

Martina walks **650 metres due North**.

She then turns **right through an angle of 37°** and then walks a further **500 metres in a straight line**.

Using a scale of **1cm to represent 100 m**, draw an accurate scale drawing to show the above information.

The starting point is given.

Use your completed drawing to find the actual distance Martina is away from her starting point.

[4]



Actual distance from the starting point =

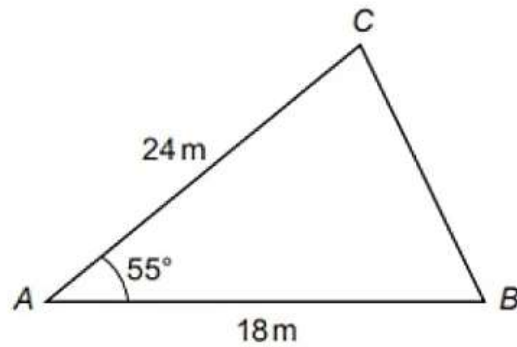


Diagram not drawn to scale

- (a) Draw an accurate scale drawing of the triangle shown above.
Use the scale:
1 centimetre represents 3 metres.

[3]

- (b) Use your scale drawing to calculate the **actual** length of side BC.
Give your answer in metres.

[2]

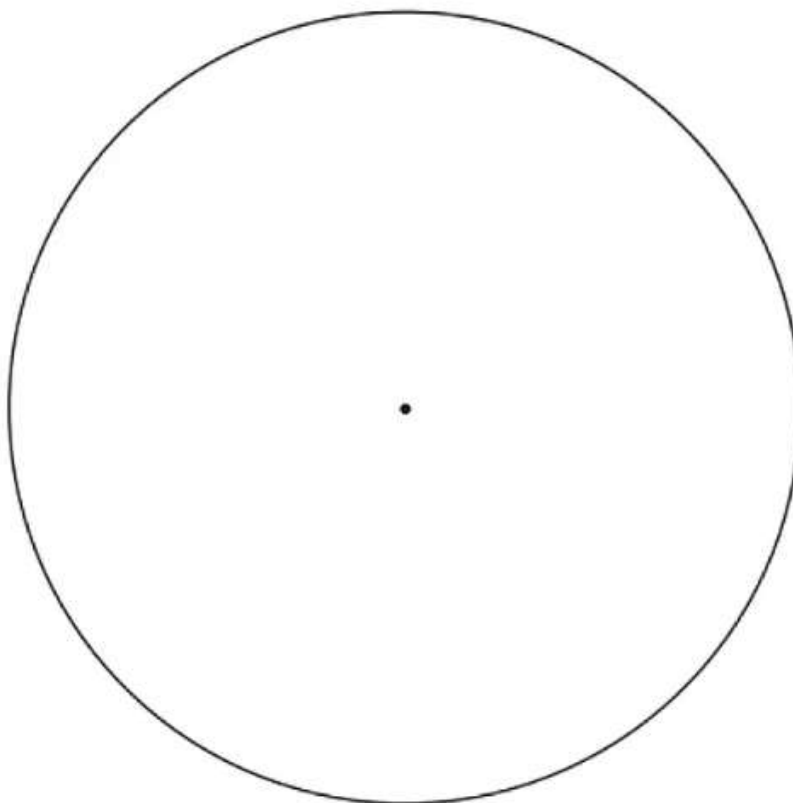
.....
.....
Actual length of BC = metres

One day, Gwyn was asleep for 8 hours and awake for the remaining hours.

Draw an accurate pie chart to illustrate this information.

[4]

