Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
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12	
TOTAL	

General Certificate of Secondary Education
Foundation Tier
November 2010

Mathematics 43601F

Unit 1

Tuesday 9 November 2010 9.00 am to 10.00 am

F

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

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 2, 4 and 7. 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 booklet.

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

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

1 The table shows the weather in London each day for 40 days.

Weather	Tally	Frequency
Sun	𝍸 𝍸	
Rain	𝍸 𝍸 𝍸 III	
Snow	IIII	
Fog	𝍸 III	
		Total = 40

1 (a) Complete the table. *(2 marks)*

1 (b) What fraction of the 40 days are sunny?
Give your answer in its simplest form.

.....

Answer ..... *(2 marks)*

1 (c) In Manchester for the 40 days

- 16 days are sunny
- 50% of the days have rain
- there is no snow.

1 (c) (i) Complete the table for Manchester.

Weather	Frequency
Sun	
Rain	
Snow	
Fog	
	Total = 40

(3 marks)

1 (c) (ii) One of the 40 days in Manchester is chosen at random.
Use a suitable probability **word** to complete the sentences.

The chance of choosing a day with snow is.....

The chance of choosing a day with rain is .....

(2 marks)

Turn over for the next question

9

2 * Nick takes four tests.
The pictogram shows his scores.

English	○ ○ ○
Geography	○ ○ ◗
Mathematics	○ ○ ○ ○ ◗
Science	○ ○

2 (a) Nick scores 60% in English.

Complete the key. Key: ○ represents ……%

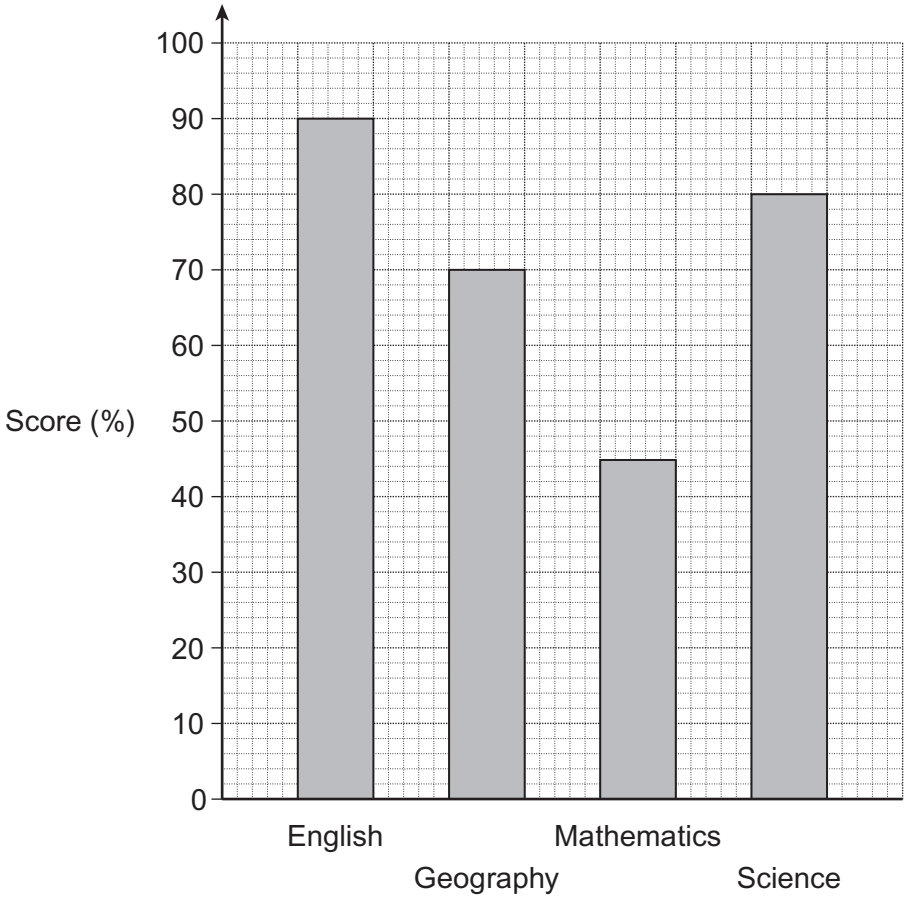
(1 mark)

2 (b) In which subject is his highest score?

