| Centre Number | | | | | | Candidate Number | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Surname | | | | | | | | | | |
| Other Names | | | | | | | | | | |
| Candidate Signature | | | | | | | | | | |

| For Examiner's Use | |
|---|---|
| Examiner's Initials | |
| Question | Mark |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| TOTAL | |

AQA

Level 1/Level 2 Certificate
Foundation Level
June 2014

# Use of Mathematics 43503F

**Core unit**

**Monday 19 May 2014 9.00 am to 10.15 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 15 minutes

**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 50.
- 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* **UK family spending** *on pages 2 and 3 of the Data Sheet.*

**1 (a)** In 2010, what was the difference between the amount spent on food and drink per week and the amount spent on clothing and footwear per week?

**[2 marks]**

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Answer £ .....

**1 (b)** The mean weekly family spending, for the four years from 2006 to 2009, is shown in the table below.

| **Year** | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|
| **Family spending** | 449 | 459 | 471 | 455 |

For these four years:

**1 (b) (i)** find the range of the family spending;

**[1 mark]**

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Answer £ .....

**1 (b) (ii)** find the median of the family spending;

**[2 marks]**

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Answer £ .....

**1 (b) (iii)** calculate the mean of the family spending.

**[3 marks]**

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Answer £ .....

**1 (c)** In 2010, Brian spent £1800 on running his car.
This was divided up into four areas, as shown.

| Car costs | |
|---|---|
| Insurance | £500 |
| Petrol | £900 |
| Repairs and servicing | £300 |
| Other motoring costs | £100 |
| **Total** | £1800 |

Draw a pie chart to show this information.

