Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	

AQA

Free-Standing Mathematics Qualification
Foundation Level
June 2014

Using Spatial Techniques 4982

Unit 2

Friday 16 May 2014 9.00 am to 10.00 am

For this paper you must have:
- a clean copy of the Data Sheet (enclosed)
- a calculator
- a pair of compasses
- a protractor
- a ruler.

Time allowed
- 1 hour

Instructions
- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page.
- Do all rough work in this book. Cross through any work that you do not want to be marked.
- You may **not** refer to the copy of the Data Sheet that was available prior to this examination. A clean copy is enclosed for your use.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 40.
- You are expected to use a calculator where appropriate.

Advice
- In all calculations, show clearly how you work out your answer.

Do not write outside the box

Section A

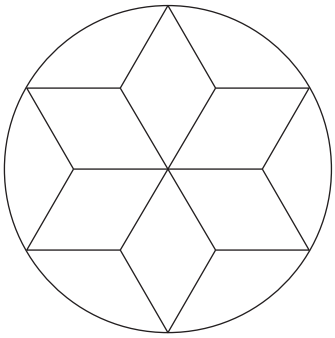
Answer **all** questions.

Answer each question in the space provided for that question.

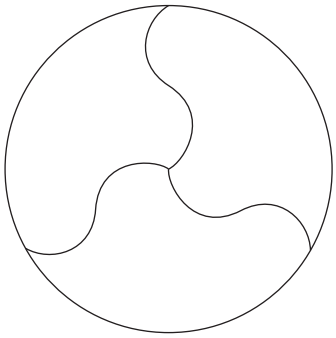
Use **London clocks** *on page 2 of the Data Sheet.*

1 The diagrams below show the patterns on two of the clock faces.

Pattern A



Pattern B



1 (a) Write down the order of rotational symmetry of each pattern.

[2 marks]

Pattern A ..... Pattern B .....

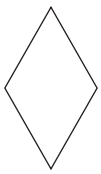
1 (b) How many lines of symmetry does each pattern have?

[2 marks]

Pattern A ..... Pattern B .....

1 (c) The diagram below shows a quadrilateral from Pattern A.

It has four equal sides.



Write down the mathematical name of this quadrilateral.

[1 mark]

Answer.....

5

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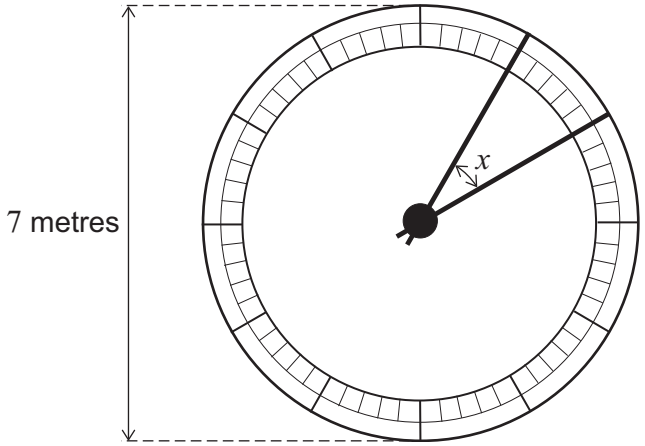
2 The diagram below shows another clock face.



2 (a) **Calculate** the angle marked x on the diagram. Show your working.

[2 marks]

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Answer.....

2 (b) The diameter of this clock face is 7 metres.

Calculate the circumference of this clock face.

[2 marks]

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Answer.....

