

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Secondary Education  
Foundation Tier  
June 2015

# Mathematics

# 43601F

## Unit 1

Thursday 11 June 2015 1.30 pm to 2.30 pm

# F

<p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>• a calculator</li> <li>• mathematical instruments.</li> </ul>	
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For Examiner's Use	
Examiner's Initials	
Pages	Mark
2 – 3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14 – 15	
16	
<b>TOTAL</b>	

### Time allowed

- 1 hour

### 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. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.

### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 54.
- The quality of your written communication is specifically assessed in Questions 6, 9 and 13. These questions are indicated with an asterisk (\*).
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

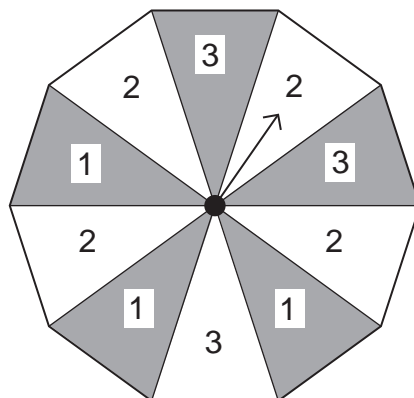
### Advice

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



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

- 1** A fair spinner has 10 equal sections.



- 1 (a)** Circle the chance of the arrow landing on a shaded section.

[1 mark]

impossible      unlikely      evens      likely      certain

- 1 (b)** Circle the chance of the arrow landing on a 1

[1 mark]

impossible      unlikely      evens      likely      certain

- 1 (c)** Circle the chance of the arrow landing on a shaded section with a 2

[1 mark]

impossible      unlikely      evens      likely      certain



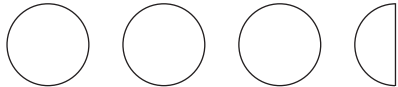
2 The table shows the number of people in three classes.

	Number of people
Music	35
Dance	50
Art	25

Complete the pictogram to show the information for Dance and Art. Remember to complete the key.

[3 marks]

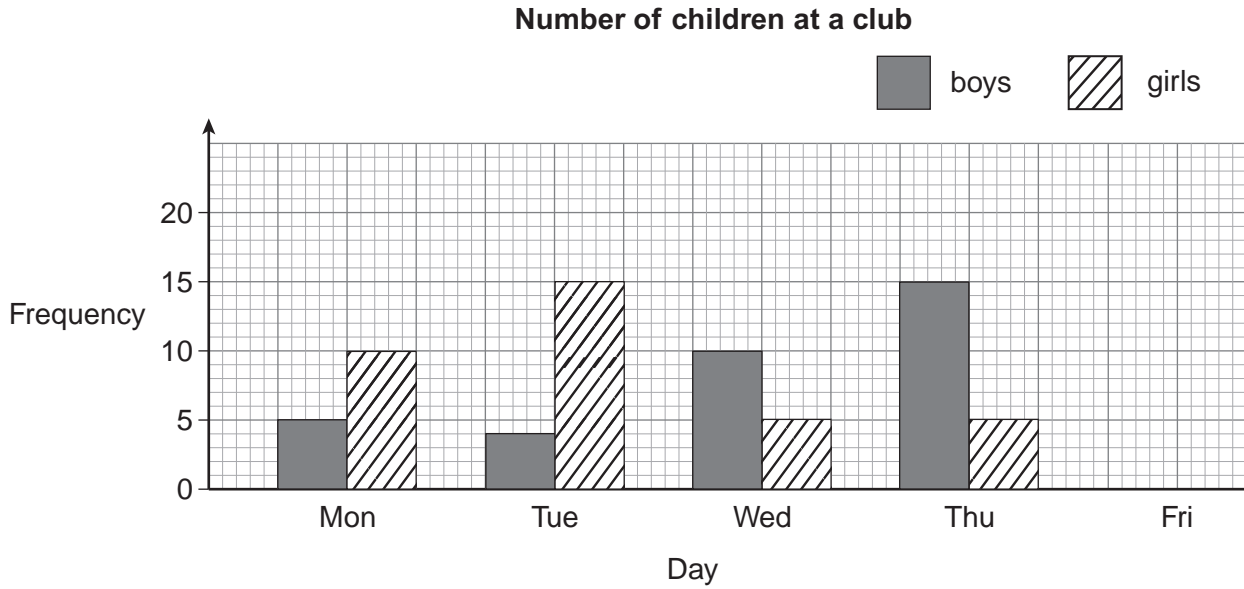
Key:  represents ..... people

Music	
Dance	
Art	

Turn over for the next question



3 The bar chart shows the number of children at a club on four days.



3 (a) How many **boys** went to the club on Tuesday?

