AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

FSMQ
USING SPATIAL TECHNIQUES
Level 1

Friday 20 May 2016 Morning Time allowed: 1 hour

Materials
For this paper you must have:
- a clean copy of the Data Sheet (enclosed)
- a calculator
- mathematical instruments.

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer each question in the space 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.

Answer each question in the space provided for that question.

Use **Photographs of streets** *on page 2 of the Data Sheet*.

1 Here are some objects you might see in a street.

For each object, circle the unit that correctly completes the sentence.

1 (a)

The width of this road sign is 50

[1 mark]

mm^2 m^2 cm mm cm^2 m

1 (b)

The height of this lamp post is 6

[1 mark]

mm^2 m^2 cm mm cm^2 m

1 (c)

The area of this garage door is 4

[1 mark]

mm^2 m^2 cm mm cm^2 m

1 (d)

The height of this kerb is 4

[1 mark]

feet inches miles yards

4

2 What would a workman use to measure the length of a garden fence?

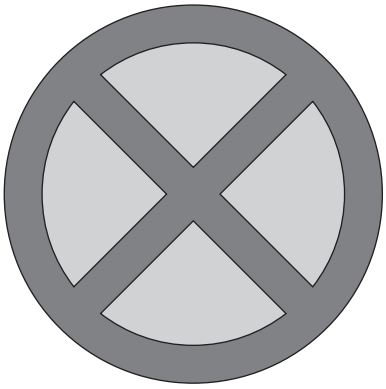
Circle the correct answer.

[1 mark]

micrometer protractor ruler tape measure

1

3 The road sign below means “No stopping”.



3 (a) Mark the centre of rotational symmetry on the road sign.

[1 mark]

3 (b) Write down the order of rotational symmetry of the road sign.

[1 mark]

Answer _____

3 (c) The diameter of the road sign is 20.196 cm

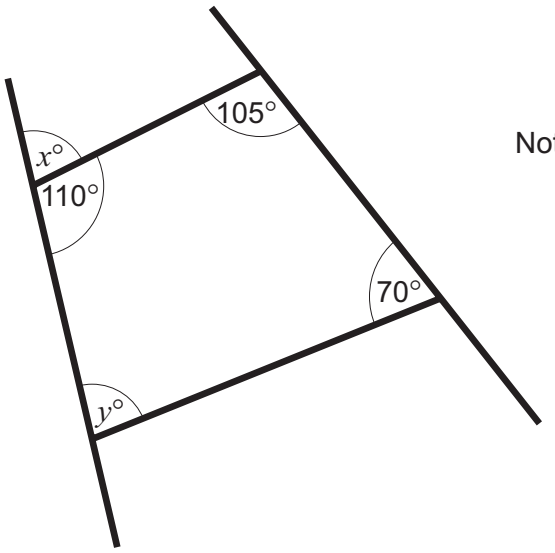
Write 20.196 cm correct to the nearest cm

[1 mark]

Answer _____cm

3

4 The diagram below shows some lines on a road.



Not drawn accurately

[4 marks]

Work out the values of x and y.

$x =$ _____

$y =$ _____

4

Turn over ▶

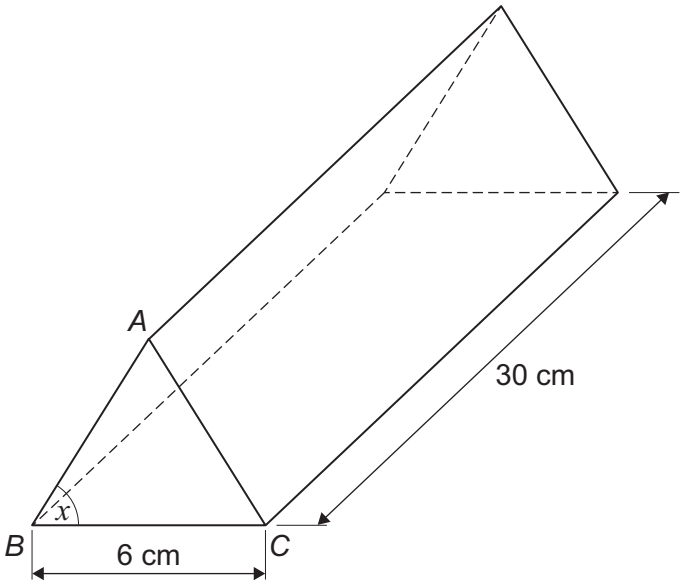
Section B

Answer **all** questions.

