

Write your name here

Surname

Other names

**Pearson**  
**Edexcel GCSE**

Centre Number

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Candidate Number

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# Mathematics B

## Unit 1: Statistics and Probability (Calculator)

**Foundation Tier**

Wednesday 6 November 2013 – Morning

**Time: 1 hour 15 minutes**

Paper Reference

**5MB1F/01**

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.142 unless the question instructs otherwise.



### Information

- The total mark for this paper is 60
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed.

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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**PEARSON**

GCSE Mathematics 2MB01

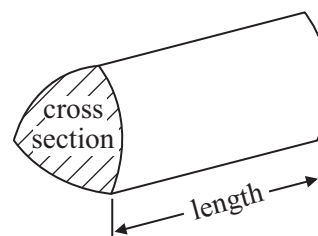
Formulae: Foundation Tier

**You must not write on this formulae page.  
Anything you write on this formulae page will gain NO credit.**

**Area of trapezium** =  $\frac{1}{2}(a + b)h$



**Volume of prism** = area of cross section  $\times$  length








Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

- 1 The pictogram shows the number of cakes sold in a shop on Monday, on Tuesday, on Wednesday and on Thursday one week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

<b>Key:</b>  represents 8 cakes
--

- (a) How many cakes were sold on Thursday?

.....  
(1)

- (b) Work out the total number of cakes sold on Monday and Tuesday.

.....  
(2)

On Friday this week 12 cakes were sold in the shop.

- (c) Show this information on the pictogram.

(1)

(Total for Question 1 is 4 marks)



2 Jose throws a fair coin once.

(a) Choose the word that best describes the likelihood he will get a tail.

impossible      unlikely      evens      likely      certain

.....  
(1)

Grace rolls an ordinary dice once.

(b) Choose the word that best describes the likelihood she will get a 6

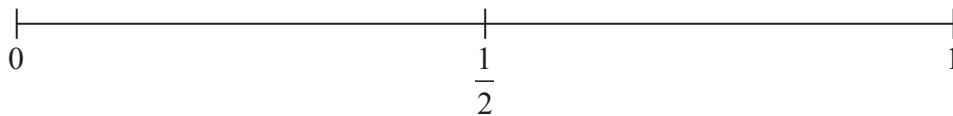
impossible      unlikely      evens      likely      certain

.....  
(1)

There are only red sweets in a bag.

Stella takes at random one sweet from the bag.

(c) On the probability scale below, mark with a cross (×) the probability that she takes a red sweet.

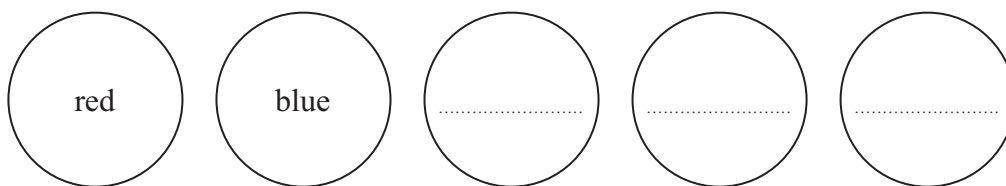


(1)

Here are some counters.

The counters are coloured either red or blue.

Three of the counters have not been marked with a colour.



Gill is going to take at random one of the counters.

She is more likely to take a red counter than a blue counter.

(d) Write a suitable colour on each of the unmarked counters.

(1)

