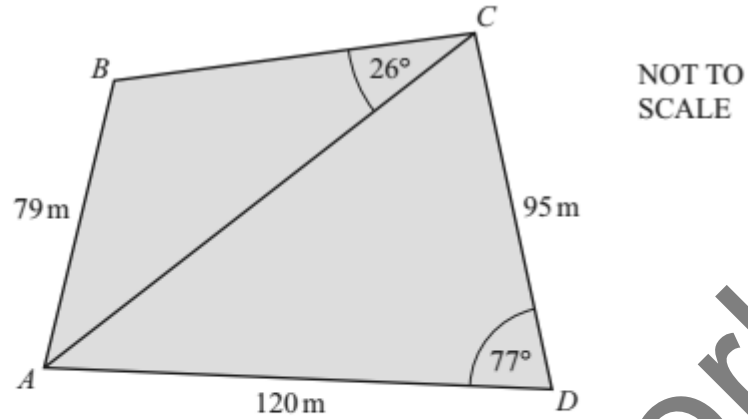


1.



The quadrilateral $ABCD$ represents an area of land.
There is a straight road from A to C .
 $AB = 79$ m, $AD = 120$ m and $CD = 95$ m.
Angle $BCA = 26^\circ$ and angle $CDA = 77^\circ$.

(a) Show that the length of the road, AC , is 135 m correct to the nearest metre.

[4]

(b) Calculate the size of the **obtuse** angle ABC .

Answer(b) Angle $ABC = \dots\dots\dots$ [4]



- (c) A straight path is to be built from B to the nearest point on the road AC .

Calculate the length of this path.

Answer(c) m [3]

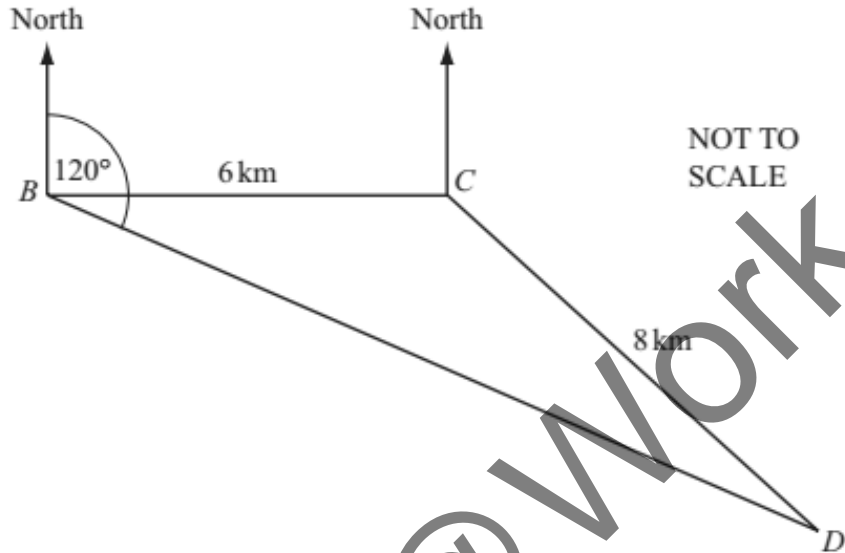
- (d) Houses are to be built on the land in triangle ACD .
Each house needs at least 180m^2 of land.

Calculate the maximum number of houses which can be built.
Show all of your working.

Answer(d) [4]

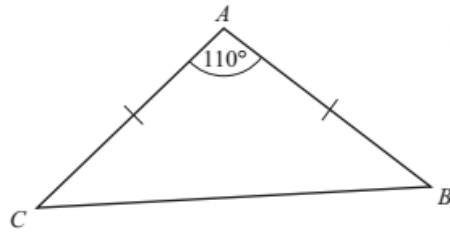


A helicopter flies from its base B to deliver supplies to two oil rigs at C and D .
 C is 6 km due east of B and the distance from C to D is 8 km.
 D is on a bearing of 120° from B .



Find the bearing of D from C .

Answer [5]



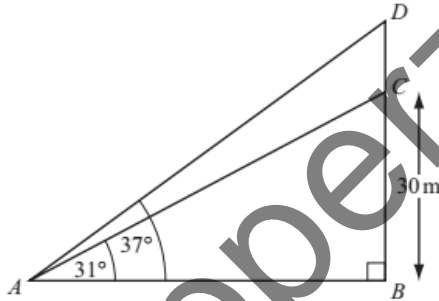
NOT TO SCALE

Triangle ABC is isosceles with $AB = AC$.
 Angle $BAC = 110^\circ$ and the area of the triangle is 85 cm^2 .

Calculate AC .

Answer $AC = \dots\dots\dots \text{ cm}$ [3]

4.

