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	
TOTAL	

Free-Standing Mathematics Qualification
Foundation Level

Using Spatial Techniques 4982

Specimen Question Paper

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

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.

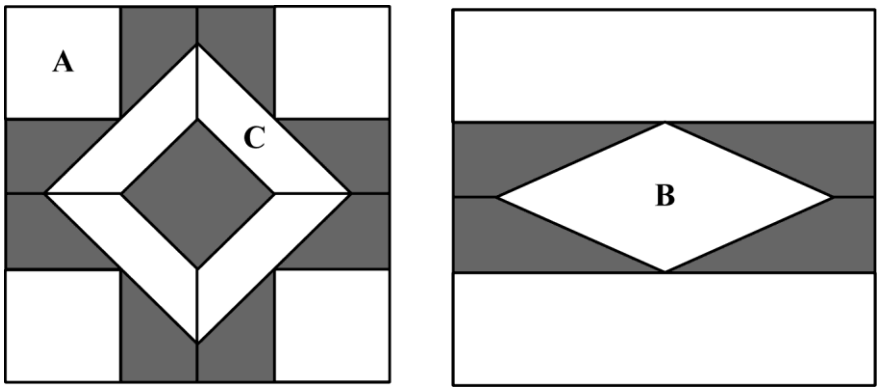
Advice
- In all calculations, show clearly how you work out your answer.

Section A

Answer **all** questions in the spaces provided.

Use **Front door** *from page 2 of the Data Sheet*.

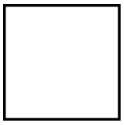
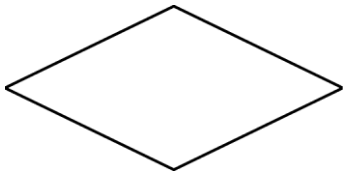
1 Three of the shapes in the glass panels of the front door are labelled in the diagrams below.



The shapes are shown again in the table below.

Complete the table by:

1 (a) drawing lines of symmetry on each shape;

Lines of symmetry	Name of shape	Order of rotational symmetry
	square	
	rhombus	
	trapezium	

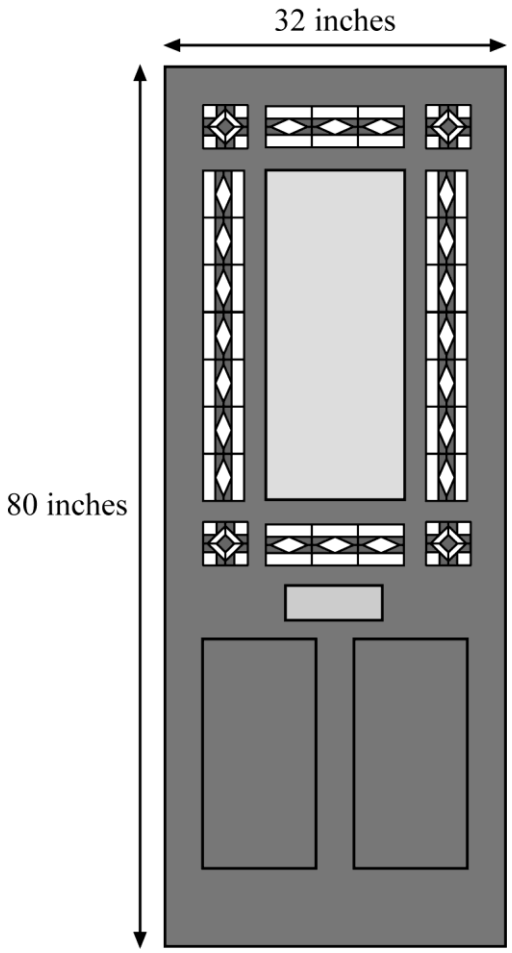
(3 marks)

1 (b) stating the order of rotational symmetry of each shape.

(3 marks)

6

2 The door is 32 inches wide and 80 inches high.



2 (a) Calculate the perimeter of the door in inches.

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……..