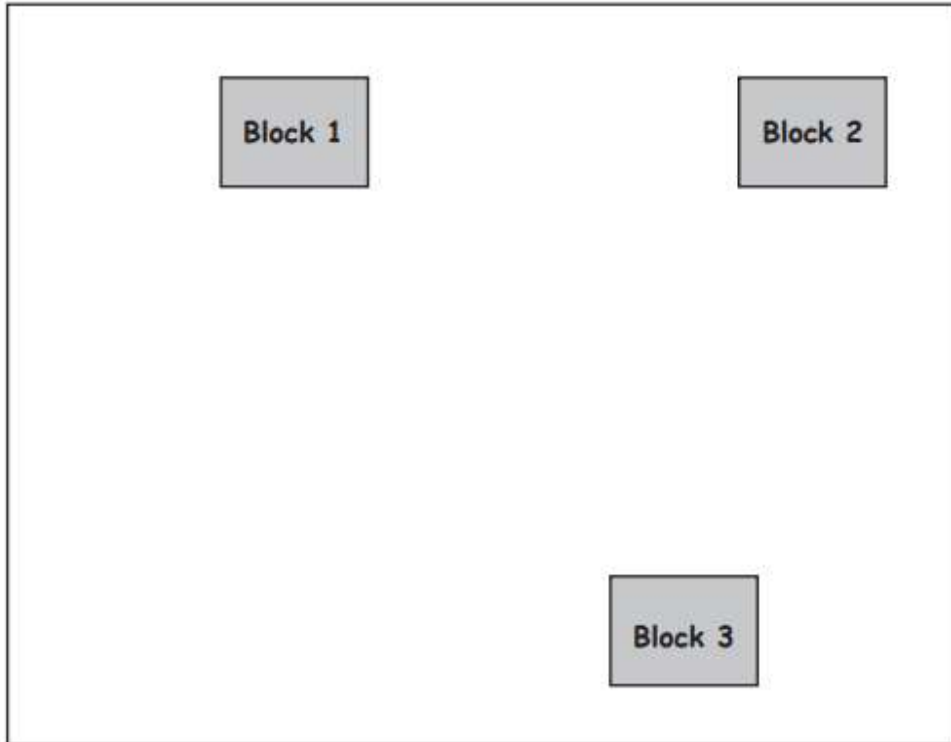
Pie chart showing Gwyn's sleeping and waking hours.



Intermediate Numeracy Summer 2019 P1 Q6

A builder has drawn a plan for building 3 office blocks on a plot of land. They are numbered 1, 2 and 3, as shown below.

The scale of the plan is **1 cm represents 20 m**.



- (a) The builder is planning to plant a tree so that it is:
- the same distance from Block 1 as it is from Block 2,
 - 80 metres from the top left hand corner of Block 3.

Mark the position for the planting of the tree. [3]

.....

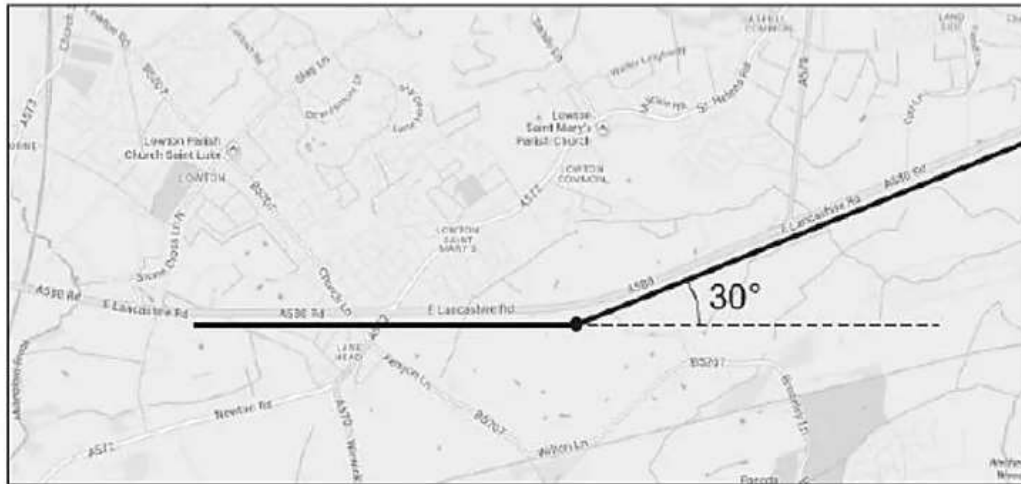
- (b) What is the shortest possible distance between Block 2 and Block 3? [1]

.....

.....

..... metres

(b) As the gas pipeline continues towards the next town, it has to make a 30° turn so that it follows the road, as shown in the sketch.



Using a pair of compasses and a ruler, construct a line that shows the direction of the gas pipeline as it follows the road after the 30° turn. You must show all of your construction lines and arcs.

[3]

The diagram below shows a sketch of the existing gas pipes that run to and from Tŷ Gwyn. It also shows a proposed 180 m gas pipe which is to be laid to provide gas to Cae Nia. The proposed pipe bisects the angle formed by the existing pipes at Tŷ Gwyn.

