Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

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

General Certificate of Secondary Education
Foundation Tier
March 2012

Mathematics 43601F

Unit 1

Monday 5 March 2012 1.30 pm to 2.30 pm

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 3 and 8. 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.

There are no questions printed on this page

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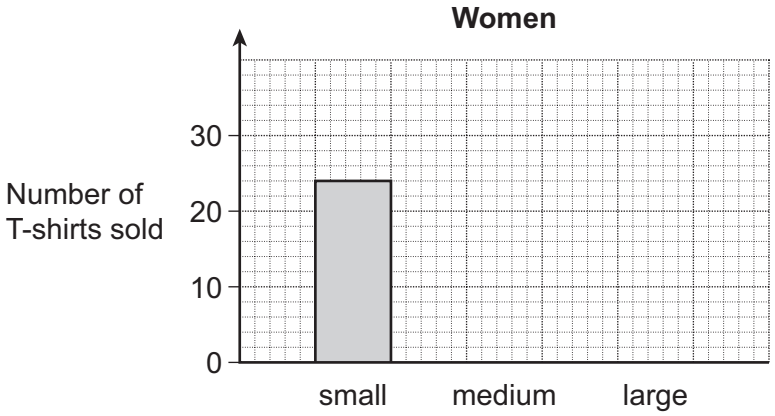
ANSWER IN THE SPACES PROVIDED

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

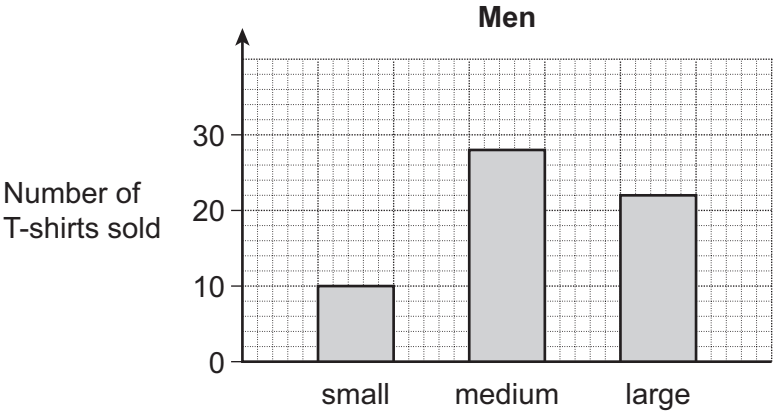
1 A shop sells 20 medium and 6 large T-shirts to women.

1 (a) Complete the bar chart.



(2 marks)

1 (b) Here is the bar chart for men.



Each **small** T-shirt makes £2 profit.

Work out the total profit on **small** T-shirts for men and women.

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Answer £ ..... *(4 marks)*

6

Turn over ▶

2 Beth collects this information about Year 7 sports clubs for the school newspaper.

Sports club	Number of members
Football	40
Table tennis	5
Basketball	10
Netball	15

2 (a) Use the information to complete the pictogram.
The first two rows have been done for you.
Remember to complete the key.

Key: ◯ represents …… members

Football	◯ ◯ ◯ ◯
Table tennis	◐
Basketball	
Netball	

(3 marks)

2 (b) Use the information to write a headline about the sports clubs.

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(1 mark)

2 (c) The 40 members of the football club are put into teams of five.
Each team plays a match against one of the other teams.

How many matches are played?

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

Turn over for the next question

6

*3 Eva owns a restaurant.
The table shows the number of customers on four days.

	Tuesday	Wednesday	Thursday	Friday
Lunch	25	22	27	31
Dinner	50	48	70	89
Total	75	70	97	120

3 (a) How many **more** customers in total were there on Friday than on Thursday?

.....

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

3 (b) She keeps a tally of the number of customers who order pudding each day.

Complete the table.

Day	Tally	Frequency
Tuesday	𝍸 𝍸 𝍸 II	17
Wednesday	𝍸 𝍸 𝍸	
Thursday	𝍸 𝍸 𝍸 𝍸 IIII	
Friday	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	30

(2 marks)

3 (c) What fraction of **Friday's** customers ordered a pudding?
Give your answer in its simplest form.

.....

.....

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

3 (d) Here is some information about Saturday.

Number of customers	150
Number who order pudding	50

Eva thinks the fraction of customers who ordered puddings on Saturday is greater than on Friday.