Answer each question in the space provided for that question.

Use **Sweet boxes** *on page 3 of the Data Sheet.*

5 The diagram below shows a box used for chocolate.



5 (a) What is the mathematical name for this box?

[1 mark]

Answer _____

5 (b) *ABC* is an equilateral triangle.

Calculate the size of angle x in triangle *ABC*.

[2 marks]

_____

_____

Answer _____ °

5 (c) Taking the height of triangle *ABC* to be 5 cm, work out the area of the triangle.

[2 marks]

Answer _____ cm^2

5 (d) Calculate the total surface area of the box.

[4 marks]

Answer _____ cm^2

9

6 A larger model of the box is made for advertising.
The scale used for all the lengths is 1 : 2

6 (a) Complete the table below.

[3 marks]

	Original box	**Model**
Length	30 cm	
Base of triangle	6 cm	
Height of triangle	5 cm	
Angle x		

6 (b) Calculate the volume of the model.

[2 marks]

Answer _____ cm^3

5

7 Using a **pencil, ruler and a pair of compasses only**, construct the perpendicular bisector of the line *AB*.

Leave **all** construction lines on your diagram.

[3 marks]

3

Section C

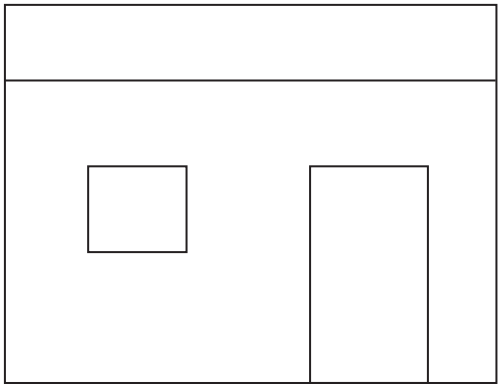
Answer **all** questions.

Answer each question in the space provided for that question.

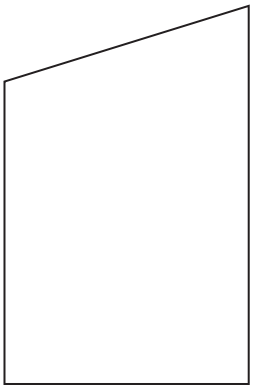
Use **Garden sheds** *on page 4 of the Data Sheet.*

8 Plan

Front elevation



Side elevation



The diagrams above show a plan and two elevations of a shed.

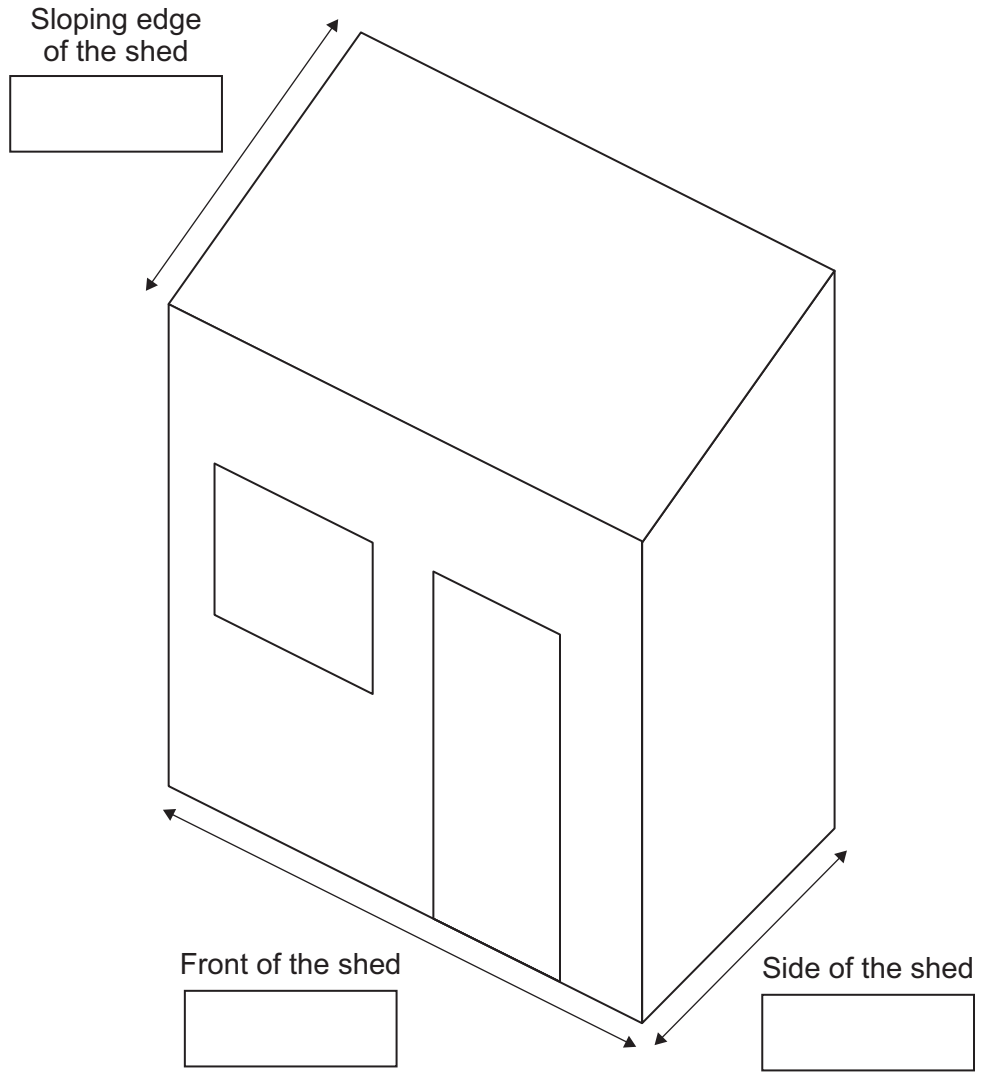
The measurements are $\frac{1}{50}$ of the actual shed.

