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	
TOTAL	

General Certificate of Secondary Education
Foundation Tier
March 2011

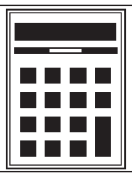
Mathematics 43601F

Unit 1

Monday 7 March 2011 9.00 am to 10.00 am

F

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



Time allowed
- 1 hour

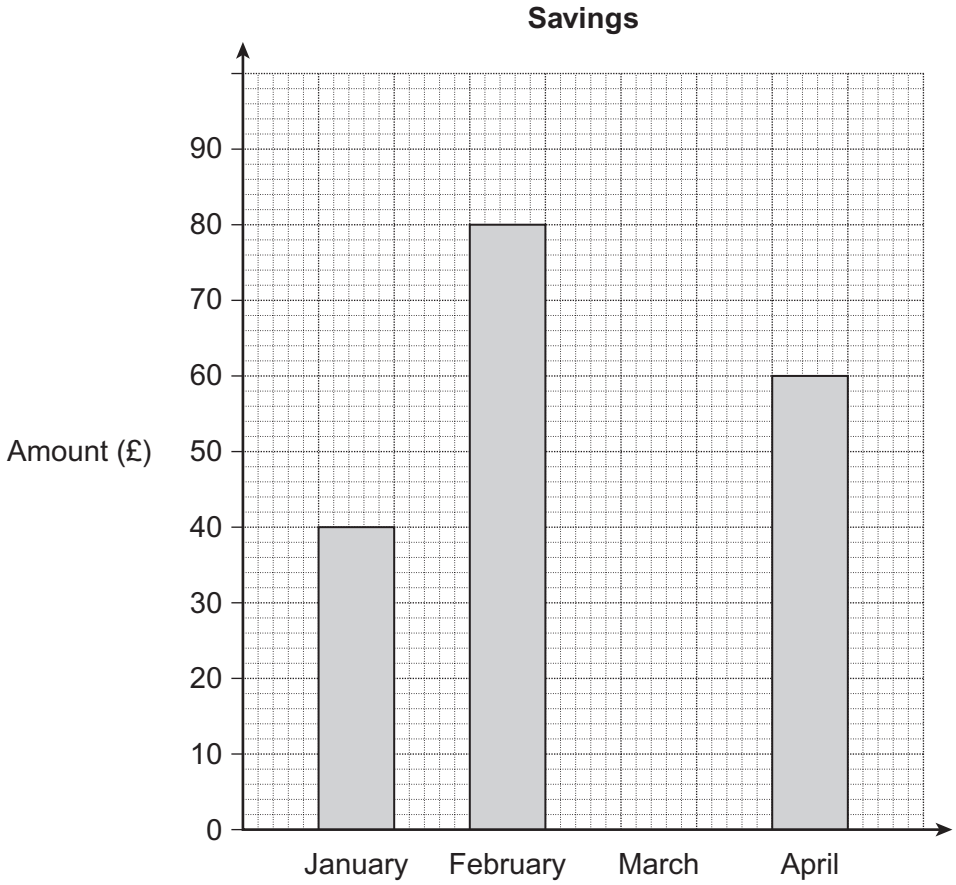
Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this 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 7 and 9. 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 (a) The bar chart shows the amounts Callum saves in January, February and April 2010.



1 (a) (i) How much does he save in January 2010?

Answer £ ..... *(1 mark)*

1 (a) (ii) From January to April he saves £250 in total.

Complete the bar chart by drawing the bar for March.

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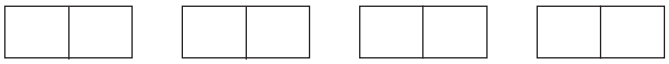
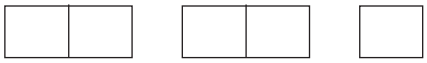
(3 marks)

1 (b) The pictogram shows the amounts Callum saves in the next four months.

Key:  represents £20

May	
June	
July	
August	

Work out the range of the amount he saves in these four months.
You **must** show your working.

.....

.....

Answer £ ..... *(2 marks)*

1 (c) (i) For the rest of 2010 Callum saves £50 each month.

How much does he save in 2010 in total?

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.....

Answer £ ..... *(3 marks)*

1 (c) (ii) Callum spends 50% of these total savings to pay for a holiday.

How much does he pay for the holiday?

.....

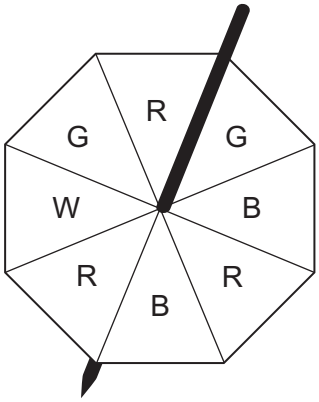
.....

Answer £ ..... *(2 marks)*

11

2 (a) Fair spinner X has eight equal sections.
The sections are either red (R), blue (B), green (G) or white (W).

