| Centre Number | | | | | | Candidate Number | | | | |
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| Surname | | | | | | | | | | |
| Other Names | | | | | | | | | | |
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| For Examiner's Use | |
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| Examiner's Initials | |
| Pages | Mark |
| 2 – 3 | |
| 4 – 5 | |
| 6 – 7 | |
| 8 – 9 | |
| 10 – 11 | |
| 12 – 13 | |
| 14 – 15 | |
| 16 – 17 | |
| 18 | |
| TOTAL | |

AQA

General Certificate of Secondary Education
Foundation Tier
June 2014

# Mathematics 43601F

## Unit 1

F

Tuesday 17 June 2014 9.00 am to 10.00 am

**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 1 and 4. 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 club rents films.
These were the films rented on Monday.

**Films rented on Monday**

| | |
|---|---|
| **Comedy** | 12 |
| **Thriller** | 6 |
| **Romance** | 9 |
| | Total = 27 |

**1 (a)** Draw a pictogram for this data.

Use  to represent 4 films.

**[2 marks]**

**Films rented on Monday**

Key:  represents 4 films

| | |
|---|---|
| **Comedy** | |
| **Thriller** | |
| **Romance** | |

***1 (b)** This pictogram represents the films rented on Tuesday.

**Films rented on Tuesday**

Key: ☺ represents 2 films

| | |
|---|---|
| **Comedy** | ☺ ☺ ☺ ☺ ☺ |
| **Thriller** | ☺ |
| **Romance** | ☺ ☺ ☾ |

The club manager says,

"Looking at the total number of films rented on **Monday and Tuesday**, half of them were Comedy."

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

**[3 marks]**

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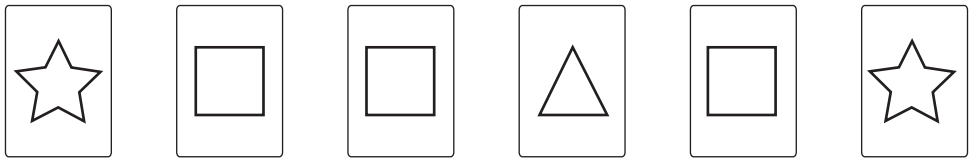
5

**Turn over ▶**

**2** Here are some cards.



A card is picked at random.

**2 (a)** Circle the chance that the card has a square on it.

**[1 mark]**

impossible unlikely evens likely certain

**2 (b)** Circle the chance that the card has a triangle on it.

**[1 mark]**

impossible unlikely evens likely certain

**3** The tables show two sets of data.

**Set A**

| Result | Frequency |
|---|---|
| 2 | 3 |
| 3 | 7 |
| 4 | 8 |
| 5 | 7 |
| 6 | 9 |
| 7 | 1 |

**Set B**

| Result | Frequency |
|---|---|
| 3 | 3 |
| 4 | 12 |
| 5 | 9 |
| 6 | 8 |

**3 (a)** Liam says,

"Set A has the higher mode."

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

**[2 marks]**

.....

.....

**3 (b)** Liam says,

"Set A has the larger range."

