AQA

MATHEMATICS (MODULAR) (SPECIFICATION B)   **43051/FA**
Module 1   Foundation Tier Section A

F

Tuesday 2 March 2010   1.30 pm to 2.00 pm

For this paper you must have:
- a calculator
- mathematical instruments
- a treasury tag.

Time allowed for Section A: 30 minutes

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Answers written in margins will not be marked.
- Use a calculator where appropriate.
- Do all rough work in this book.
- This paper is divided into two sections: Section A and Section B.
- After the 30 minutes allowed for Section A, you must put your calculator on the floor under your seat. You will then be given Section B.
- When you have answered Section B you may work again on Section A but you may **not** use your calculator. It must remain on the floor under your seat.
- At the end of the examination tag Section A and Section B together with Section A on top.

Information
- The maximum mark for Section A is 23.
- The marks for questions are shown in brackets.
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

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

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

1 An estate agent sells and rents out houses.
She records the number of houses sold and rented out between July 2009 and December 2009.
The bar chart shows her data.
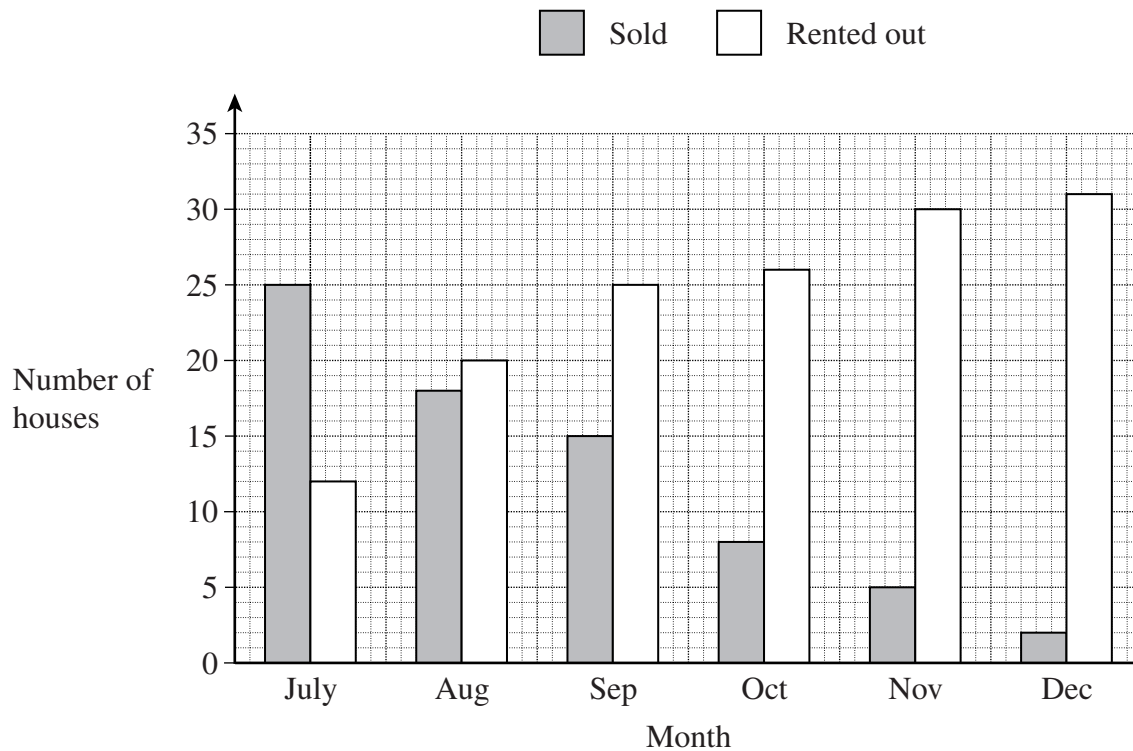
1 (a) Write down the number of houses sold in July 2009.

Answer .... *(1 mark)*

1 (b) How many more houses were rented out than sold in December?

....

Answer .... *(2 marks)*

1 (c) Calculate the total number of houses that were rented out over this six-month period.

....

