Version 1.0

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
2 – 3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14 – 15	
TOTAL	

General Certificate of Secondary Education
Foundation Tier

Mathematics 43601F

Unit 1 Foundation Tier

Specimen Paper 2012 Specification

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 space provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

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 and 6.
  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.

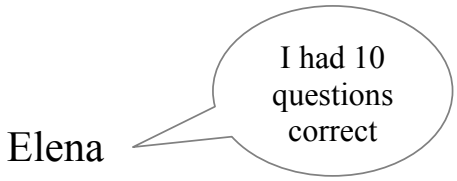
1 Three students take the same test.

The test has 20 questions.

Each question has one mark.

The pass mark is 70%.

1 (a)



Did Elena pass the test?

Explain your answer.

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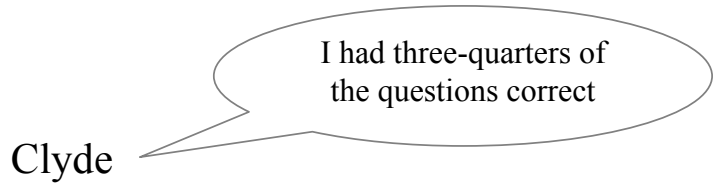
(1 mark)

1 (b)



Did Clyde pass the test?

Explain your answer.

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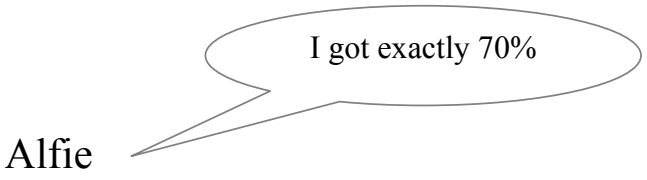
(1 mark)

1 (c)



How many questions did Alfie answer correctly?

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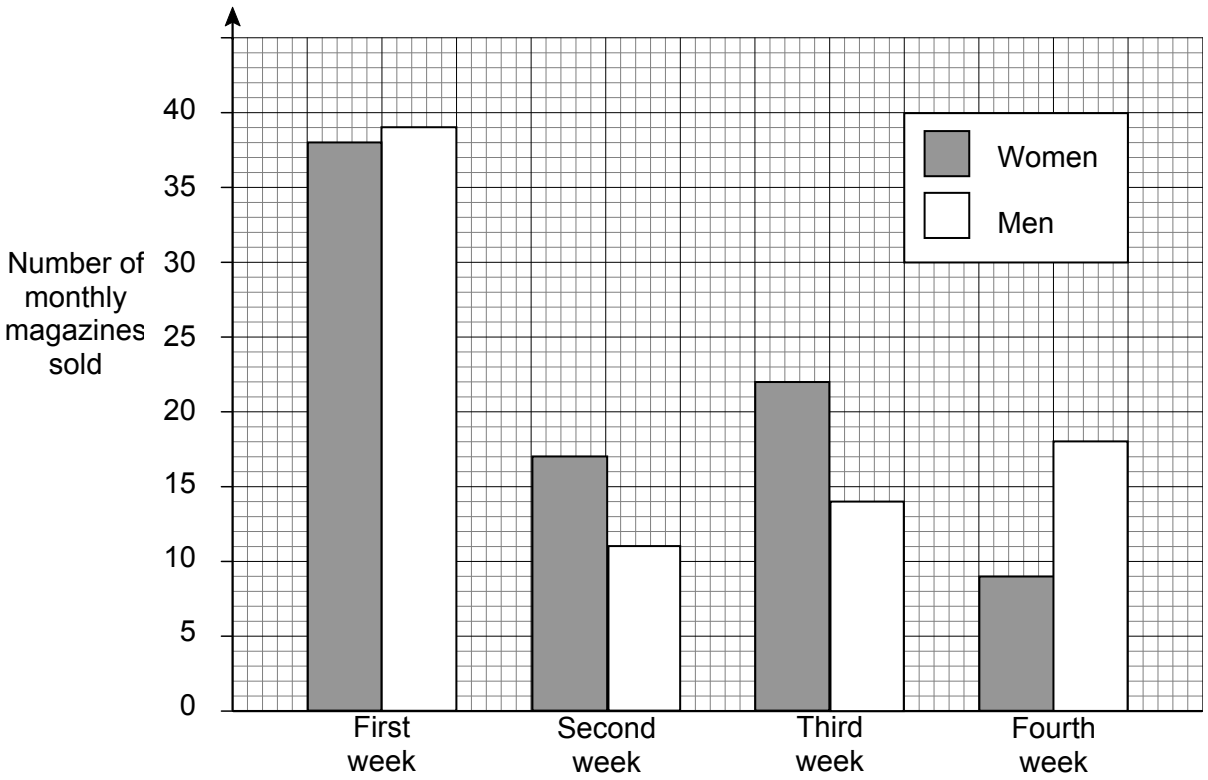
Answer ..... *(2 marks)*

Do not write outside the box

✶**2** The dual bar chart shows the sales of monthly magazines in a newsagents.

The data is collected over one month.