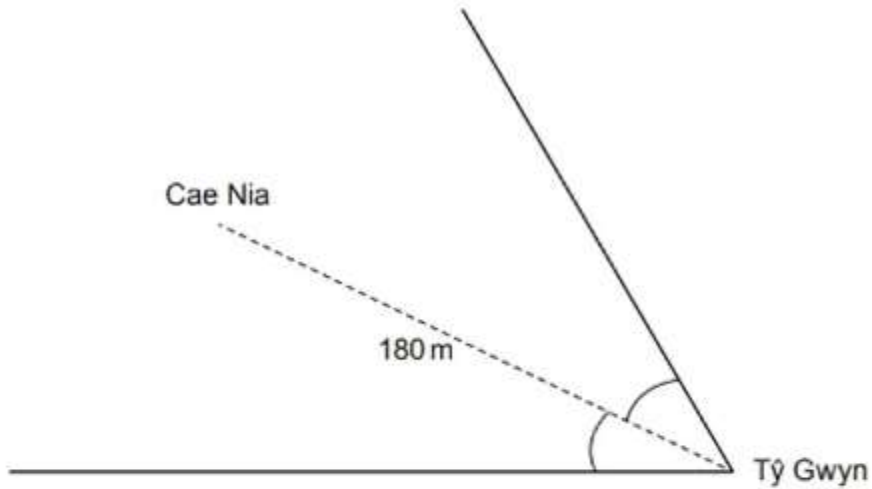


Diagram not drawn to scale

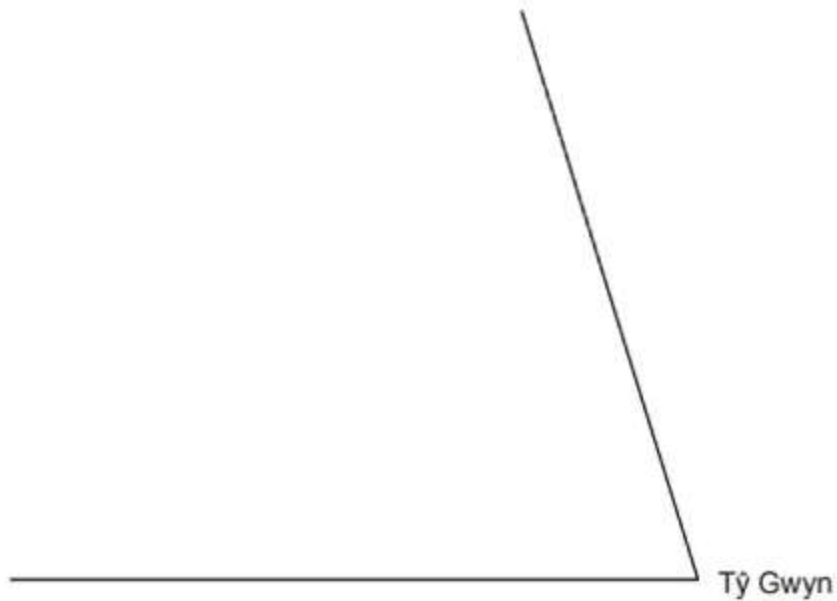
Complete the scale drawing below to show the proposed pipe.

- You must use a pair of compasses to construct the angle bisector.
- Use a scale of 1 cm to represent 20 metres.

[3]

.....

.....