[1 mark]

Answer .....

3 (b) On which of the four days did the most **children** go?  
Circle your answer.

[1 mark]

Monday                  Tuesday                  Wednesday                  Thursday

3 (c) On Friday there were  
twice as many boys as girls  
6 **more** boys than girls.

Complete the bar chart for Friday.

[2 marks]



4 Two groups of people, A and B, were asked the same question.

4 (a) Here are the 16 replies from group A.

Yes	No	Don't know	Yes
Don't know	Yes	No	Yes
No	Yes	Yes	No
Yes	Don't know	Yes	Yes

Complete the table for **group A**.

[3 marks]

Reply	Tally	Frequency
Yes		
No		
Don't know		
		Total = 16

4 (b) Group A is one-third the size of group B.  
Half of group B said Yes.

How many people **altogether** said Yes?

[3 marks]

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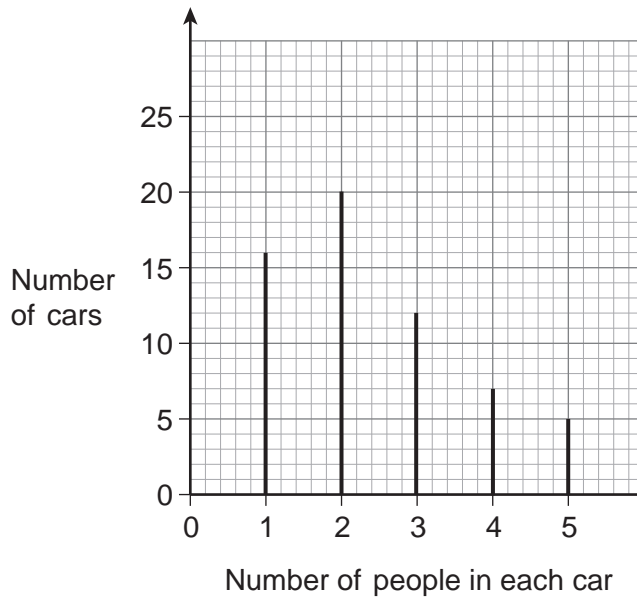
Answer .....

10

Turn over ►



5 Only cars with two or more people are allowed to use a road lane. The diagram shows information about cars using the lane.



5 (a) Work out the total number of cars with 2 or more people.

[2 marks]

.....

Answer .....

5 (b)

**£65 FINE**  
for cars with only one person  
using the road lane

Work out the total amount of the fines for these cars.

[2 marks]

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.....

Answer £ .....



\*6 Adam and Matthew each run five races.

Here are Adam's times in minutes.

44          50          44          48          43

Matthew has a mean time of 47 minutes.

Who has the lower mean time?  
You **must** show your working.

[3 marks]

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.....  
.....  
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Answer .....

7 Put these probabilities in order starting with the lowest.

0.7                           $\frac{2}{3}$                           66%

[1 mark]

Lowest .....

.....

Highest .....



8 People choose **one** sandwich, **one** fruit and **one** drink from this list.

Sandwich	Fruit	Drink
Egg (E)	Apple (A)	Cola (C)
Ham (H)	Banana (B)	Water (W)

8 (a) List **all** possible choices.  
One has been done for you.

[2 marks]

EAC

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8 (b) What fraction of the choices include an apple?

[1 mark]

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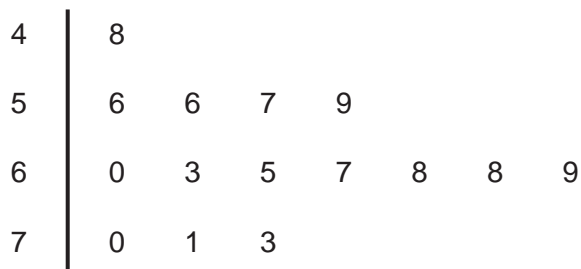
Answer .....





9 The stem-and-leaf diagram shows the number of hotel guests on 15 nights.

Key: 7 | 0 represents 70 guests



9 (a) Work out the range. [1 mark]

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Answer .....

9 (b) Write down the median. [1 mark]

Answer .....

\*9 (c) The hotel owner pays for an advert.  
Then he records the number of guests on another 15 nights.

The range is the same.  
The median is 68

Did the advert work?  
Use the data to support your answer.

[1 mark]

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.....

6

Turn over ►



**10** Five singers took part in a competition.  
Viewers voted for their favourite.  
The table shows the proportion of the votes for four of the singers.