Is she correct?
You **must** show your working.

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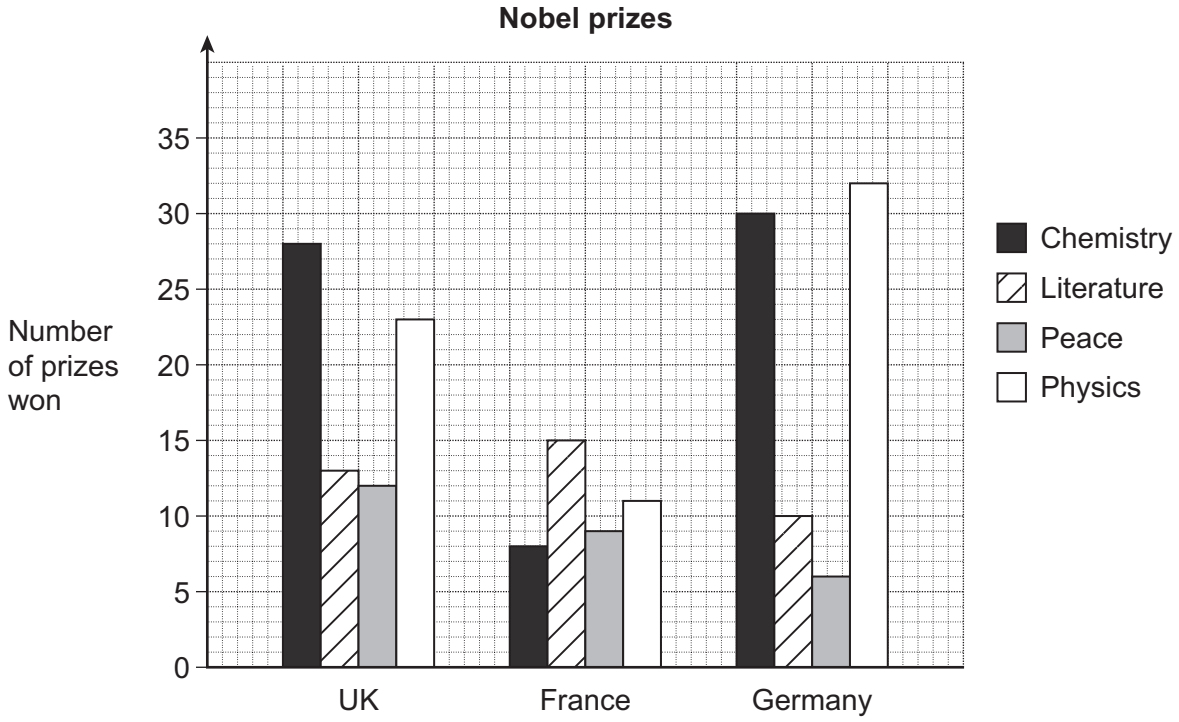
(3 marks)

Turn over for the next question

9

4 Nobel prizes are won for Chemistry, Literature, Peace and Physics.



4 (a) List these countries in order of the number of Chemistry prizes won.
Start with the country that has won the most.

1 .....

2 .....

3 .....

(2 marks)

4 (b) How many Peace prizes has France won?

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

4 (c) Which of these countries has won the most prizes in total?
You **must** show your working.

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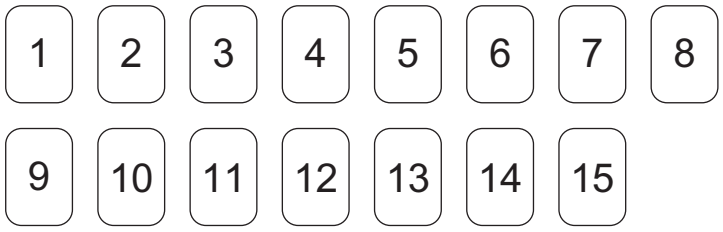
Answer ..... *(3 marks)*

5 These cards are put into a hat.



One card is chosen at random.

5 (a) What is the probability of choosing the card with the number 7?

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

5 (b) What is the probability of choosing a card that has a digit 3 on it?

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

5 (c) What is the probability of choosing a card that does **not** have a digit 3 on it?

.....

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

9

6 (a) A bag had 1 black and 6 white counters.
More black counters were added to the bag.