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

**[2 marks]**

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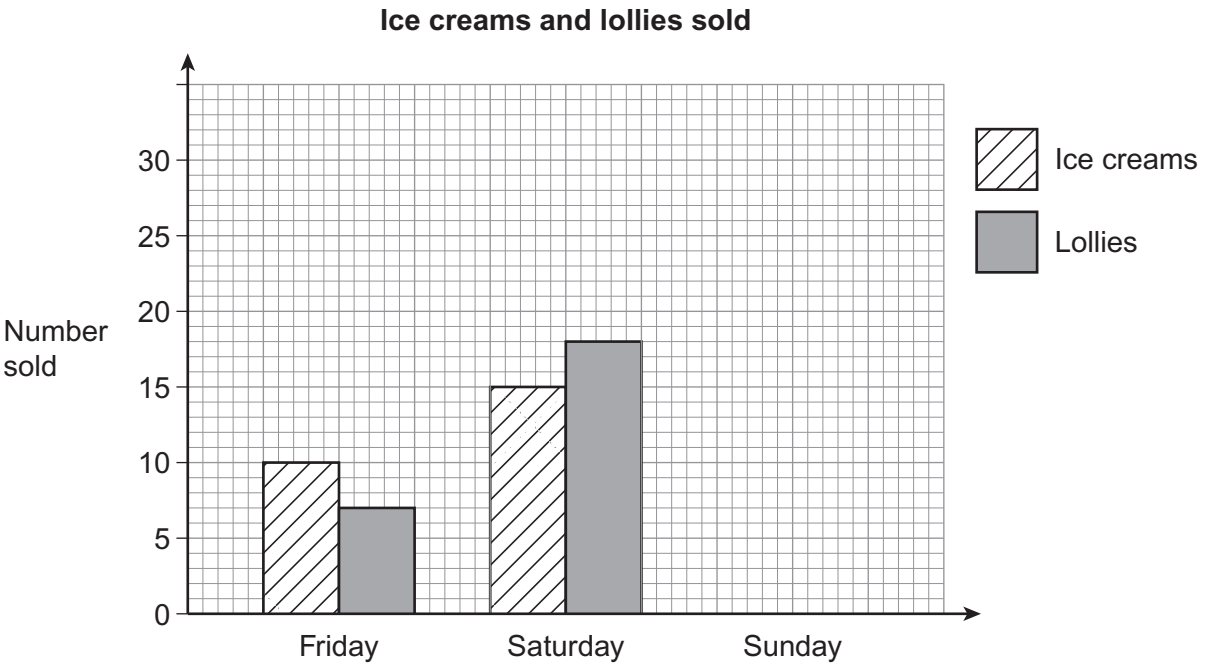
6

**4** Mira sells ice creams and lollies.
The bar chart shows the number sold on Friday and Saturday.




***4 (a)** An ice cream costs £1.20
A lolly costs 80p.

How much money did Mira take from selling ice creams **and** lollies on **Friday**?

**[3 marks]**

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Answer £ .....

**4 (b)** Mira sold ice creams and lollies on Friday, Saturday and Sunday.
Altogether she sold 80.

On Sunday, she sold 2 **more** lollies than ice creams.

Complete the bar chart for Sunday.

**[3 marks]**

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**Turn over for the next question**

6

**5** The table shows information about 80 shirts in a shop.

| | **slim** | **tailored** | **regular** | **classic** |
|---|---|---|---|---|
| **grey** | 2 | 6 | 7 | 4 |
| **blue** | 8 | 5 | 9 | 5 |
| **purple** | 1 | 3 | 4 | 10 |
| **white** | 11 | 0 | 2 | 3 |

**5 (a)** How many of the shirts are **white slim**?

**[1 mark]**

Answer .....

**5 (b)** What fraction of the 80 shirts are **purple classic**?
Give your answer in its simplest form.

**[2 marks]**

.....

.....

Answer .....

**5 (c)** How many of the shirts are **tailored**?

**[1 mark]**

.....

Answer .....

**5 (d)** How many of the **blue** shirts are **slim or regular**?

**[1 mark]**

.....

Answer .....

**6** In a game, players roll two ordinary, fair six-sided dice.
The numbers rolled are added to get a score.

**6 (a)** Complete the table of possible scores.

**[1 mark]**

**Dice 2**

| | + | **1** | **2** | **3** | **4** | **5** | **6** |
|---|---|---|---|---|---|---|---|
| | **1** | 2 | 3 | 4 | 5 | 6 | 7 |
| | **2** | 3 | 4 | 5 | 6 | 7 | 8 |
| **Dice 1** | **3** | 4 | 5 | 6 | 7 | 8 | |
| | **4** | 5 | 6 | 7 | 8 | | |
| | **5** | 6 | 7 | 8 | | | |
| | **6** | 7 | 8 | | | | |

**6 (b)** What is the most likely score?

**[1 mark]**

Answer .....