By measuring the **diagrams above**, calculate the actual lengths of:

- the front of the shed
- the side of the shed
- the sloping edge of the shed.

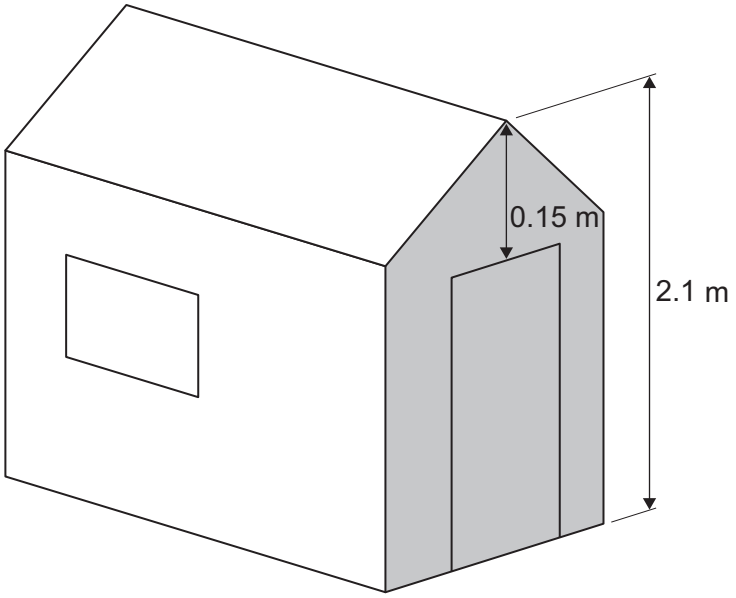
Write your answers in the boxes on the page opposite.

[3 marks]



3

9 Here is another shed.



9 (a) The door is a rectangle.

Work out the height of the door.

[2 marks]

Answer _____ m

9 (b) The width of the door is 65 cm

Write the width of the door in metres.

[1 mark]

Answer _____ m

9 (c) Work out the perimeter of the door.

[2 marks]

Answer _____ m

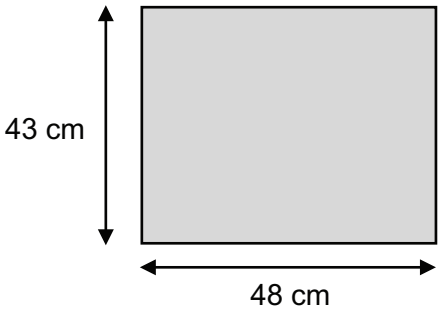
9 (d) What shape is the shaded side of the shed?

[1 mark]

Answer _____

6

10 The shed needs a new window, shown below.



Not drawn accurately

The gardener says the area of the window is 206.4 cm^2

By using estimates, explain how you know that the gardener is **not** correct.
You **must** show your working.

[2 marks]

2

END OF QUESTIONS

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