A counter is now picked at random from the bag.
The probability it is black is now $\frac{1}{2}$.

How many black counters were added?

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

6 (b) A different bag had 7 red and 12 yellow counters.

A number of yellow counters were taken out of the bag and replaced with the same number of red counters.

The mode is now red.

What is the smallest possible number of yellow counters taken out?

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

7 Oscar and Erik want to find out who can solve puzzles faster.
They each solve five puzzles.

Here are Oscar's times in seconds.

10.03 9.78 10.61 12.90 10.08

Erik has a mean time of 10.31 seconds.

7 (a) Who has the lower mean time?
You **must** show your working.

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(3 marks)

7 (b) They decide **not** to use their slowest and fastest times.
The winner is the one with the lower mean of the other three times.

Erik's new mean is 0.34 seconds more than before.

Who wins?
You **must** show your working.

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(2 marks)

8

***8** Anna hits some old tennis balls.
The speeds (mph) of the balls are shown.

46	55	64	48	51
57	65	60	53	72
61	59	52	53	49

8 (a) Show the data in an ordered stem-and-leaf diagram.
Remember to complete the key.

Key: ..... | ..... represents ..... mph

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.....	.....
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(4 marks)

8 (b) Work out the median speed.

.....

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

8 (c) Anna hits some new tennis balls.
The median speed of the new balls is 59 mph.

She says the speeds of the new balls are at least 5% faster than the old balls.

Is she correct?
You **must** show your working.

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(3 marks)

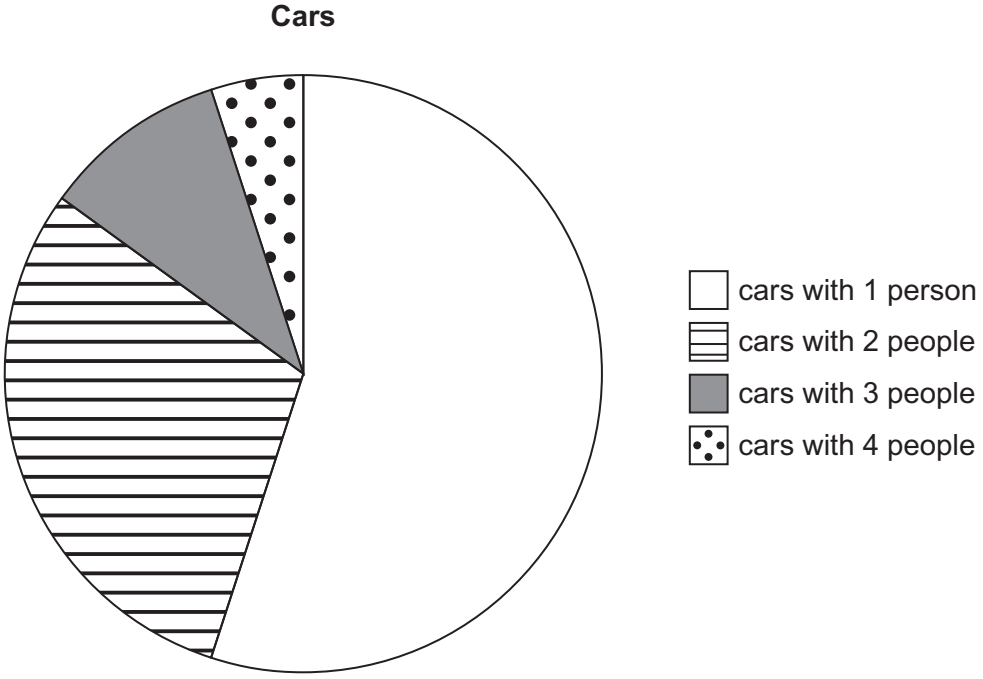
Turn over for the next question

8

9 A council sets this target to reduce traffic.

> More than 40% of cars should have 2 or more people in them.

The council collects data.



Is the target met?
Show how you decide.

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(3 marks)

10 Some boys and girls are asked if they can whistle.

There are 30 boys.
There are three times as many girls.

40% of the girls can whistle.

Boys that can whistle : girls that can whistle = 2 : 3

Complete the two-way table.

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	Boys	**Girls**
Can whistle		
Cannot whistle		
Total	**30**	

(5 marks)

END OF QUESTIONS

8

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