Spinner X



2 (a) (i) The spinner is spun.

On which colour is it least likely to land?

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

2 (a) (ii) Write down the probability that the spinner lands on green.
Give your answer in its simplest form.

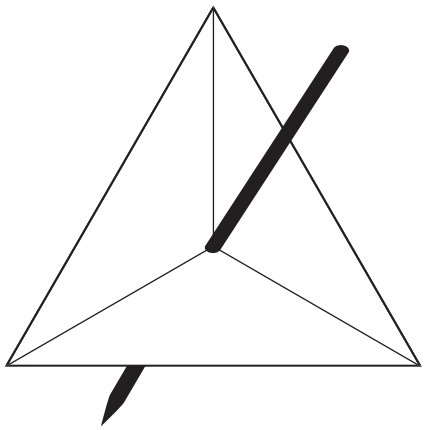
.....

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

2 (b) Fair spinner Y has three equal sections.
It is certain to land on red (R).

Label spinner Y.

Spinner Y



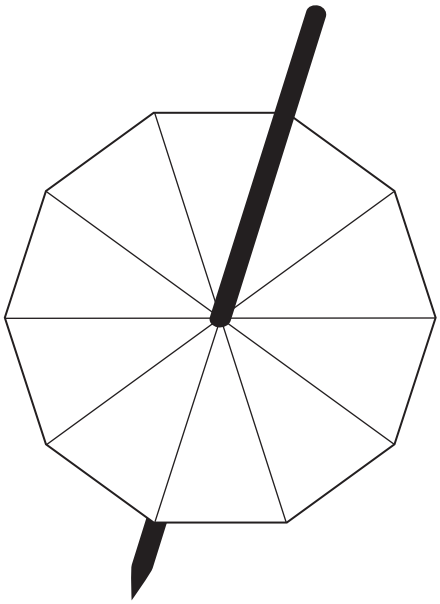
(1 mark)

2 (c) Fair spinner Z has 10 equal sections.

Label spinner Z so that

it has the same four colours as spinner X
white is less likely than on spinner X
white and green are equally likely on spinner Z
red and blue are equally likely on spinner Z.

Spinner Z



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(2 marks)

6

3 There are three types of Easter eggs.

Milk chocolate	M
Dark chocolate	D
White chocolate	W

The eggs come in three sizes.

Small	S
Large	L
King size	K

3 (a) List **all** possible combinations of chocolate type and size.
The first one has been done for you.

MS .....

.....

.....

.....

(3 marks)

3 (b) A box contains equal numbers of each egg.
One egg is chosen at random.

What is the probability that a small milk chocolate egg is chosen?

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

4 Shola has **two** of these coins.

1p 2p 5p 10p 20p 50p £1

The value of one coin is 10% of the value of the other coin.

Work out the possible **total** amounts of money Shola could have.

.....

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Answer .....

(3 marks)

Turn over for the next question

7

5 A car park is open from 9 am to 6 pm.

5 (a) (i) 80 cars enter between 9 am and 10 am.
One-quarter of these cars are silver.

How many silver cars enter between 9 am and 10 am?

.....

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

5 (a) (ii) 115 cars enter between 10 am and 11 am.
Kim says, "Exactly one-quarter of these cars are silver."

Show that she is wrong.

.....

.....

(1 mark)

5 (b) A data logging machine counts cars entering and leaving the car park.

Hour ending at	Cars entering	Cars leaving
10 am	80	5
11 am	115	25
12 noon	75	40
1 pm	35	35
2 pm	50	50
3 pm	40	45
4 pm	20	65
5 pm	10	115
6 pm	5	30

5 (b) (i) The car park is empty at 9 am.

How many cars are in the car park at 10 am?

.....

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

5 (b) (ii) Barriers stop cars entering when the car park is full.
The car park is full at 12 noon.

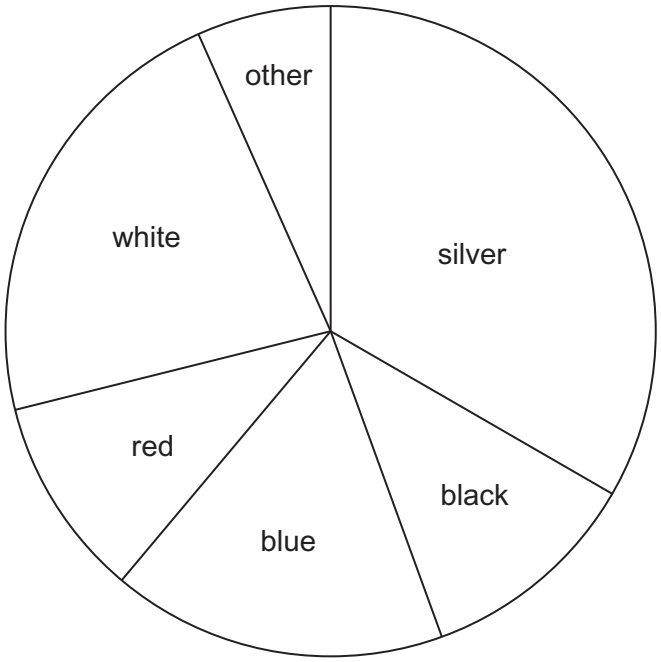
How many cars are in the car park when it is full?