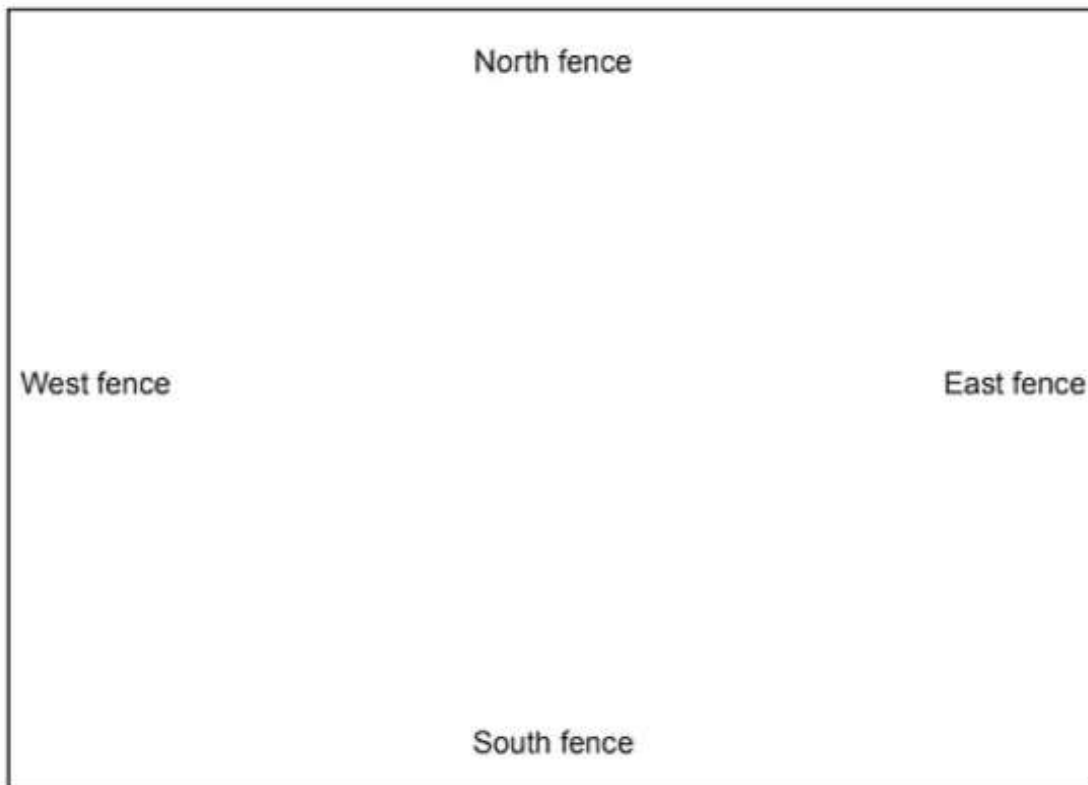
(b) Bronwen decides to place a cylindrical water container in the small paddock on the farm.



The water container has a diameter of 1.4 metres.

- (i) The scale diagram opposite shows the small paddock on the farm.
The small paddock is rectangular, measuring 7 metres by 5 metres.

Scale 2 cm represents 1 m



Bronwen decides to place the centre of the water container so that it is:

- equidistant from the south fence and the east fence,
- 3 metres from the south fence.

Show the placement of the water container on the scale diagram of the small paddock above.

Your diagram should include an **accurate plan view** of the **water container**. [4]

- (ii) The water container holds 900 litres of water when full.
Calculate the height of the water container in centimetres.

[4]

The scale diagram opposite shows an Eisteddfod camping field.

The camping field is 100 metres long and 80 metres wide.

A river runs along the side *AB*.
There is a hedge along *AD*.
There is a fence along *BC*.
DC is an opening with access to the Eisteddfod camping field.

The scale used is **1 cm represents 10 metres**.

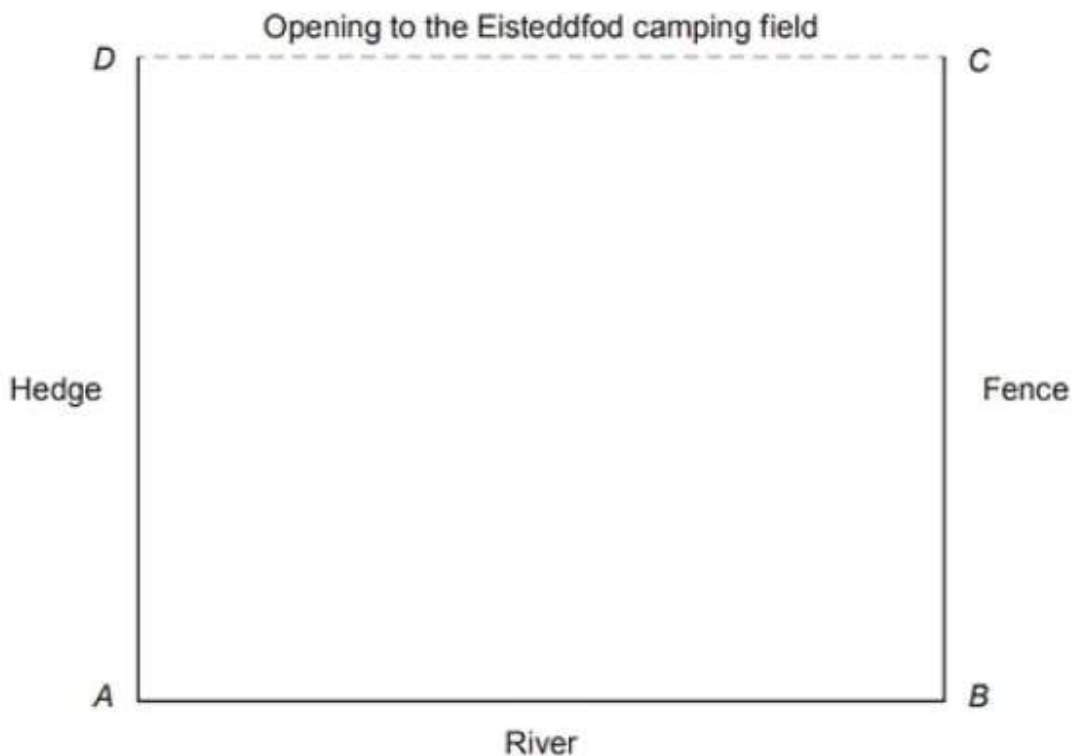
A barbecue area is to be built on the camping field.