(2 marks)

2 (b) What is the perimeter of the door in feet and inches?

……..

……..

……..

(2 marks)

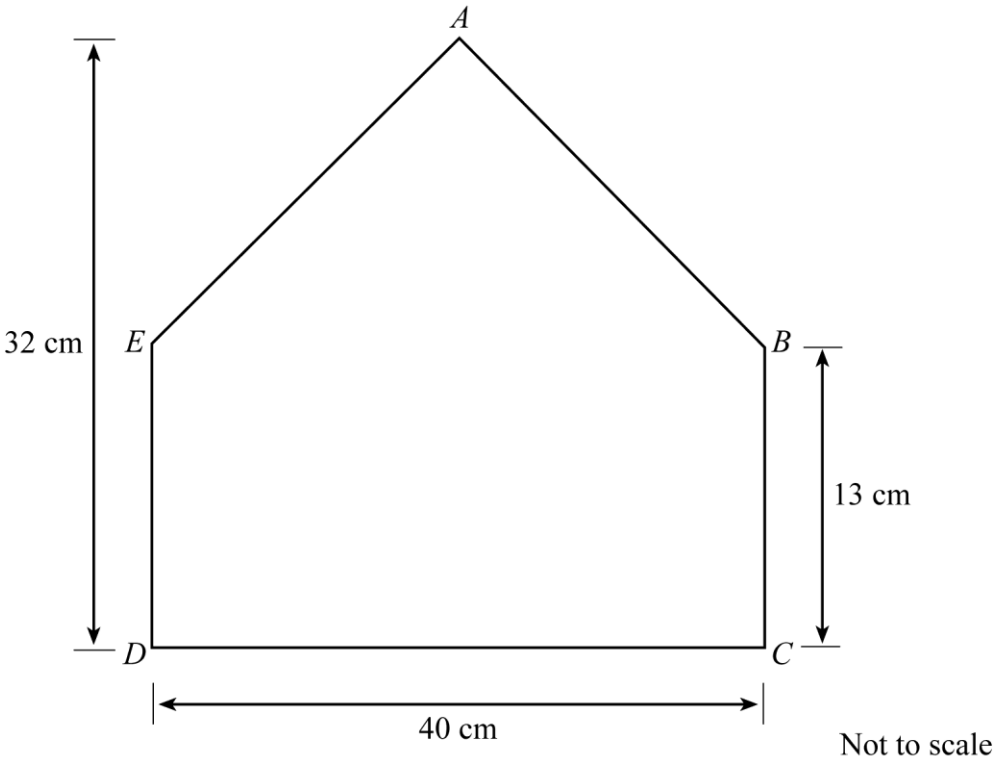
4

Section B

Answer **all** questions in the spaces provided.

Use **Propagators** *from page 3 of the Data Sheet*.

3 The end view of a 'Cosy Cloche' is shown.



BCDE is rectangular in shape with $BC = ED = 13$ cm.
Base $CD = 40$ cm. The top point of the cloche, *A*, is 32 cm from the base *CD*.

3 (a) Calculate the area of the end view of a 'Cosy Cloche'.

……..

……..

……..

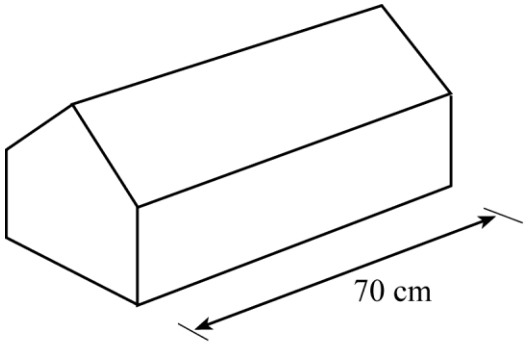
……..

……..

……..

(5 marks)

3 (b) A 'Cosy Cloche' is a prism of length 70 cm as shown.



Not to scale

Calculate the volume of a 'Cosy Cloche'.

……..

……..

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……..

……..

……..

……..

