answer(b)(ii) [2]

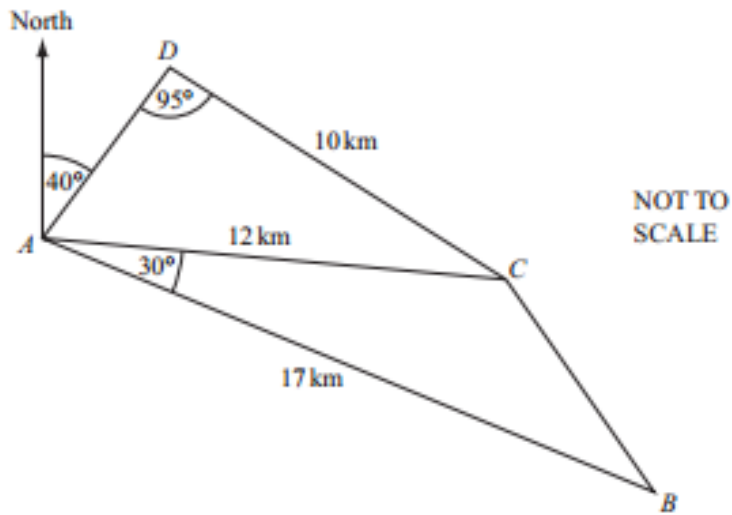


NOT TO
SCALE

The frame of a child's bicycle is made from metal rods.
 ABC is an isosceles triangle with base 22 cm and base angles 50° .
 Angle $ACD = 100^\circ$ and $CD = 31$ cm.

Calculate the length AD .

Answer(c) $AD = \dots\dots\dots$ cm [6]



The diagram shows straight roads connecting the towns A , B , C and D .

$AB = 17$ km, $AC = 12$ km and $CD = 10$ km.

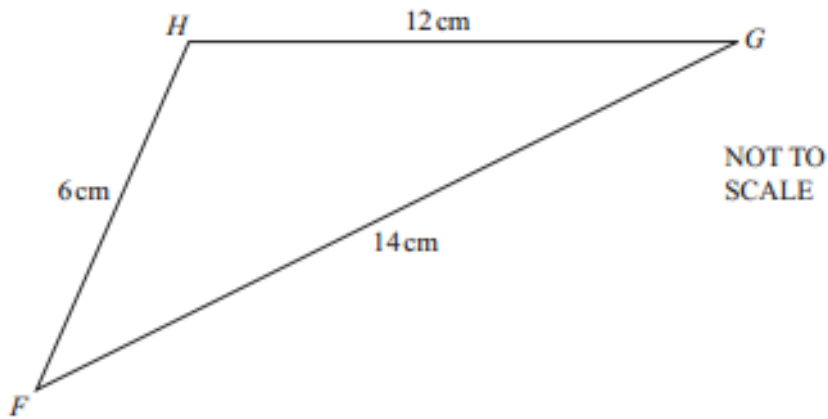
Angle $BAC = 30^\circ$ and angle $ADC = 95^\circ$.

(a) Calculate angle CAD .

Answer(a) Angle $CAD = \dots\dots\dots$ [3]

(b) Calculate the distance BC .

Answer(b) $BC = \dots\dots\dots$ km [4]



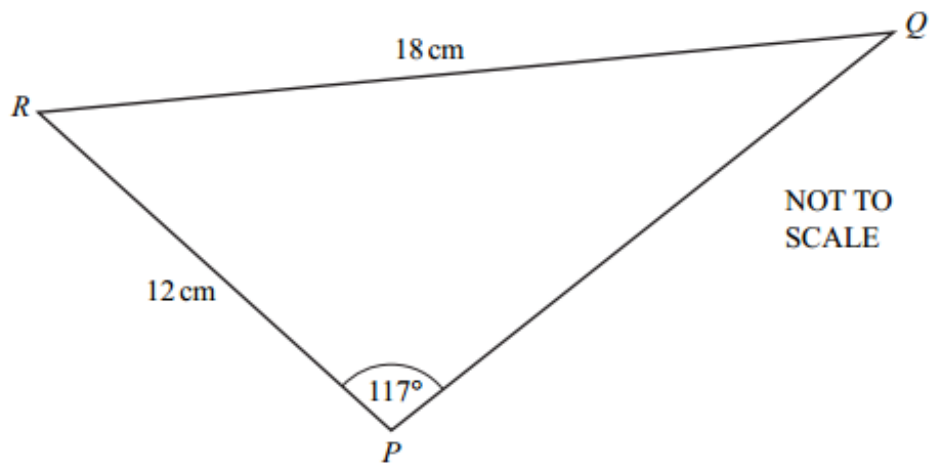
The diagram shows triangle FGH , with $FG = 14\text{ cm}$, $GH = 12\text{ cm}$ and $FH = 6\text{ cm}$.