**[4 marks]**

*Space for working*

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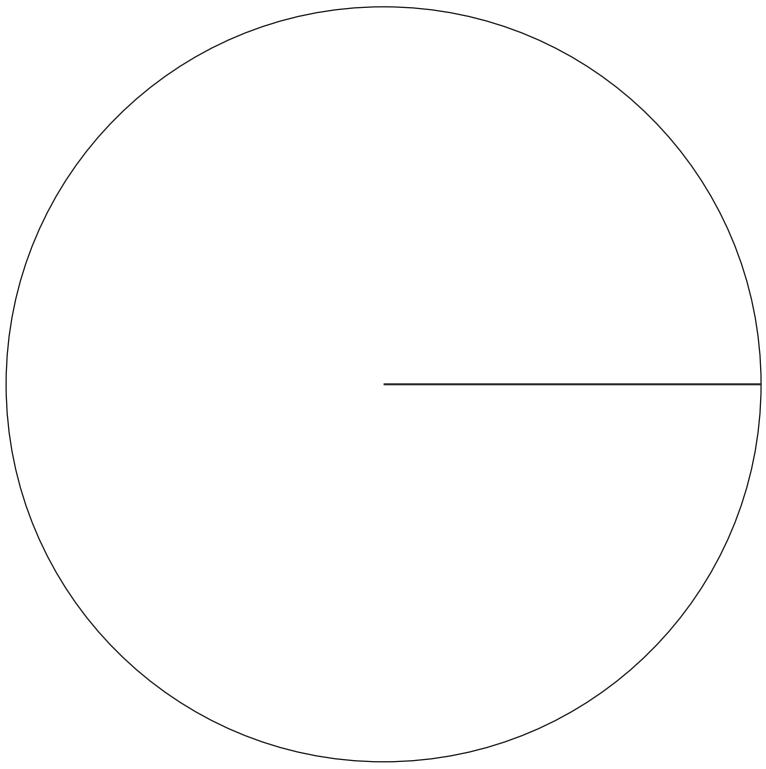
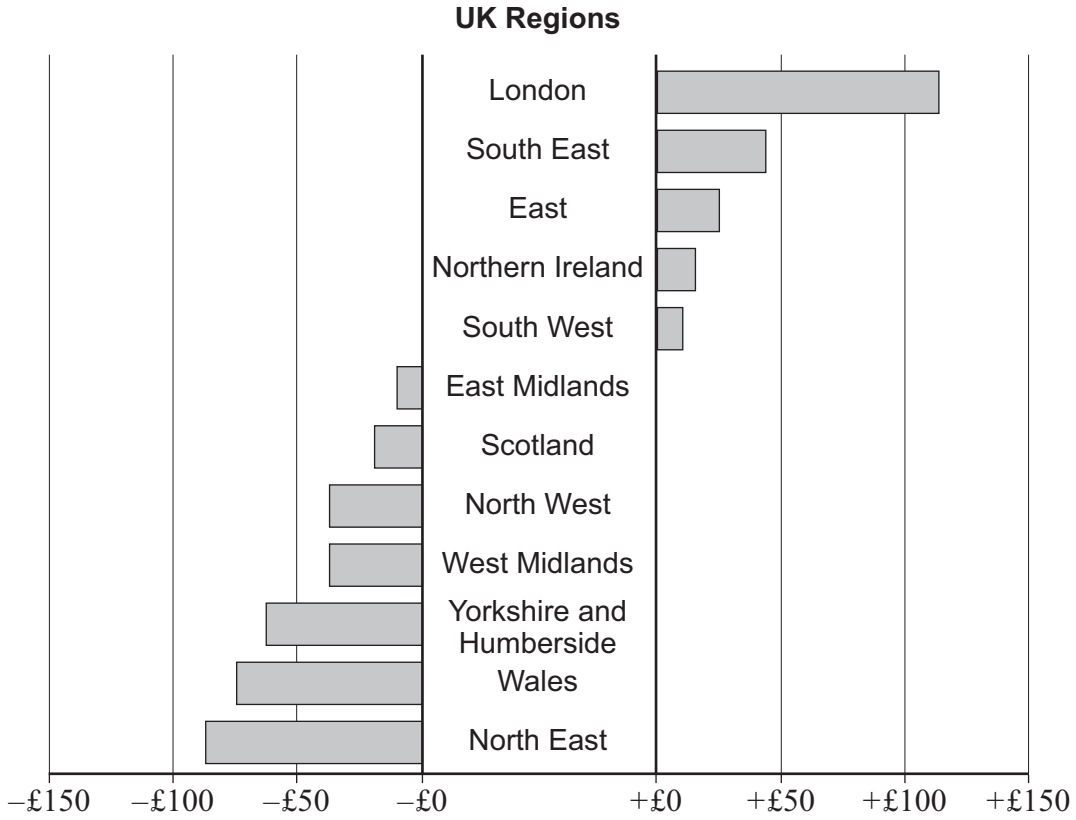


**1 (d)** For the three years 2008, 2009 and 2010, the mean family spending was £467 per week.

The mean family spending of £467 per week is the mean for the whole of the UK. People in some regions spend more than this and people in other regions spend less than this. The comparison is shown by the chart below.




**1 (d) (i)** In which region was family spending the greatest?

**[1 mark]**

Answer .....

**1 (d) (ii)** In which two regions was family spending closest to the mean?

**[1 mark]**

Answer .....

**and** .....

**1 (d) (iii)** Use the chart to estimate the weekly mean family spending in the North West.

Show all your working.

**[2 marks]**

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Answer £ .....

16

## Section B

Answer **all** questions.

Answer each question in the space provided for that question.

*Use* **Postage rates** *on page 4 of the Data Sheet.*

**2 (a)** Rashid had 2 **large letters**, each weighing 325 g, and a **packet** weighing 1600 g. He posted all of these using 1st Class postage.

Calculate his total cost.

**[3 marks]**

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Answer £ .....

**2 (b)** Rashid also posted a **parcel** weighing 4.5 kg.

What was the cost of posting this parcel?

**[1 mark]**

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Answer £ .....

**2 (c)** Rashid could choose to post larger items as either parcels or packets.

How much more expensive was it to post a packet weighing 7500 g by 1st Class post than to post the same packet as a parcel?

**[3 marks]**

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Answer £ .....