Answer .....

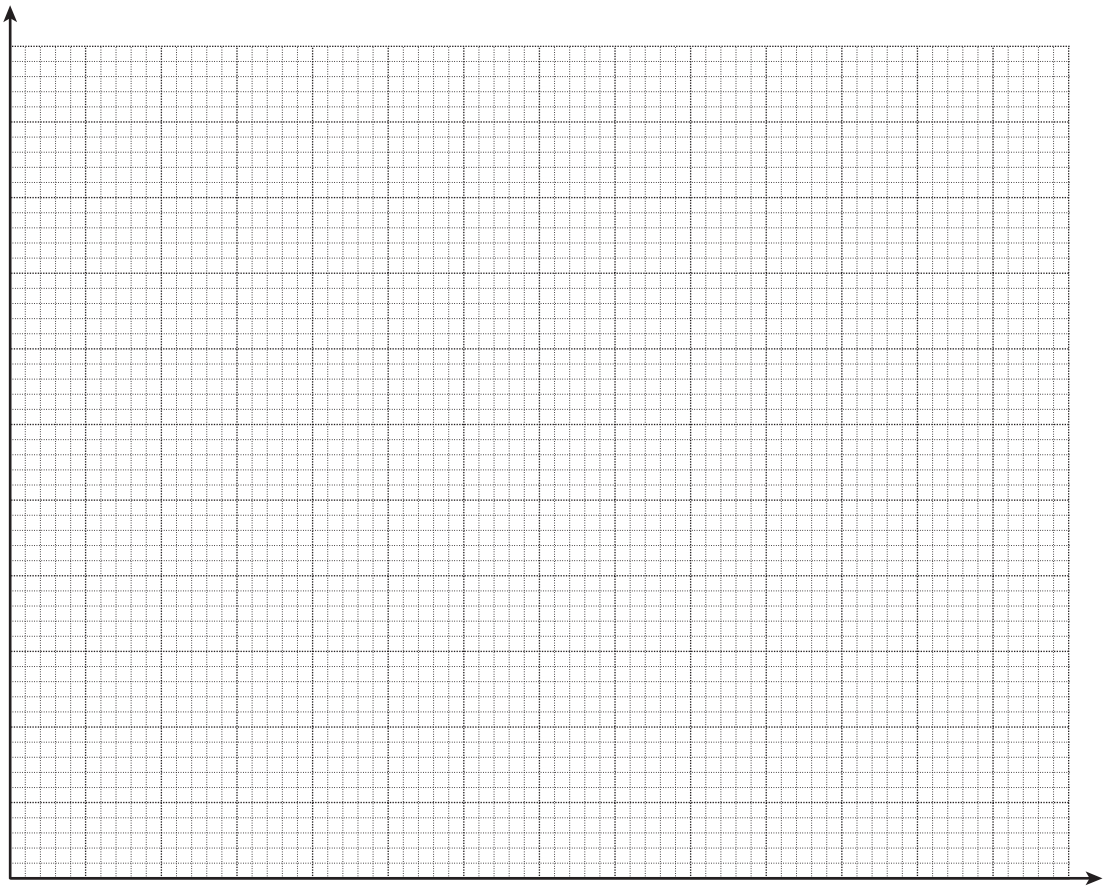
(1 mark)

2 (c) Jen takes the same four tests.
The bar chart shows her scores.



2 (c) (i) Nick wants to compare his scores with Jen's scores.

Draw a suitable diagram that he can use.



(4 marks)

2 (c) (ii) Write down **three** facts comparing their scores.

Fact 1 .....

.....

Fact 2 .....

.....

Fact 3 .....

.....

(3 marks)

9

3 A company makes bags of toffees.

The company checks that the bags contain 50 toffees.

3 (a) The number of toffees in a sample of 11 bags is

51 50 51 51 52 43 50 50 51 51 50

3 (a) (i) Write down the mode.

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

3 (a) (ii) Work out the median.
You **must** show your working.

.....

.....

Answer ..... *(2 marks)*

3 (a) (iii) Work out the mean.

.....

.....

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

3 (b) The company claims there are 50 toffees in a bag.

3 (b) (i) Give a reason why this claim seems fair.

.....

.....
(1 mark)

3 (b) (ii) Give a reason why this claim seems unfair.

.....