Singer	Proportion
Ali	0.56
Beth	0.19
Carl	0.14
Dan	0.08
Emma	

**10 (a)** Complete the table. **[2 marks]**

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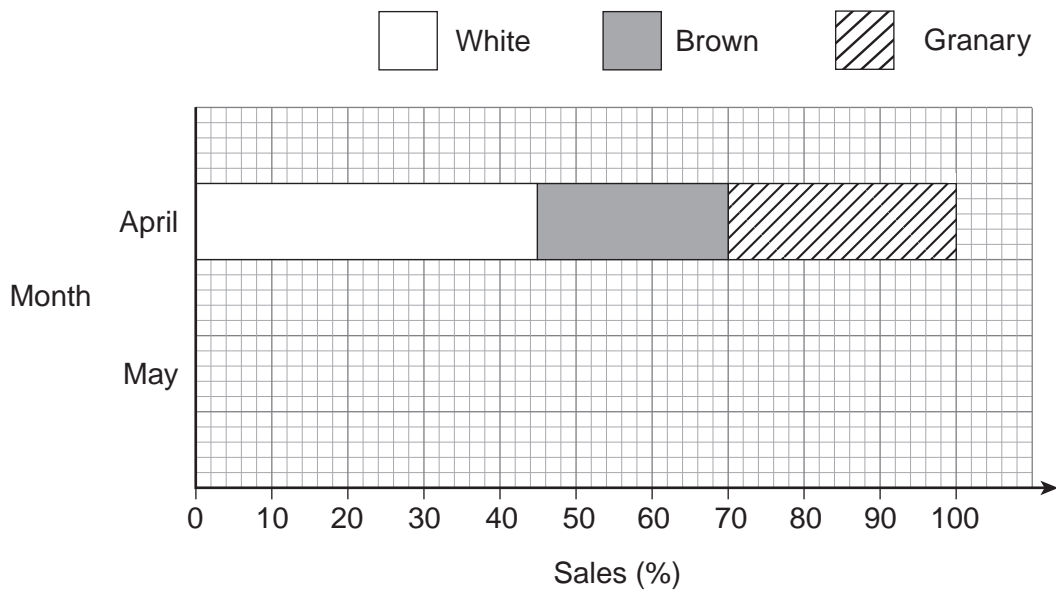
**10 (b)** There were 9.4 million votes.  
How many votes were for Ali? **[2 marks]**

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Answer .....



11 The chart shows information about sales of loaves of bread at a bakery.



11 (a) In April, the bakery sold 8200 loaves.

How many of the 8200 loaves were white loaves?

[3 marks]

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Answer .....

11 (b) The table shows the sales for May.

White	Brown	Granary	
3000	1800	1200	Total = 6000

Show this information on the chart.

[3 marks]

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12 In a survey, 600 people chose A, B, C or D.

120 people chose A.

Number who chose A : Number who chose B = 1 : 3

Number who chose C = Number who chose D

Complete the table.

[2 marks]

	A	B	C	D	
Number of people	120				Total = 600



**13** A professor wants to know whether boys or girls are more likely to study Economics.

**\*13 (a)** Write a suitable hypothesis.

**[1 mark]**

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**13 (b)** He asks some boys and girls if they plan to study Economics.

Design a data collection sheet for his results.