**6 (c)** To win a prize a player must score 8.

Work out the probability of winning a prize.

**[2 marks]**

.....

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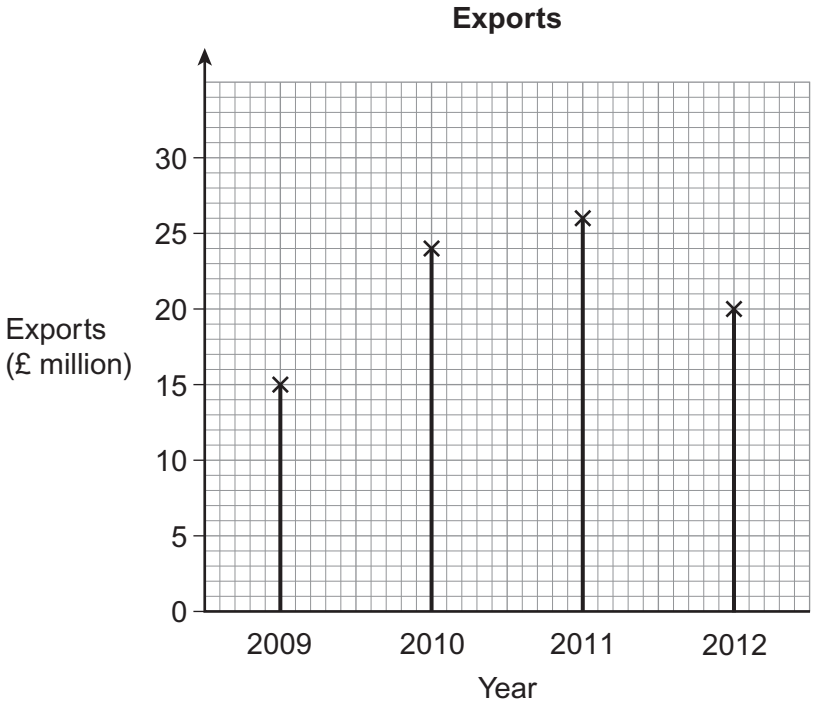
Answer .....

9

**7** The diagram shows information about the exports of a company.




**7 (a)** Work out the **increase** in the exports from 2009 to 2010.

**[2 marks]**

.....

Answer £ ..... million

**7 (b)** Write the value of the exports in 2011 to 1 significant figure.

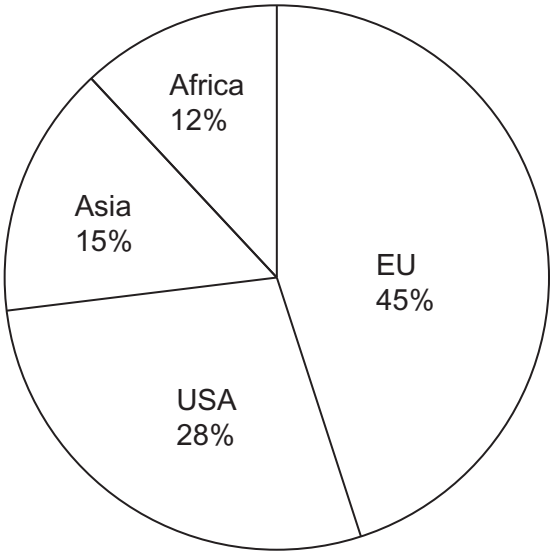
**[1 mark]**

.....

Answer £ ..... million

**7 (c)** The pie chart shows information about the exports of the company in 2012.

**Exports in 2012**




Use **both** diagrams to work out the value of the exports to the **USA** in 2012.

**[3 marks]**

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Answer £ ..... million

6

**Turn over ▶**

**8** A, B and C are sets of three cards.

**8 (a)** Set B has the same **total** as Set A.
Set B has the same **median** as Set A.

Complete the cards in Set B.