4

Turn over for the next question

Do not write outside the box

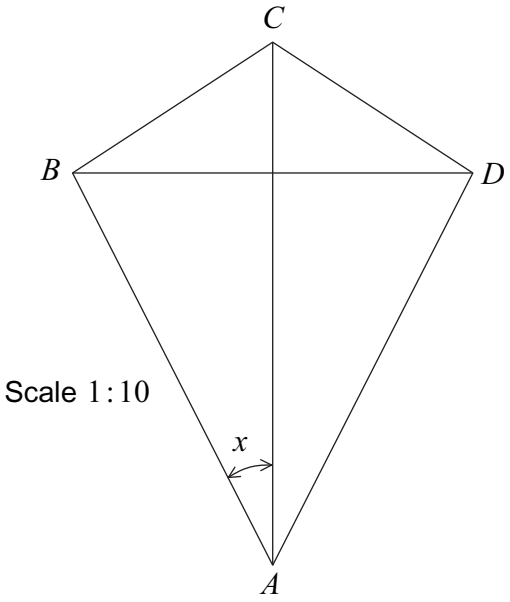
Section B

Answer **all** questions.

Answer each question in the space provided for that question.

Use **Kites** *on page 3 of the Data Sheet.*

3 The diagram shows a kite, $ABCD$, drawn to a scale of $1:10$.



3 (a) Measure angle x.

[1 mark]

Answer $x =$ .....

3 (b) (i) Measure the length of side AB on the diagram above.

Give your answer in **centimetres**.

[1 mark]

Answer.....

3 (b) (ii) Calculate the length of side AB on the actual kite.

Give your answer in **centimetres**.

[1 mark]

Answer.....

3 (c) Triangle ABD has two equal sides.

What is the mathematical name for this type of triangle?

[1 mark]

Answer.....

4

4 Another kite is in the shape of a hexagon.

4 (a) In the space below, draw a circle of radius $3.5\,\text{cm}$.

[1 mark]

4 (b) Using **a pencil**, **a ruler and a pair of compasses only**, construct a regular hexagon with sides $3.5\,\text{cm}$ long inside your circle. Show **all** your construction lines.

[2 marks]

3

5 A roll of ribbon is 5 yards long. It is cut into 20 equal pieces.

Find the length of each piece of ribbon.

Give your answer in **inches**.

1 yard $= 36$ inches

[3 marks]

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Answer.....

3

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Section C

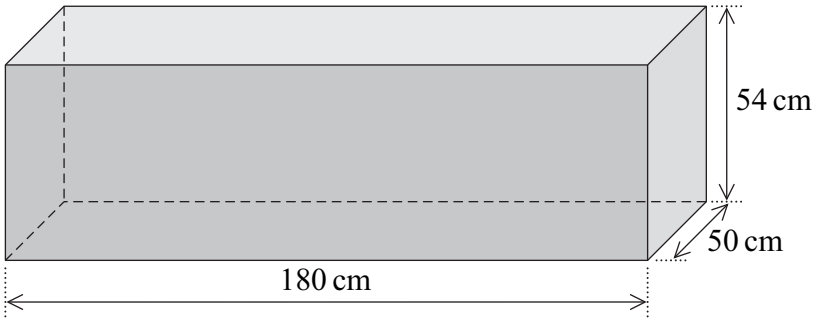
Answer **all** questions.

Answer each question in the space provided for that question.

Use **Podium** *on page 4 of the Data Sheet.*

6 The diagram below shows the dimensions of a cuboid.

Not to scale



6 (a) Calculate the volume of this cuboid. State the units.

[3 marks]