The barbecue area must be

- nearer to the river than to the opening to the Eisteddfod camping field,
- nearer to the river than to the hedge,
- more than 30 metres from the corner of the field where the hedge meets the river.

Draw suitable lines on the diagram and shade the region where the barbecue area could be built. [5]

1 cm represents 10 metres



Intermediate Numeracy Nov 2016 P1 Q8

The scale diagram opposite shows an Eisteddfod camping field.

The camping field is 100 metres long and 80 metres wide.

A river runs along the side *AB*.
There is a hedge along *AD*.
There is a fence along *BC*.
DC is an opening with access to the Eisteddfod camping field.

The scale used is **1 cm represents 10 metres**.

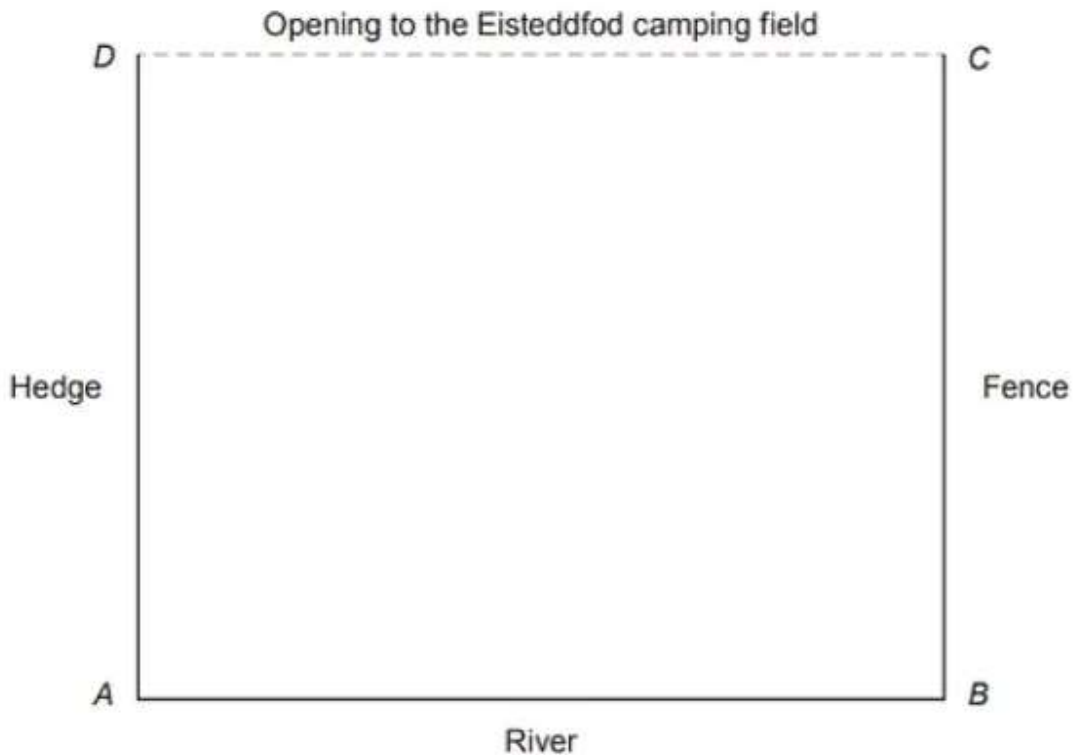
A barbecue area is to be built on the camping field.