.....

.....

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

5 (c) The pie chart shows information about the colours of the cars in the car park one day.



Complete the sentences.

5 (c) (i) There are twice as many ..... cars as black cars.

(1 mark)

5 (c) (ii) $\frac{1}{3}$ of the cars are .....

(1 mark)

5 (d) Are there any purple cars in the car park on that day?
Tick a box.

☐ Yes ☐ No ☐ Cannot tell

Give a reason for your answer.

.....

.....

(1 mark)

9

6 Is money discrete or continuous?
Tick a box.

☐ Discrete ☐ Continuous

Give a reason for your answer.

.....

.....

(1 mark)

***7** A company pays people to visit shops and test customer service.
Paul works for this company.

His fees in October are shown.

Fee (£)	Frequency
8	10
10	18
12	7
15	4
20	1

7 (a) Calculate his mean fee.

.....

.....

.....

Answer £ ..... *(3 marks)*

7 (b) Paul says that his modal fee and his median fee are both £10.

Is he correct?
Give reasons and working to show how you decide.

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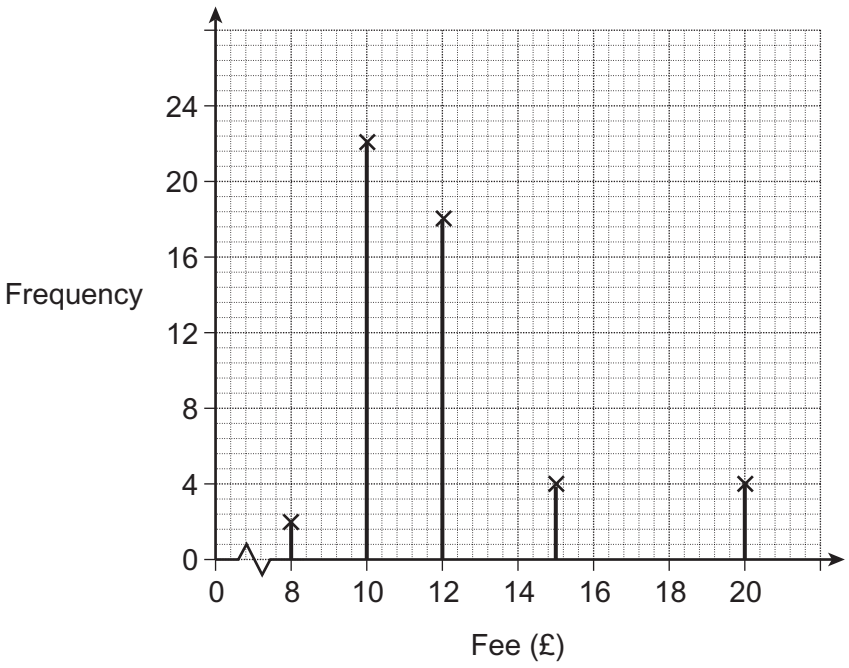
(2 marks)

7 (c) Shelley also works for this company.
Her fees in the same month are shown.

Shelley's fees



Give **one** similarity and **one** difference in the fees of Paul and Shelley.

Similarity .....

.....

Difference .....

.....

(2 marks)

8 120 adults complete a survey.
45 are men.

Write the ratio men : women in its simplest form.

.....

.....

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

10

***9** Each day 147 trains leave Lea Road station.
One day, most trains are on time (0 minutes late).
19 trains are late.

9 (a) What percentage of trains are late?
Give your answer to 1 decimal place.

.....

.....

.....

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

9 (b) The station manager records the number of minutes late for each of the 19 trains.

6	11	1	21	8	10	17	4	35	22
2	3	41	8	23	7	16	28	19	

9 (b) (i) Draw an ordered stem-and-leaf diagram to show the data for the late trains.
Complete the key.

Key: ..... | ..... represents ..... minutes late

.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

(4 marks)

9 (b) (ii) For the 19 late trains, write down the modal number of minutes late.

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

9 (b) (iii) Write down the modal number of minutes late for all 147 trains.

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

9 (c) The station manager says,
''The late times are all one minute less than I recorded.
For example, the train I recorded as 6 minutes late was actually only 5 minutes late.''

Which modal number of minutes late changes?
Tick a box.

☐ The 19 late trains

☐ All 147 trains

☐ Both

☐ Neither

Give a reason for your answer.

.....

.....

(2 marks)

END OF QUESTIONS

11

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