.....
(1 mark)

3 (c) The company uses the first 11 bags produced each Monday to check the contents.

State **two** ways this method of sampling can be improved.

1 .....

.....

2 .....

.....

(2 marks)

4 (a)* Work out 70% of £986.

.....

.....

Answer £ ..... *(2 marks)*

4 (b) Circle the calculations that have the same answer as 57% of 372.

A 58% of 371

B 5.7% of 37.20

C $\frac{57}{100}$ x 372

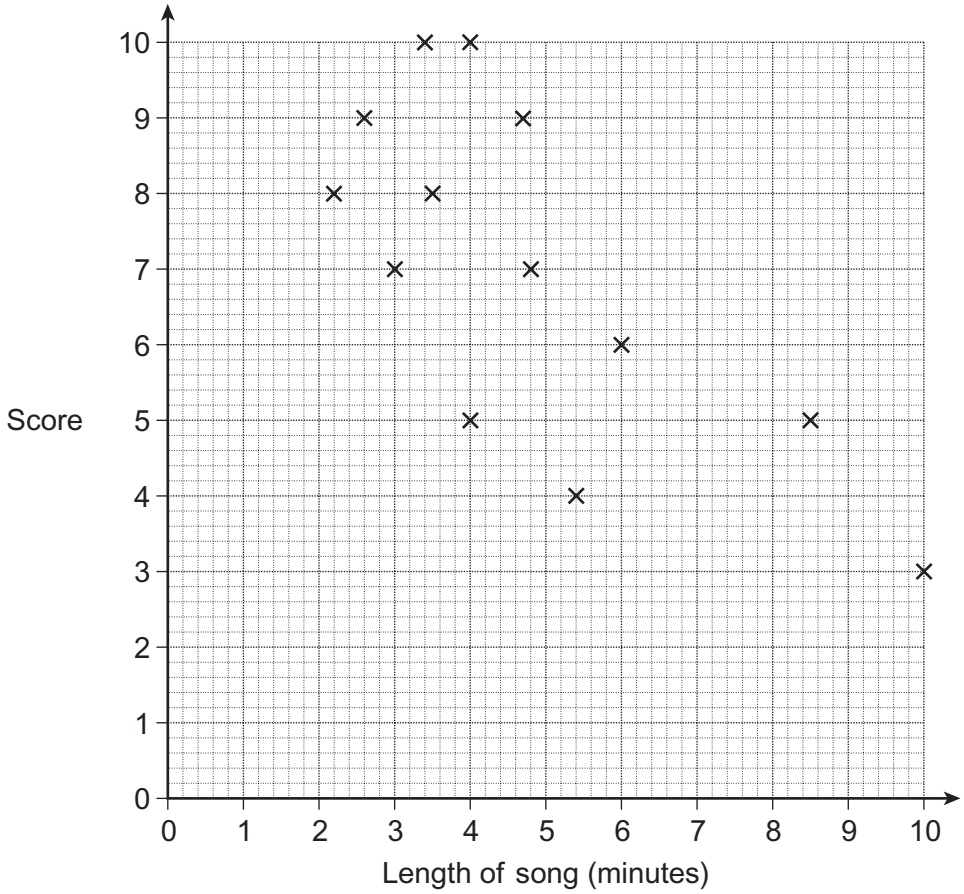
D 0.57 x 0.372

E 5.7% of 3720

(2 marks)

14

5 Freddie and Priya both like music.
Freddie gives some songs a score out of 10.
The scatter diagram shows his results.



5 (a) What fraction of the songs is given full marks?

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

5 (b) How long is the song that is given a score of 4?
Give your answer in minutes and seconds.

.....

Answer ..... minutes .....seconds *(2 marks)*

5 (c) Freddie has this hypothesis.
He says, "The shorter the song the more I like it."

Comment on his hypothesis.