The barbecue area must be

- nearer to the river than to the opening to the Eisteddfod camping field,
- nearer to the river than to the hedge,
- more than 30 metres from the corner of the field where the hedge meets the river.

Draw suitable lines on the diagram and shade the region where the barbecue area could be built. [5]

1 cm represents 10 metres



Organics4U is planning to have its headquarters in Wales.
The manager has instructed Ffion to look for a site for the headquarters.

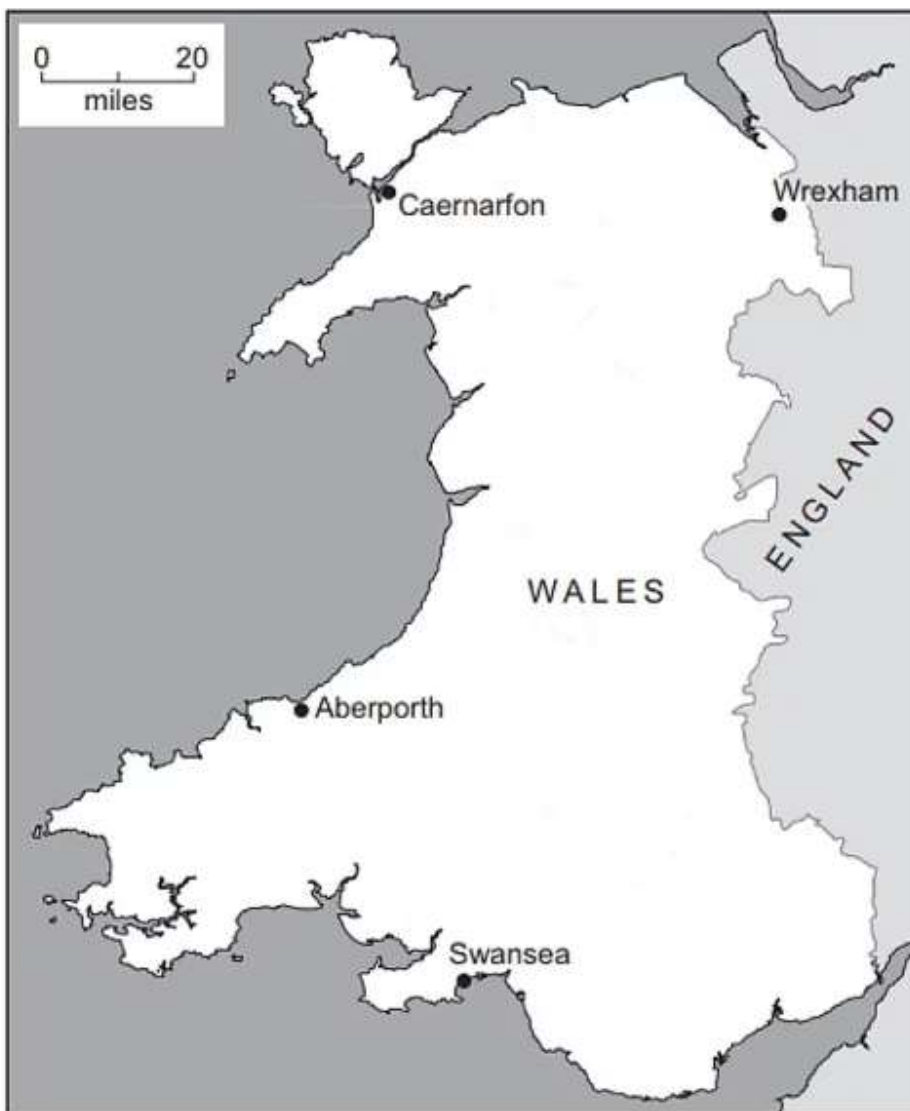
Here are the instructions that Ffion has been given by her manager.

'Find the point that is

- an equal distance between Wrexham and Aberporth, and
- an equal distance between Caernarfon and Swansea.

The new headquarters needs to be within 20 miles of this point.'

On the map below, shade the region, **in Wales**, that Ffion should identify for her manager. [4]



(c) The map below shows the placement of four wind turbines, and a road connecting two of the turbines.



A new wind turbine, Efail, is to be built.

It is to be placed

- on the road connecting Bryn turbine and Cwm turbine, and
- on the perpendicular from Aber turbine to the road.