(2 marks)

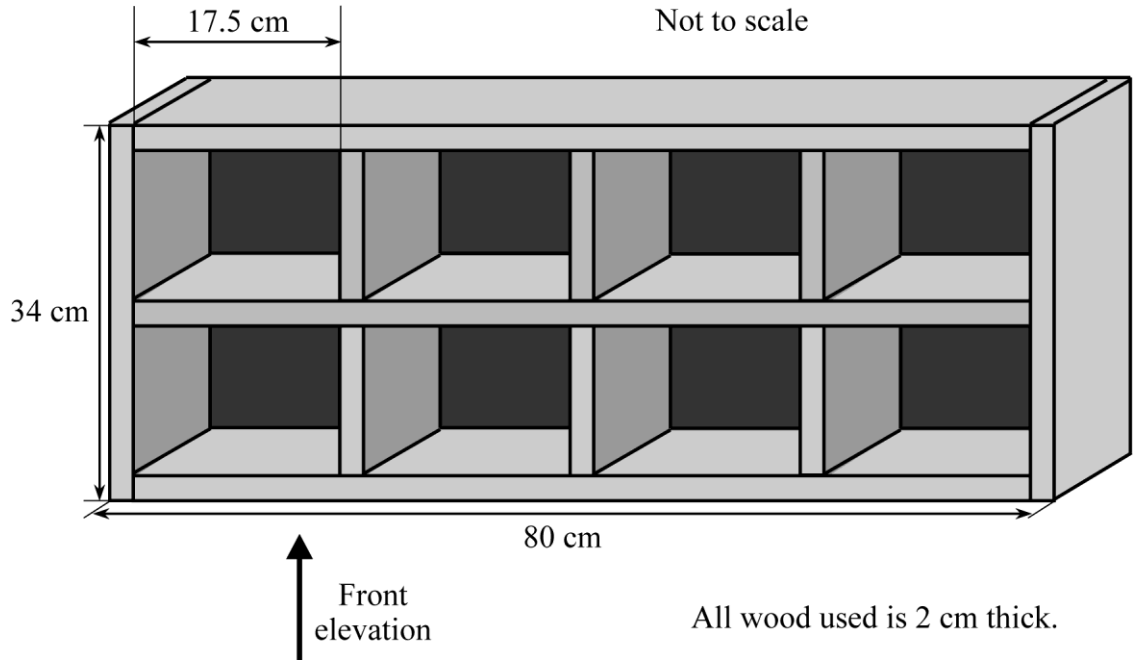
7

Section C

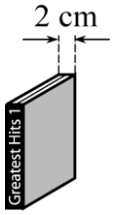
Answer **all** questions in the spaces provided.

Use **CD storage unit** *from page 4 of the Data Sheet*.

4 The diagram below shows some of the dimensions of the storage unit.
The **internal** width of each component is 17.5 cm.



4 (a) The owner has a set of CDs in boxes.
The box is 2 cm wide as shown in the sketch.



How many boxes can the owner stand upright in one compartment?

……..

……..

……..

(1 mark)

4 (b) Calculate the **internal** height of each compartment.

……..

……..

……..

(2 marks)

4 (c) Imagine you are looking at the storage unit from the direction shown by the arrow in the diagram.
Draw an accurate front elevation of the storage unit from this direction.

Use a scale of 1:5 .