7

**3 (a) (i)** Janet posted a number of small letters.
She posted four letters by 1st Class post and posted $x$ letters by 2nd Class post.

Show that the total cost of posting all these letters, $C$ pence, is given by

$C = 50x + 240$

**[2 marks]**

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**3 (a) (ii)** Janet paid a total of £5.90 .

Solve the equation

$590 = 50x + 240$

to find $x$, the number of 2nd Class letters that she posted.

**[3 marks]**

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Answer $x =$ .....

**3 (b)** On Monday, Janet posted $y$ small letters by 1st Class post.

She also posted the same number, $y$, of small letters by 2nd Class post.

The 2nd Class letters cost her £1.60 less than the cost of posting the 1st Class letters.

Find the total number of small letters that Janet posted on Monday.

**[4 marks]**

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Answer .....

9

## Section C

Answer **all** questions.

Answer each question in the space provided for that question.

*Use* **Rectangular paper sizes** *on page 5 of the Data Sheet.*

**4 (a)** Change 141.4 cm into metres.

**[1 mark]**

Answer ..... m

**4 (b) (i)** A B4 size sheet of paper is 35.4 cm long and 25.0 cm wide.

Calculate the area of a B4 size sheet of paper.

**[2 marks]**

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Answer ..... $cm^2$

**4 (b) (ii)** Use your answer to part **(b)(i)** to find the area of a B6 size sheet of paper.

**[2 marks]**

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Answer ..... $cm^2$

**4 (c)** The perimeter of a B0 size sheet of paper is 4.83 m, correct to two decimal places.
The perimeter of a B3 size sheet of paper is 35.4% of the perimeter of a B0 size sheet.

Calculate the perimeter of a B3 size sheet of paper.

**[2 marks]**

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Answer ..... m

7

**Turn over for the next question**

**DO NOT WRITE ON THIS PAGE**
**ANSWER IN THE SPACES PROVIDED**

**Section D**

Answer **all** questions.

Answer each question in the space provided for that question.

*Use* **Compact discs** *on page 6 of the Data Sheet.*

**5 (a)** What is the ratio of the radius of the compact disc with radius $4\,\text{cm}$ to the radius of the compact disc with radius $6\,\text{cm}$?

Write your answer in its simplest form.

**[1 mark]**

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Answer .....

**5 (b)** Calculate the circumference of the compact disc with radius $4\ \text{cm}$.

**[2 marks]**

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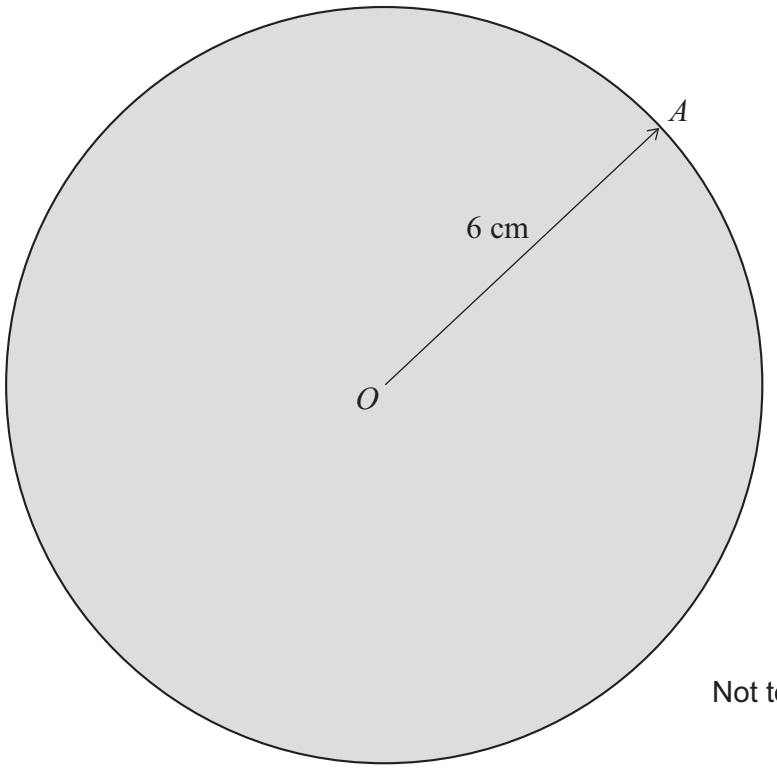
Answer ..... cm