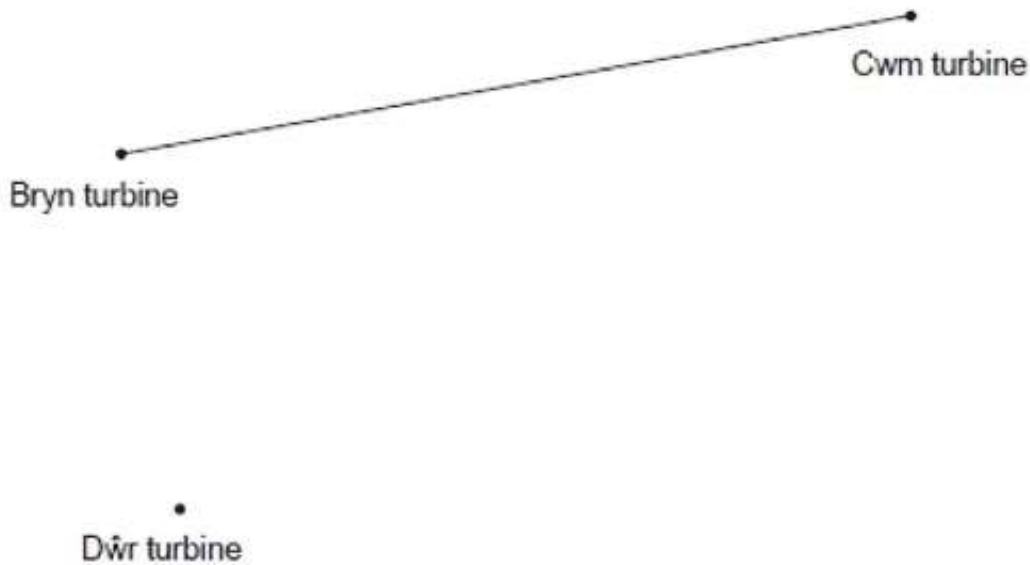
The map is drawn using a scale of 2 cm represents 1 km.

How far will Efail turbine be from Dŵr turbine?

You must use constructions to answer this question, using only a pair of compasses and a ruler. [4]

Scale 2 cm represents 1 km

- Aber turbine



5. The three Welsh castles, shown below, are all within walking distance of each other.

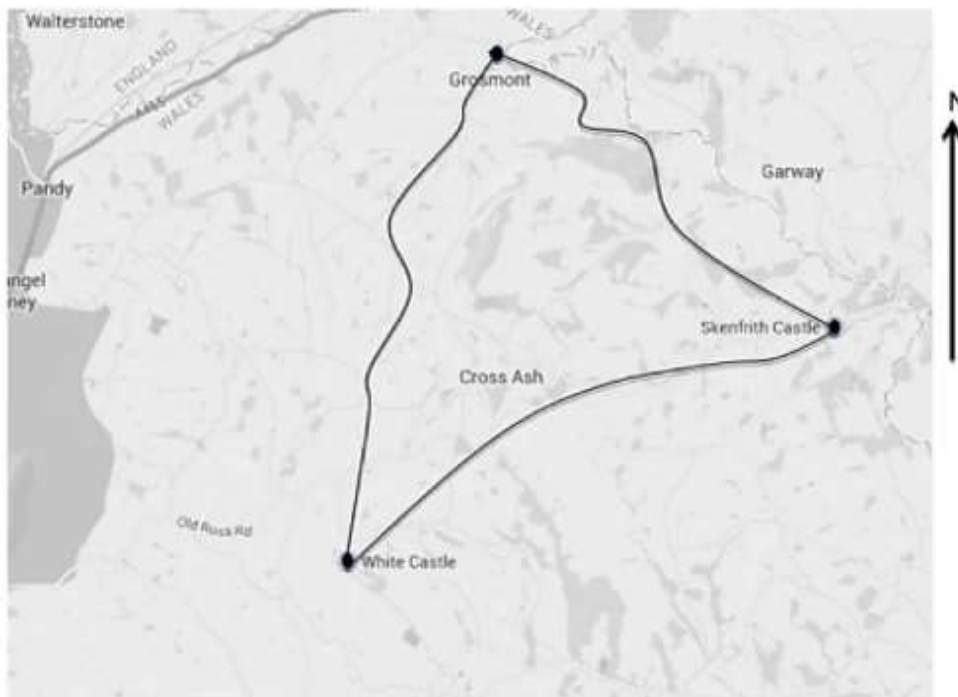
White Castle

Skenfrith Castle

Grosmont Castle



These castles are shown on the map below.
 The black lines represent the **footpaths** between the castles.