**[2 marks]**

| | | | |
|---|---|---|---|
| **Set A** | 12 | 18 | 15 |
| **Set B** | 20 | | |

**8 (b)** Set C has the same **total** as Set A.
Set C has the same **range** as Set A.

Complete the cards in Set C.

**[2 marks]**

| | | | |
|---|---|---|---|
| **Set A** | 12 | 18 | 15 |
| **Set C** | 17 | | |

**9 (a)** Lucy thinks people prefer dogs to cats.

She asks dog owners,

"Do you prefer dogs or cats?"

Is the data likely to be biased?
Give a reason for your answer.

**[1 mark]**

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.....

**9 (b)** Sam asks 30 people,

"Do you prefer dogs or cats?"

One-fifth of the 30 people have no preference.
Twice as many choose cats as choose dogs.

Complete the table.

**[3 marks]**

| | **Frequency** |
|---|---|
| Dogs | |
| Cats | |
| No preference | |
| | Total = 30 |

8

**10** This table shows information about the weights of 200 rabbits.

| Weight, $w$ (grams) | Frequency | Midpoint | |
|---|---|---|---|
| $60 < w \leqslant 70$ | 101 | 65 | |
| $70 < w \leqslant 80$ | 64 | 75 | |
| $80 < w \leqslant 90$ | 25 | 85 | |
| $90 < w \leqslant 100$ | 10 | 95 | |
| | Total = 200 | | |

**10 (a)** Tick whether each statement is true or false.

**[1 mark]**

| | True | False |
|---|---|---|
| You can use the table to calculate the exact median. | ☐ | ☐ |
| You can use the table to work out the weight of the heaviest rabbit. | ☐ | ☐ |

**10 (b)** Calculate an estimate of the mean weight of the 200 rabbits.

**[3 marks]**

.....

.....

.....

.....

.....

Answer ..... grams

**10 (c)** Here are the weights, in grams, of 10 more rabbits.

76.2 89.4 93.1 99.7 86.8 79.2 82.6 91.9 88.0 95.4

Complete the table with:

- tallies for these 10 rabbits
- the frequencies for **all** 210 rabbits.

**[2 marks]**

| **Weight, $w$ (grams)** | **Tally** | **Frequency** |
|---|---|---|
| $60 < w \leqslant 70$ | 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 I | |
| $70 < w \leqslant 80$ | 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 IIII | |
| $80 < w \leqslant 90$ | 𝍸 𝍸 𝍸 𝍸 𝍸 | |
| $90 < w \leqslant 100$ | 𝍸 𝍸 | |
| | | Total = 210 |