**5 (c)** A diagram of the compact disc with radius $6\,\text{cm}$ is shown below.




Not to scale

$O$ is the centre of the compact disc.
$OA = 6$ cm

Calculate the area of the compact disc.

**[3 marks]**

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Answer ..... $\text{cm}^2$

6

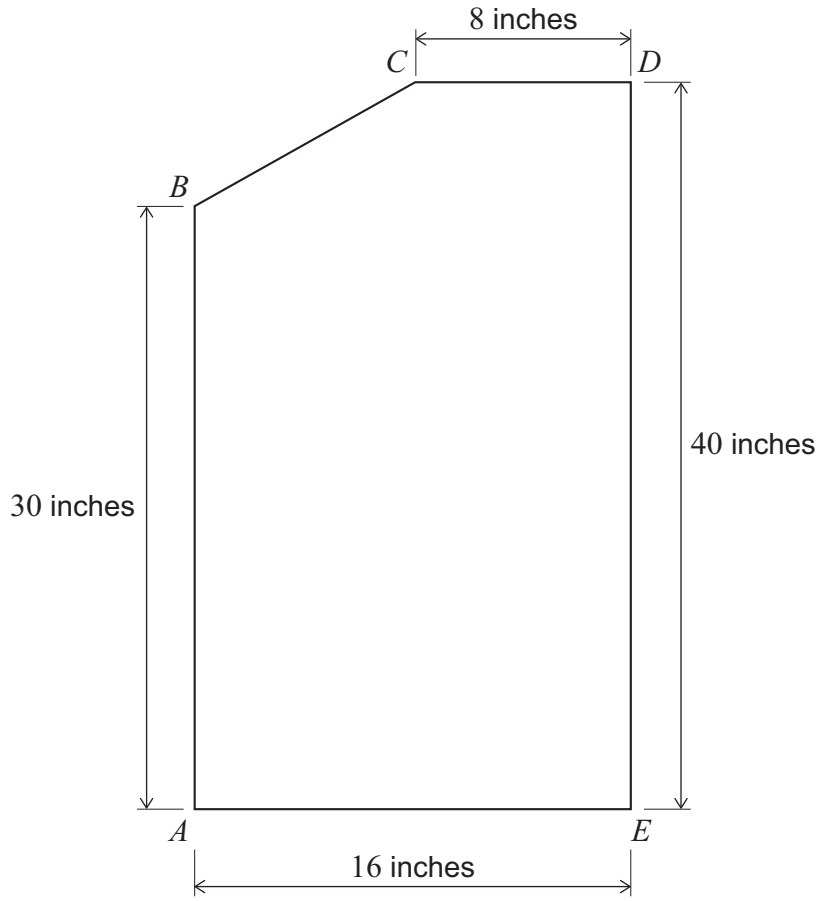
## Section E

Answer **all** questions.

Answer each question in the space provided for that question.

*Use* **Writing desk** *on page 7 of the Data Sheet.*

**6** A diagram of the sideview, $ABCDE$, of the writing desk is shown below.




**6 (a)** $AB = 30$ inches
$AE = 16$ inches
$DE = 40$ inches

$CD = 8$ inches

$AB$ is parallel to $ED$, and $AE$ is parallel to $CD$.

Calculate the area of the side view, $ABCDE$, of the writing desk.

**[3 marks]**

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Answer ..... $in^2$

**6 (b)** The length of the writing desk is 30 inches, as shown below.


Use your answer to part **(a)** to find the volume of the writing desk.

**[2 marks]**

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Answer ..... $in^3$

5

**END OF QUESTIONS**

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