- (i) Calculate the size of angle HFG .

Answer(a)(i) Angle $HFG = \dots\dots\dots$ [4]

- (ii) Calculate the area of triangle FGH .

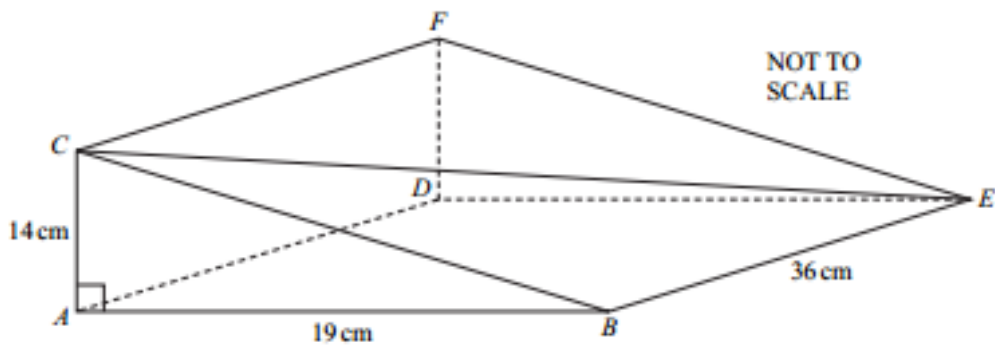
Answer(a)(ii) $\dots\dots\dots$ cm^2 [2]



The diagram shows triangle PQR , with $RP = 12\text{ cm}$, $RQ = 18\text{ cm}$ and angle $RPQ = 117^\circ$.

Calculate the size of angle RQP .

Answer(b) Angle $RQP = \dots\dots\dots$ [3]



In the diagram, $ABCDEF$ is a prism of length 36 cm.
 The cross-section ABC is a right-angled triangle.
 $AB = 19$ cm and $AC = 14$ cm.

Calculate

- (a) the length BC ,

Answer(a) $BC = \dots\dots\dots$ cm [2]

- (b) the total surface area of the prism,

Answer(b) $\dots\dots\dots$ cm² [4]

- (c) the volume of the prism,

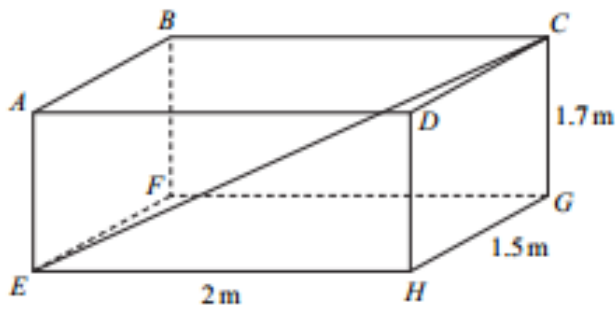
Answer(c) $\dots\dots\dots$ cm³ [2]

- (d) the length CE ,

Answer(d) $CE = \dots\dots\dots$ cm [2]

- (e) the angle between the line CE and the base $ABED$.

Answer(e) $\dots\dots\dots$ [3]



NOT TO SCALE

The diagram shows a box $ABCDEFGH$ in the shape of a cuboid measuring 2 m by 1.5 m by 1.7 m.

(a) Calculate the length of the diagonal EC .

Answer(a) $EC = \dots\dots\dots$ m [4]

(b) Calculate the angle between EC and the base $EFGH$.

Answer(b) $\dots\dots\dots$ [3]

(c) (i) A rod has length 2.9 m, correct to 1 decimal place.

What is the upper bound for the length of the rod?

Answer(c)(i) $\dots\dots\dots$ m [1]

(ii) Will the rod fit completely in the box?

Give a reason for your answer.

Answer(c)(ii) $\dots\dots\dots$ [1]