2 (a) Give a reason why the sales of monthly magazines are greatest in the first week of the month.

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(1 mark)

2 (b) The shopkeeper thinks that more women than men buy monthly magazines.

Does the data support this?

Show working to justify your answer.

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(3 marks)

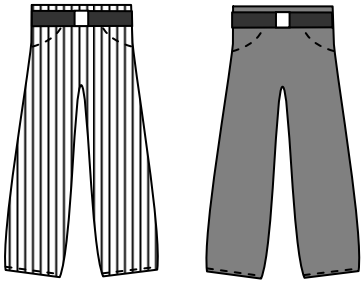
8

Turn over ▶

3 Tommy has three T-shirts.

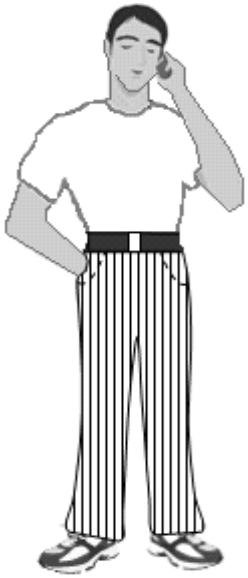
White Striped Grey

He has two pairs of jeans.



Striped Grey

Today he is wearing the white T-shirt and the striped jeans.



3 (a) Complete the table to show all the combinations of T-shirt and jeans that Tommy could wear.

T-shirt	Jeans
White	Striped
White	Grey

(2 marks)

3 (b) One morning Tommy dressed in the dark.
He chose one T-shirt and one pair of jeans at random.

What is the probability that he chose matching T-shirt and jeans?

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

4 A bag contains 6 red pens, 69 black pens and 25 blue pens.

4 (a) Write down the number of red pens as a fraction of the total number of pens in the box.
Give your answer in its simplest form.

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

4 (b) What percentage of the pens are **not** black?

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

4 (c) Circle a word from the list to describe the chance of each of the following events.

4 (c) (i) A pen chosen at random from the box is red.

impossible unlikely evens likely certain

(1 mark)

4 (c) (ii) A pen chosen at random from the box is **not** green.

impossible unlikely evens likely certain

(1 mark)

9

5 Here is an advert for a summer holiday.

Summer Sun
Fantastic deals with Sunbreaks Holidays

Dates	7 nights	14 nights
1 April – 30 April	£315	£575
1 May - 6 July	£220	£400

Notes

- Prices are for one adult (16 years and over)
- Children (less than 16 years) 75% of adult price
- 10% discount if booked online (www.sunbreaks.co.uk)

5 (a) Martha books a 14-night holiday in May.
She books for herself, husband Billy and daughter Mary (aged 11).
She books the holiday online.

Explain clearly why the total cost will be £990.

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..... *(4 marks)*

Do not write outside the box

5 (b) Salima books a 7-night holiday in April for two adults.

The travel agent adds a percentage surcharge to the cost of the holiday for booking fees.

Salima's final bill is £642.60

What was the percentage surcharge?

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

Turn over for the next question

7

✶**6** 10 boys and 10 girls are each given 20 mental arithmetic questions.

Here are the number of correct answers for each boy.

12 18 12 19 9 20 11 9 18 12

The range of the girls' scores is 12.

The mean of the girls' scores is 14.5

Use the data to investigate the hypothesis

'Boys are better at mental arithmetic than girls'

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(5 marks)

Do not write outside the box

7 Ronan is designing a game.
He has two sets of discs laid face down on a table.
The first set of five discs are labelled 1, 3, 5, 7, 9
The second set of four discs are labelled 2, 4, 6, 8

Players turn over one disc, at random, from each set and add the numbers together.

7 (a) Complete the table to show **all** the possible totals.

	1	3	5	7	9
2	3	5	7		
4	5				
6					
8					

(2 marks)

7 (b) What is the probability of getting a total less than six?

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

7 (c) Ronan uses the game to raise money for charity.
Each player pays 20p to play the game.
If a player gets a total of exactly 13 they win a bar of chocolate.
It costs Ronan 50p for each bar of chocolate.

If 100 people play the game, show that Ronan should expect to raise £12.50 for charity.

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(4 marks)

12

8 Clive works for the local council.

One of his jobs is to check that taxi companies charge reasonable fares.

Each week he checks 10 taxi journeys with local companies.

8 (a) Design a suitable observation sheet for Clive to use to record the fare and distance of each journey.

(2 marks)

8 (b) Clive expects strong positive correlation between the length of the journey and the fare charged.

Explain why he might expect this.