(a) **By road**, White Castle is 11 km from Skenfrith Castle.
 Complete the sentence below.

The map scale is approximately 1 cm to represent km.

[3]

(b) Treasure has been buried at a position X.
 X is the position that meets both the following criteria:

- X is equidistant from Grosmont Castle and Skenfrith Castle.
- X is equidistant from White Castle and Skenfrith Castle.

Find the treasure by marking X on the map.

[2]

Use a ruler and a pair of compasses to construct triangle ABC where $AC = 10.5\text{ cm}$, $\hat{A}CB = 60^\circ$ and $\hat{C}AB = 45^\circ$.
Line AC has been drawn for you.

[5]



Intermediate Maths Nov 2016 P1 Q10

A regular polygon has exterior angles of 45° .

(a) How many sides does this polygon have?

[2]

- (b) Each side of this regular polygon is 7 cm.
A sketch of two sides, AB and BC , of the polygon is shown below.

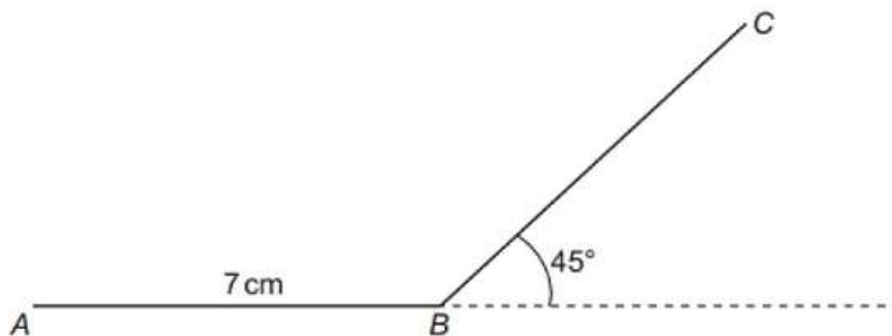


Diagram not drawn to scale

Using only a ruler and a pair of compasses, construct an accurate drawing that shows these **two sides** of the polygon.

The point A has been given.

You must show your construction arcs.

[4]

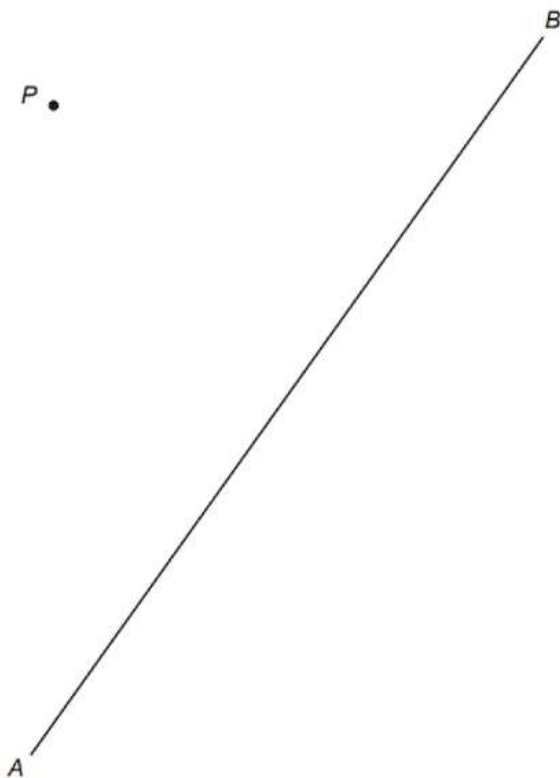
$A \bullet$

- (a) Use a ruler and a pair of compasses to construct an angle $\hat{F}GH$ of size 30° at point G . [3]



Intermediate Maths Nov 2017 P1 Q12

Using only a ruler and a pair of compasses, construct a perpendicular line from the point P to the line AB . [3]



The point P is such that:

- P lies on the perpendicular bisector of the line AB ,
- $\widehat{BAP} = 30^\circ$.

Using only a ruler and a pair of compasses, show one of the possible positions of P .
All construction lines and arcs must be shown.

[4]



Construct an accurate drawing of triangle ABC , where $AB = 7$ cm, $\hat{A}BC = 90^\circ$ and $\hat{B}AC = 60^\circ$.
Use only a ruler and a pair of compasses.
The side AB has been drawn for you.
You must show your construction arcs. [3]