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Answer .... *(2 marks)*

1 (d) Calculate the mean number of houses per month that were rented out over this six-month period.

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Answer .... *(2 marks)*

1 (e) A newspaper headline says

> More people are renting than buying houses now.

Explain how the data supports this statement.

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(2 marks)

9

Turn over for the next question

Turn over ▶

2 The table shows the number of cars in each household in a town.

Number of cars	Number of households	
0	389	
1	1250	
2	960	
3	131	
4	63	
5	7	

2 (a) Write down the modal number of cars.

Answer .... *(1 mark)*

2 (b) Calculate the total number of cars in these households.

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Answer .... *(2 marks)*

3

3 (a) Sarah has two bags of beads.

The first bag contains 3 white, 2 black and 4 yellow beads.
The second bag contains 2 white, 8 black and 7 yellow beads.

The beads are put together into one bag.
A bead is then chosen at random.

3 (a) (i) Which colour is most likely to be chosen?
Show your working.

....

....

Answer .... *(2 marks)*

3 (a) (ii) Work out the probability of choosing a white bead.

....

....

Answer .... *(2 marks)*

3 (a) (iii) Work out the probability of **not** choosing a white bead.

....

Answer .... *(1 mark)*

3 (b) Ahmed has a box of 25 coloured beads.
The beads are red, blue or green.
Ahmed says that the probability of picking a red bead, at random, is exactly $\frac{1}{3}$

Explain why Ahmed must be wrong.

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....

(1 mark)

Turn over ▶

0 5

6

4 Dave thinks that a coin is biased towards heads.

4 (a) Describe an experiment that Dave could carry out to check whether he is correct.

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(2 marks)

4 (b) Design an observation sheet to record Dave's results.

(1 mark)

4 (c) Explain how Dave could use the results of the experiment to decide whether the coin is biased towards heads.

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(2 marks)

END OF SECTION A

5

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Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

General Certificate of Secondary Education
March 2010

MATHEMATICS (MODULAR) (SPECIFICATION B)   **43051/FB**
Module 1   Foundation Tier Section B

F

Tuesday 2 March 2010   2.05 pm to 2.35 pm

For this paper you must have:
● mathematical instruments.

You must **not** use a calculator.

Time allowed for Section B: 30 minutes

Instructions
● Use black ink or black ball-point pen. Draw diagrams in pencil.
● Fill in the boxes at the top of this page.
● Answer **all** questions.
● You must answer the questions in the spaces provided. Answers written in margins will not be marked.
● Do all rough work in this book.
● You may **not** use your calculator in Section B. Your calculator must remain on the floor under your seat.
● When you have answered Section B you may work again on Section A but you may **not** use your calculator. It must remain on the floor under your seat.
● At the end of the examination tag Section A and Section B together with Section A on top.

Information
● The maximum mark for Section B is 23.
● The marks for questions are shown in brackets.
● You may ask for more answer paper and graph paper. These must be tagged securely to this answer booklet.

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

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

5 Customers in a shopping centre were asked how long it took them to travel to the shopping centre.
Some of the results are shown in the pictogram.

Key: ⧖ represents .... minutes

John	⧖ ⧖ ⧖
Gill	⧖ ⧖ ⧖ ⧖ ⧖ ◿
Steve	⧖ ⧖ ⧖ ◿
Aasia	⧖ ⧖ ◿
Pierre	

5 (a) John took 30 minutes.

Complete the key.

(1 mark)

5 (b) How long did Aasia take?

....

Answer .... minutes *(1 mark)*

5 (c) How much longer did Gill travel than Steve?

....

Answer .... minutes *(1 mark)*

5 (d) Pierre travelled for 15 minutes.

Complete the pictogram for Pierre.

(2 marks)

5 (e) A shopkeeper records the gender (male, female) and age (under 18, 18 or over) of people entering his shop.

Design a two-way table he could use to record this information.

(3 marks)

8

Turn over ▶

6 Lucy measures the heights, in centimetres, of the girls in class 7A.
Her results are shown.

| 154 | 155 | 152 | 147 | 158 | 163 | 149 | 150 | 162 | 148 |

6 (a) (i) Show that the median height of the girls is 153 cm.