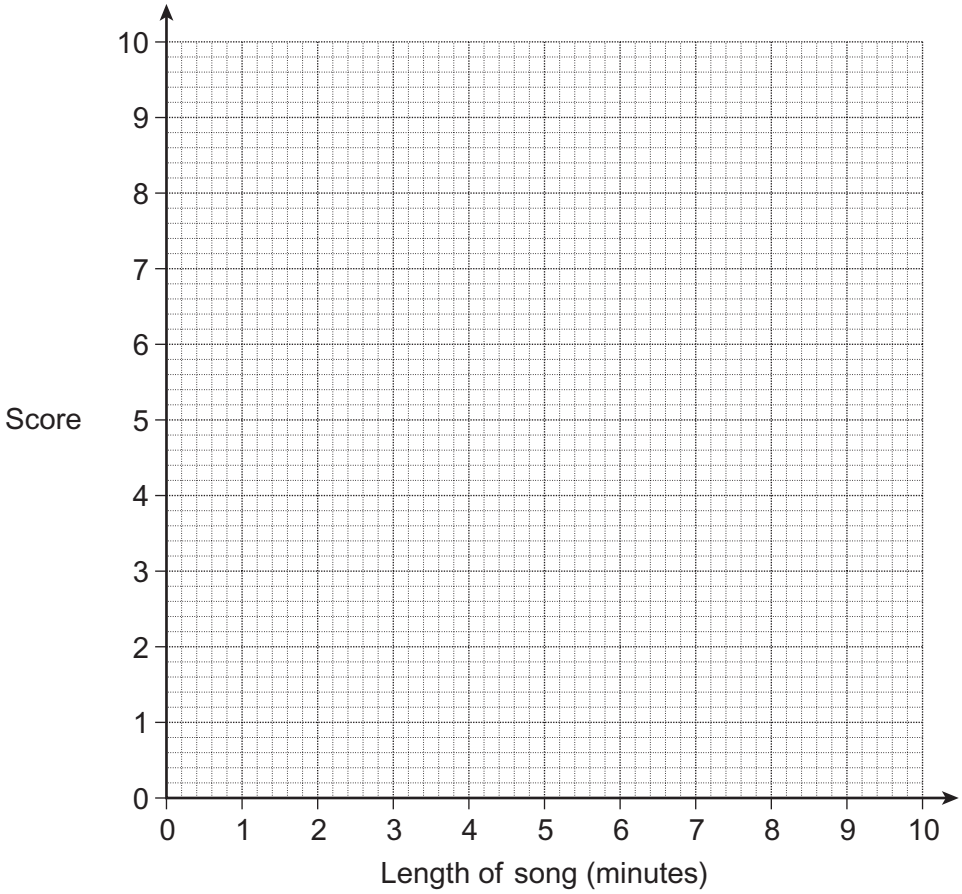
.....

.....

(1 mark)

5 (d) Priya also gives some songs a score out of 10.
She has a different hypothesis.
She says, "The longer the song the more I like it."
Her hypothesis is strongly supported by the data she collects.

Plot points on the grid to show how her scatter diagram may look.



(1 mark)

5

Turn over ▶

6 (a) A bag contains 3 red, 5 white and 8 blue counters.
One counter is chosen at random.

What is the probability of choosing a blue counter?

.....

.....

Answer ..... *(2 marks)*

6 (b) A different bag contains only black counters, pink counters and white counters.
When one counter is chosen at random, each colour is equally likely.

Write down **two** possible values for the total number of counters in this bag.

.....

.....

Answer ..... and ..... *(2 marks)*

6 (c) Another bag contains only green counters and yellow counters.
There are more than 10 counters in the bag.
When one counter is chosen at random, the probability of choosing a green counter is $\frac{3}{4}$

Write down **two** possible values for the total number of counters in this bag.

.....

.....

Answer ..... and ..... *(2 marks)*

7* This poster is put up in a school dinner hall.

Coming soon

***New** Healthy Eating menu*

The headteacher thinks the number of students who eat school dinners will increase by 25%.

7 (a) Design an observation sheet the headteacher can use to see if she is right.

(2 marks)

7 (b) The number of students who eat school dinners increases from 78 to 91.

Is the headteacher correct?
Show clearly how you decide.

.....

.....

.....

.....

.....

(3 marks)

Turn over for the next question

11

8 Peter and Alice buy a set of golf clubs for their mother.
They pay in the ratio 4 : 3
Peter pays £224.

How much does Alice pay?

.....

.....

.....

Answer £ ..... *(3 marks)*

9 At the school fayre, I play a game 20 times.
Each go costs 50p.
Each time I win I receive £1.50
The probability of winning is $\frac{1}{5}$

How much money do I expect to lose?

.....

.....

.....

.....

Answer £ ..... *(3 marks)*

END OF QUESTIONS

6