**[2 marks]**

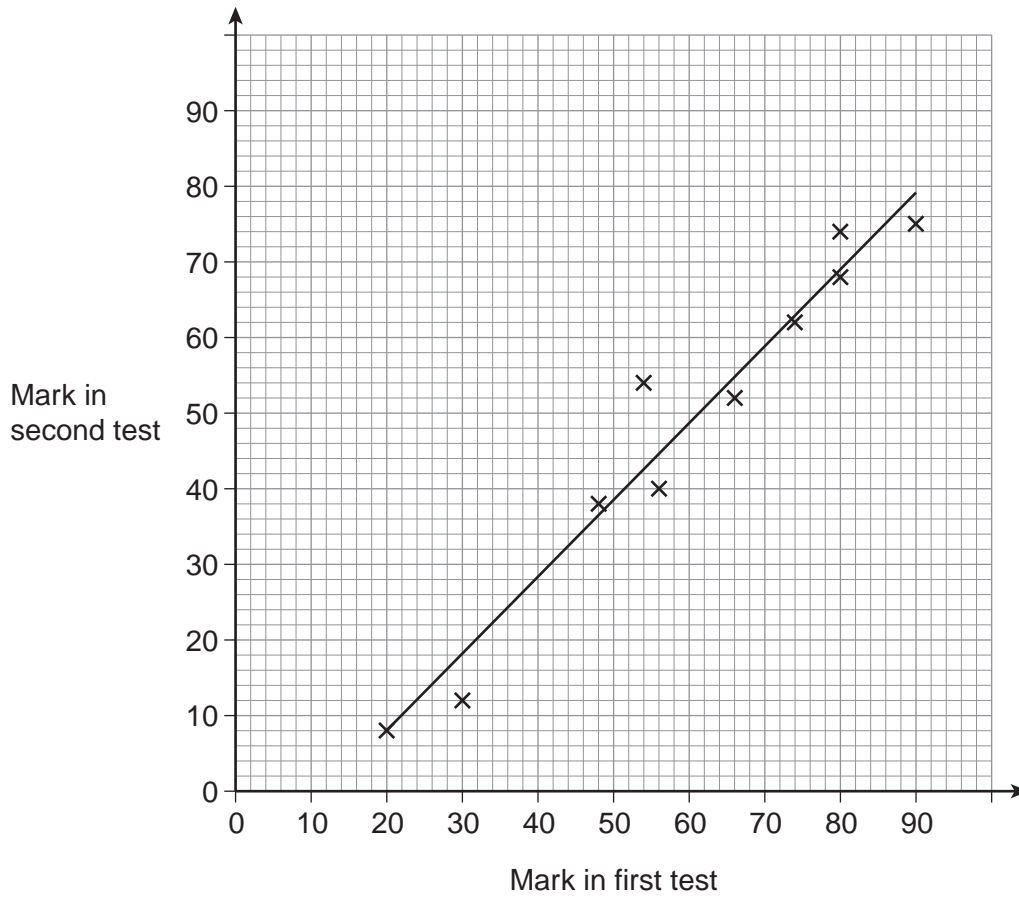
**Turn over for the next question**

5

**Turn over ►**



14 The scatter graph shows information about the marks of 10 students in two tests.



14 (a) Describe the correlation.

[1 mark]

Answer .....

14 (b) A student scored 40 in the first test.

Estimate her **total** for both tests.

[2 marks]

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Answer .....



**15** A pet shop had 40 rabbits.  
22 were male.  
The others were female.

The shop sold 10 of the rabbits.

The probability that a rabbit picked at random is male is now  $\frac{1}{2}$

How many **female** rabbits were sold?

**[3 marks]**

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Answer .....

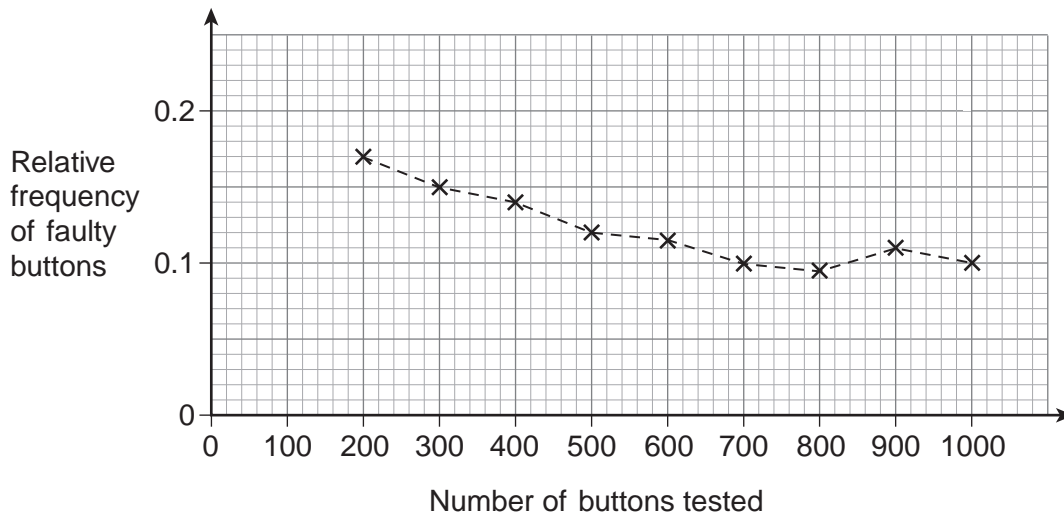
**Turn over for the next question**

6
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**Turn over** ►



16 A machine makes buttons.  
The graph shows the relative frequency of buttons that are faulty.



16 (a) 18 of the first 100 buttons are faulty.

Plot the relative frequency on the graph.

[1 mark]

16 (b) One week the machine makes 5000 buttons.

Work out the best estimate of the number of faulty buttons.  
Use the graph to help you.

[2 marks]

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Answer .....

**END OF QUESTIONS**