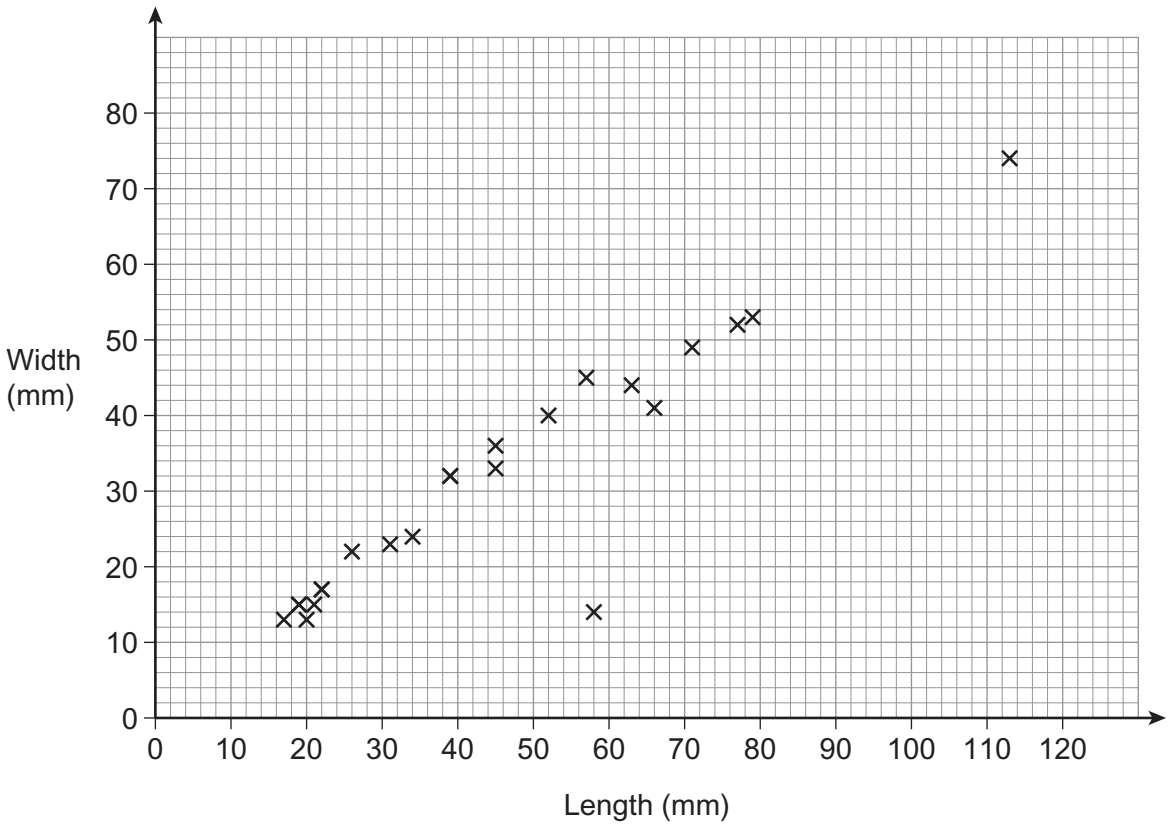
**10 (d)** Which **two** of these diagrams could you use to represent this grouped data?
Circle your answers.

**[1 mark]**

stem-and-leaf frequency polygon scatter graph histogram

7

**11** The scatter graph shows the lengths and widths of 20 birds' eggs.




**11 (a)** One of the eggs has a length of 52 mm.

What is its width?

**[1 mark]**

Answer ..... mm

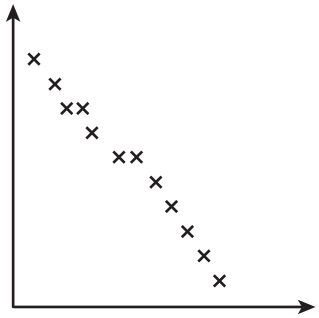
**11 (b)** All the points except one show strong correlation.

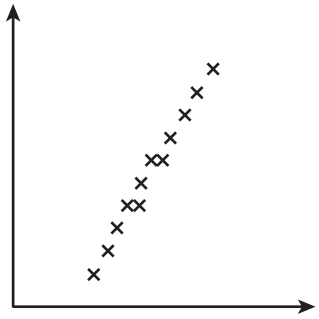
Circle the point that does **not** fit this pattern.

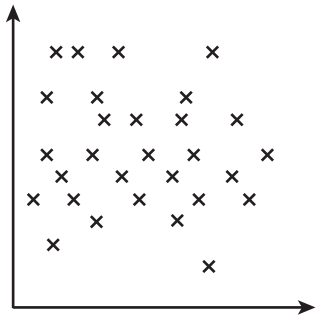
**[1 mark]**

**11 (c)** Match each scatter graph with a description.
The first one has been done for you.

**[2 marks]**







- Strong positive correlation
- Weak positive correlation
- Little or no correlation
- Weak negative correlation
- Strong negative correlation

**Turn over for the next question**

4

**12 (a)** A **fair** coin is thrown five times.
These are the results.

tails heads heads heads heads

The coin is thrown again.

Write down the probability that it will land on tails this time.

**[1 mark]**

Answer .....

**12 (b)** Jon has made a ten-sided spinner.

Describe **fully** how he can test whether it is fair or biased.

**[2 marks]**

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**END OF QUESTIONS**

3

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