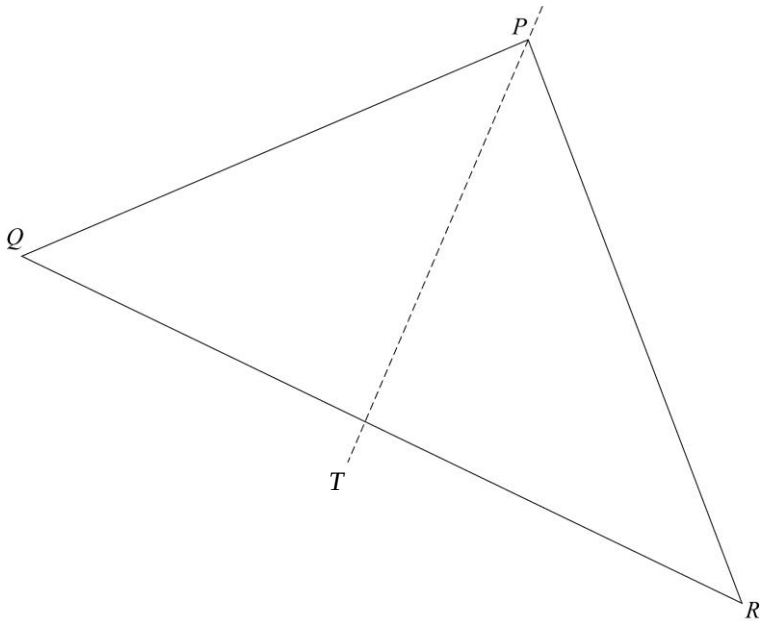
(6 marks)

9

Section D

Answer **all** questions in the spaces provided.

5 The diagram shows a triangle *PQR* and a line *PT*.
PT is the bisector of angle *P*.



Use only **pencil**, **ruler** and **compasses** to answer this question.
Leave all construction lines in your drawing.

5 (a) **Construct** the bisector of angle *Q* and label the point of intersection with line *PT* as *X*.

(2 marks)

5 (b) Draw a circle, centre *X*, to touch the sides of the triangle *PQR*.

(1 mark)

5 (c) Measure the radius of the circle you have drawn.
Calculate the circumference of the circle you have drawn.

……..

……..

(2 marks)

5

Section E

Answer **all** questions in the spaces provided.

*Use **Road Signs** from page 5 of the Data Sheet.*

6 (a) (i) The road sign 'Stop and give way' is in the shape of a regular polygon.

What is the mathematical name of this polygon?

……..

(1 mark)

(ii) Calculate the size of **one** of the interior angles of this polygon.

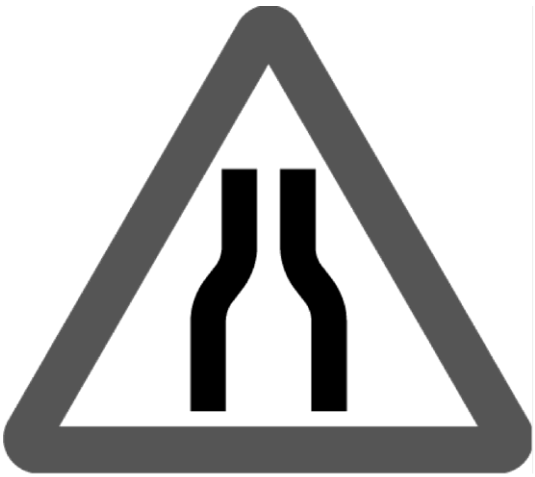
……..

……..

……..

(2 marks)

6 (b) The triangular road sign 'Road narrows on both sides' is shown below.



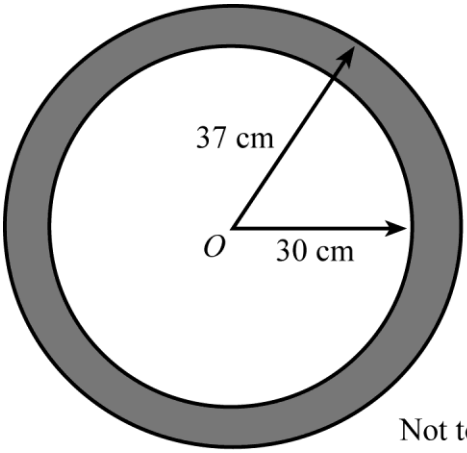
What type of triangle is used in this road sign?

……..

(1 mark)

4

7 The road sign 'No vehicles' is shown below.



Not to scale

The sign consists of two circles with the same centre, *O*.
The radius of the outer circle 37 cm.
The radius of the inner circle is 30cm.

Calculate the area of the shaded region between the two circles.

……

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(5 marks)

5

END OF QUESTIONS