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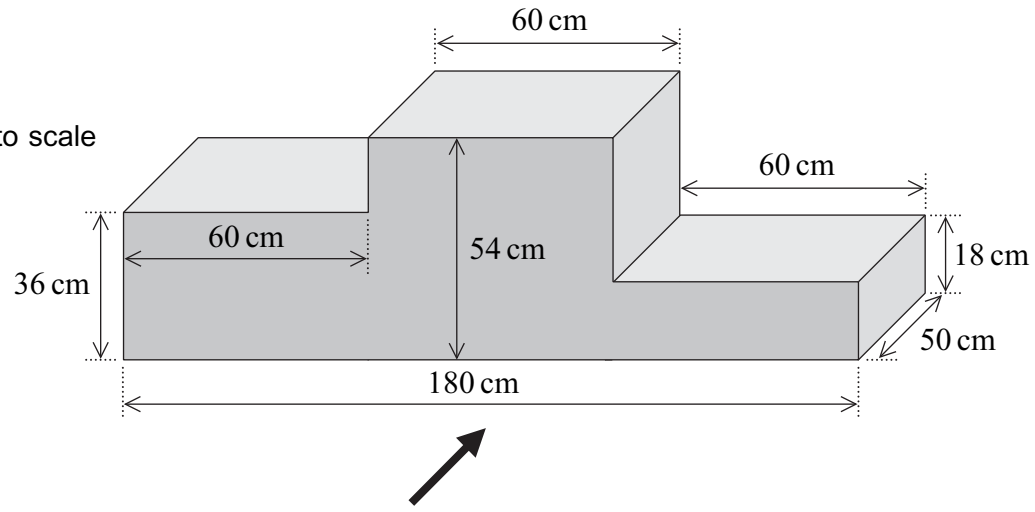
Answer.....

6 (b) The cuboid is used to make a podium with the dimensions shown below.

Not to scale



6 (b) (i) In the space below, draw an accurate plan of the podium. Use a scale of $1:20$.

[3 marks]

6 (b) (ii) In the space below, draw an accurate front elevation of the podium from the direction of the bold arrow. Use a scale of $1:20$.

[5 marks]

Space for working

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11

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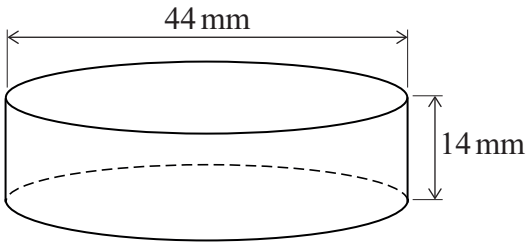
Section D

Answer **all** questions.

Answer each question in the space provided for that question.

Use **Laundry tablets** *on page 4 of the Data Sheet.*

7 The diagram below shows the dimensions of a cylindrical laundry tablet.



Not to scale

7 (a) Calculate the area of a circular face of this tablet.

[3 marks]

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Answer.....

7 (b) Calculate the volume of this tablet.

[2 marks]

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Answer.....

5

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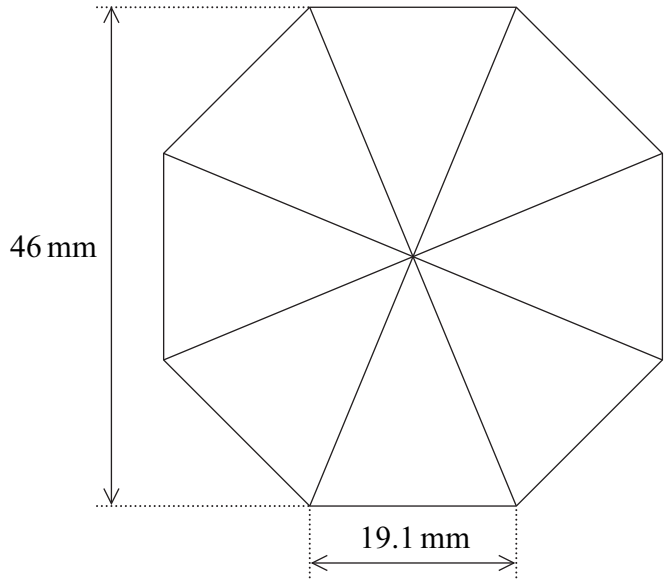
8 The diagram below shows the top of a laundry tablet with an octagonal face.

The face is divided into 8 congruent triangles.



Not to scale

8 (a) Calculate the area of one of the triangles.

[3 marks]

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Answer.....

8 (b) Calculate the area of the octagonal face.

[2 marks]

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Answer.....

5

END OF QUESTIONS

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