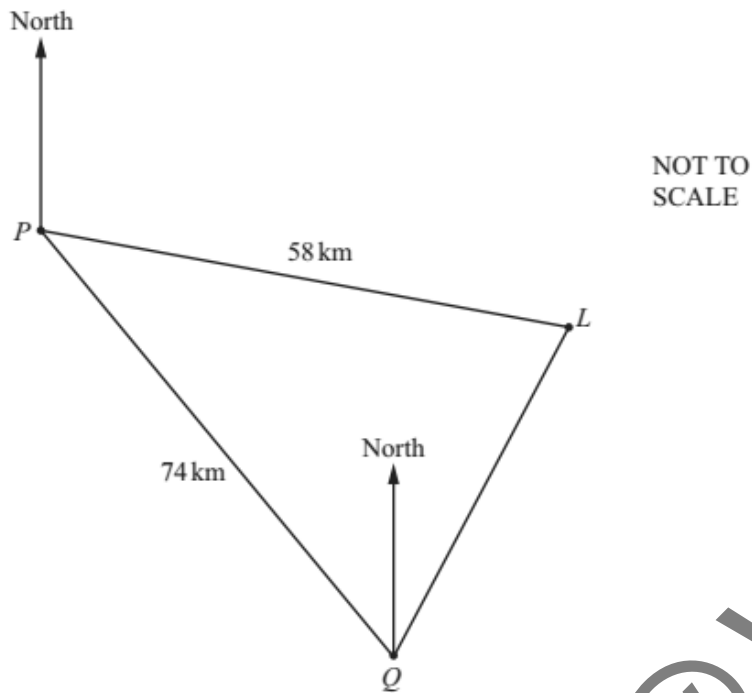


NOT TO SCALE

In the diagram, BC represents a building 30m tall.
 A flagpole, DC , stands on top of the building.
 From a point, A , the angle of elevation of the top of the building is 31° .
 The angle of elevation of the top of the flagpole is 37° .

Calculate the height, DC , of the flagpole.

Answer(b) m [5]



A ship sails from port P to port Q .
 Q is 74 km from P on a bearing of 142° .
A lighthouse, L , is 58 km from P on a bearing of 110° .

- (a) Show that the distance LQ is 39.5 km correct to 1 decimal place.

Answer(a)

[5]

- (b) Use the sine rule to calculate angle PQL .

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

Class: IGCSE X
 Subject: Mathematics
 (c) Find the bearing of

Topic: Trigonometry
 Time: 75 Min

(i) P from Q ,

Answer(c)(i) [2]

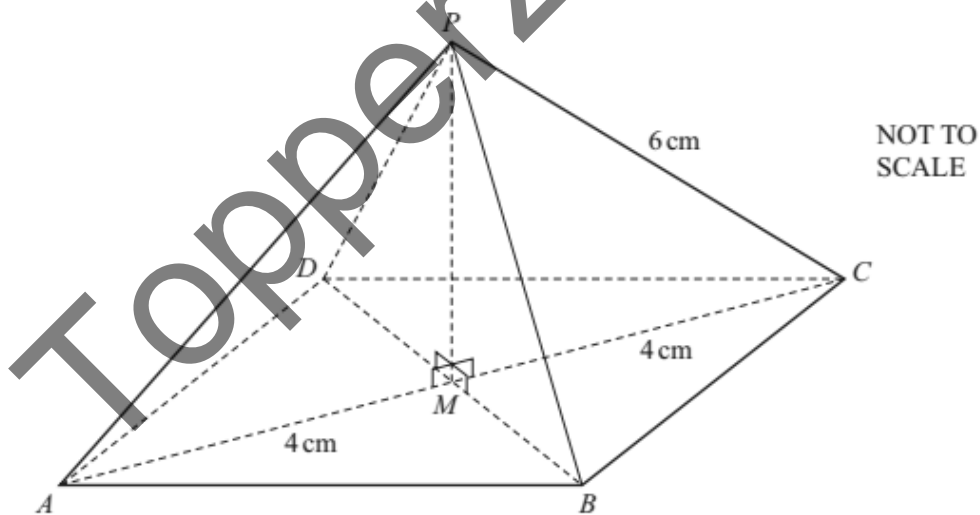
(ii) L from Q .

Answer(c)(ii) [1]

(e) Calculate the shortest distance from the lighthouse to the path of the ship.

Answer(e) km [3]

6.



The diagram shows a pyramid on a square base $ABCD$ with diagonals, AC and BD , of length 8 cm. AC and BD meet at M and the vertex, P , of the pyramid is vertically above M . The sloping edges of the pyramid are of length 6 cm.

Calculate

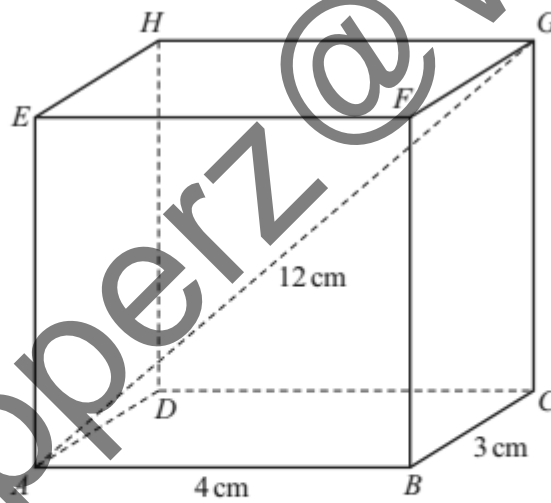
(a) the perpendicular height, PM , of the pyramid,

Answer(a) $PM = \dots\dots\dots$ cm [3]

(b) the angle between a sloping edge and the base of the pyramid.

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

7.



NOT TO SCALE

$ABCDEFGH$ is a cuboid.
 $AB = 4$ cm, $BC = 3$ cm and $AG = 12$ cm.

Calculate the angle that AG makes with the base $ABCD$.

Answer $\dots\dots\dots$ [4]