....

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(2 marks)

6 (a) (ii) Show that the range of the heights of the girls is 16 cm.

....

(1 mark)

6 (b) Ed measures the heights, in centimetres, of the boys in class 7A.
His results are shown in the stem-and-leaf diagram.

Key: 14 | 5   represents 145 centimetres

13	1 3 5 7
14	0 5 9
15	4 6 6 8
16	1 3
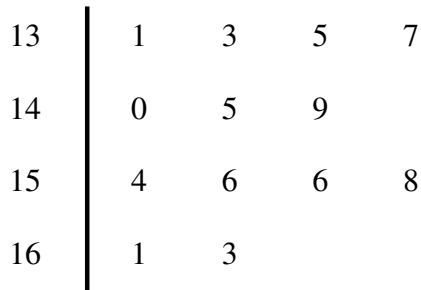
6 (b) (i) Work out the median height of the boys.

....

Answer .... cm *(1 mark)*

6 (b) (ii) Work out the range of the heights of the boys.

....

Answer .... cm *(1 mark)*

6 (c) Compare the heights of the girls and the boys in class 7A by completing these sentences.

The medians show that ....

....

....

The ranges show that ....

....

....

(2 marks)

7

Turn over ▶

*Areas outside
the box will
not be scanned
for marking*

7 The pie chart shows the average amount of water used per day by one person.
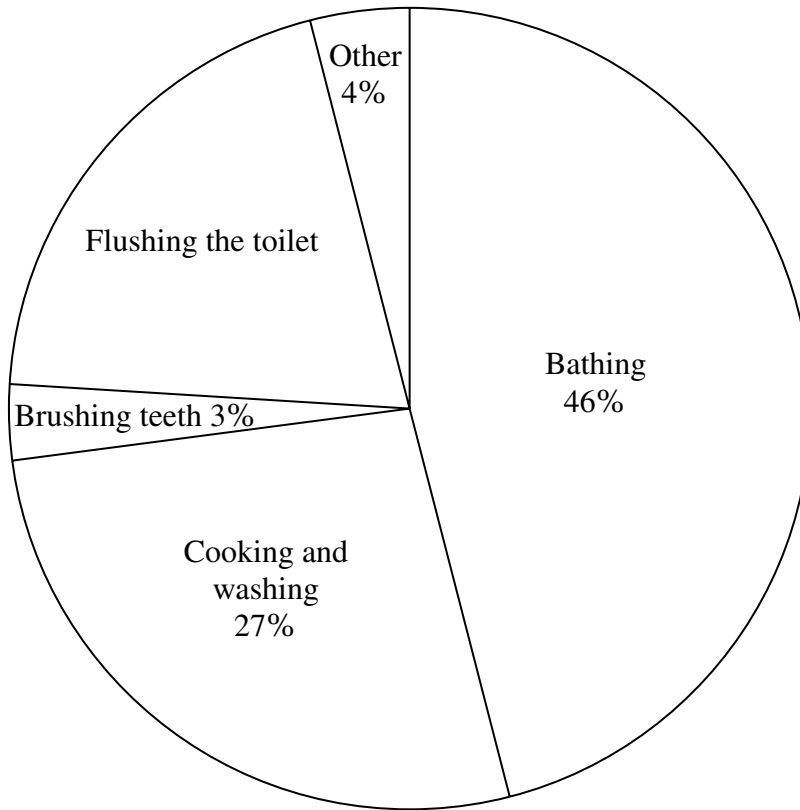
7 (a) Which activity uses the most water per day?

Answer .... *(1 mark)*

7 (b) On average, one person uses 150 litres of water per day.

Calculate how much of this water is used for flushing the toilet.

....

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....

Answer .... litres *(3 marks)*

4

8 Britney has a bag of shapes.
The shapes are squares, triangles or rectangles.
There are 150 squares in the bag.
The probability of picking, at random, a square from the bag is 0.6
The probability of picking a triangle is equal to the probability of picking a rectangle.

Calculate the number of rectangles in the bag.

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Answer .... *(4 marks)*

4

END OF QUESTIONS

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