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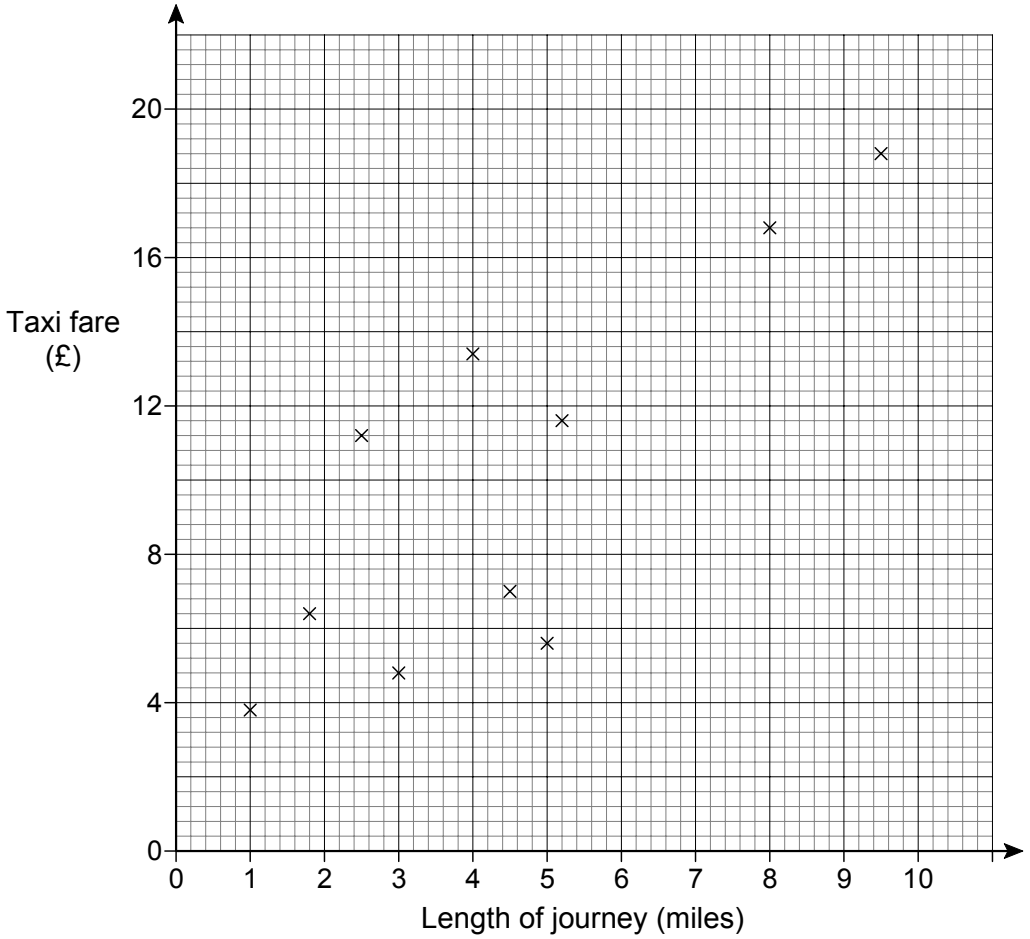
(1 mark)

8 (c) The scatter diagram shows the results for a week in January 2009.



8 (c) (i) What was the fare for the 3-mile journey?

Answer £ ..... *(1 mark)*

8 (c) (ii) What would you expect to pay for a 7-mile journey?

Show how you obtain your answer.

Answer £ ..... *(2 marks)*

8 (d) Does the data support Clive's view about the expected correlation between the length of journey and the fare?

Give a reason for your answer.

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(1 mark)

7

9 A doctor wants to encourage her patients to take more exercise.
The doctor has approximately 500 patients.
She decides to do a survey about what exercise her patients take.

9 (a) This is a question in the survey.

Q Do you exercise?

A Tick a box

Yes ☐ No ☐ Sometimes ☐ Everyday ☐

9 (a) (i) Give a criticism of the question.

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(1 mark)

9 (a) (ii) Give a criticism of the response section.

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(1 mark)

9 (b) This is another question in the survey.

Q How many miles did you walk last week?

Give a suitable response section for this question.

(1 mark)

9 (c) (i) The doctor decides to use one of three methods to do the survey.

Method 1	Give the survey to the first 50 patients seen in a week
Method 2	Choose 50 patients at random
Method 3	Choose 26 patients, picking one whose surname begins with each letter of the alphabet

Give a reason why method 3 is **not** suitable.

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(1 mark)

9 (c) (ii) Which of the other two methods for doing the survey will give the most reliable results?
Give a reason for your choice.

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(1 mark)

Turn over for the next question

5

10 (a) The National Curriculum levels in Mathematics for 30 students in year 9 were recorded.

Level	Number of students	
3	0	
4	4	
5	4	
6	9	
7	8	
8	5	

Calculate the mean level.

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

10 (b) The 30 students study both French and Spanish.

Their National Curriculum levels in these subjects are shown in the table.

		Level in Spanish						
		1	**2**	**3**	**4**	**5**	**6**	**Total**
Level in French	**1**	0	0	0	0	0	0	0
	2	1	0	0	0	0	0	1
	3	2	1	1	0	0	0	4
	4	0	3	4	1	0	0	8
	5	0	1	2	3	2	0	8
	6	0	0	3	3	2	1	9
	Total	3	5	10	7	4	1	30

10 (b) (i) What is the median level for French?

Show clearly how you obtain your answer.

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

10 (b) (ii) The teacher claims that the students are better at French than at Spanish.

How can you tell from the table that this is true?

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(1 mark)

END OF QUESTIONS

6

There are no questions printed on this page

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