**(Total for Question 2 is 4 marks)**

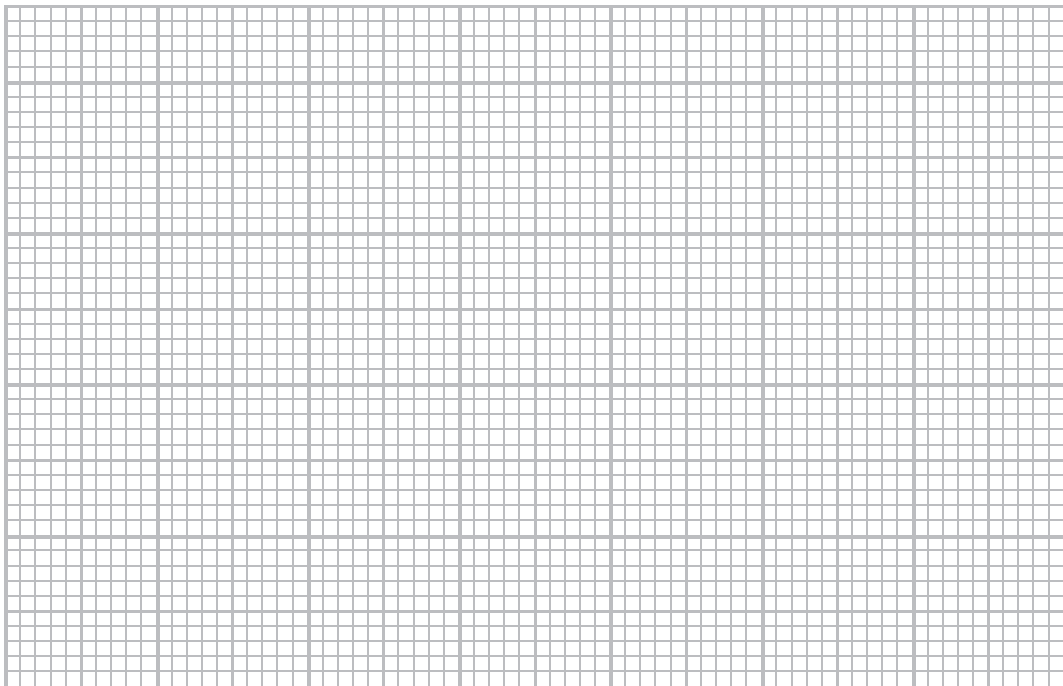


\*3 Harry and Shamus recorded the number of minutes they each spent watching TV on Monday to Thursday last week.

The table shows information about their results.

	Monday	Tuesday	Wednesday	Thursday
Harry	35	30	25	20
Shamus	10	20	25	40

(a) Show this information in a suitable diagram.



(4)

(b) Compare the numbers of minutes Harry and Shamus each spent watching TV on Monday to Thursday last week.

Write down two comparisons.

1 .....

2 .....

(2)

(Total for Question 3 is 6 marks)



4 The diagram shows the cost of a bag of soil and the cost of a box of seeds.



Kate buys two bags of soil and three boxes of seeds.

She gets  $\frac{1}{4}$  off the total cost.

Kate pays with a £20 note.

How much change should Kate get?

£ .....

(Total for Question 4 is 4 marks)



5 Lionel recorded the number of typing errors on each page of a letter.

Here are his results.

2      5      1      1      3      2

(a) Work out the median.

.....  
(2)

(b) Work out the range.

.....  
(2)

Lionel also recorded the number of errors on each page of a book.

The table gives information about his results.

Number of errors on each page	Tally	Frequency
0		
1		
2		
3		
4		

(c) Complete the frequency column in the table.

(1)

(d) How many pages are there in the book?

..... pages  
(1)

(e) Work out the total number of errors in the book.

..... errors  
(2)

(Total for Question 5 is 8 marks)



- \*6 Jasmine wants to record a film on a DVD.  
The film is 95 minutes long.  
Jasmine's DVD has  $1\frac{1}{2}$  hours of recording time left.  
Can Jasmine record all of the film on this DVD?  
You must show your working.

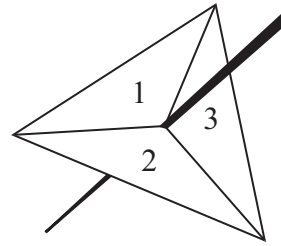
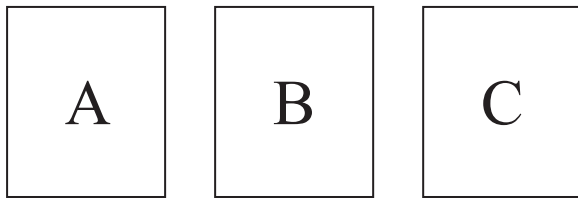
(Total for Question 6 is 2 marks)

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7 Steve has three cards and a fair 3-sided spinner.



The cards are labelled A, B and C.  
The sides of the spinner are labelled 1, 2 and 3

Steve is going to take at random one card.  
He is then going to spin the spinner.

- (a) List all the possible outcomes he can get.  
The first one is done for you.

(A, 1) .....

.....

.....

(2)

- (b) Write down the probability the card will be labelled B and the spinner will land on 2

.....

(1)

**(Total for Question 7 is 3 marks)**



8 There are only yellow pencils, red pencils, green pencils and blue pencils in a box.

The pie chart gives information about the numbers of pencils of each colour.

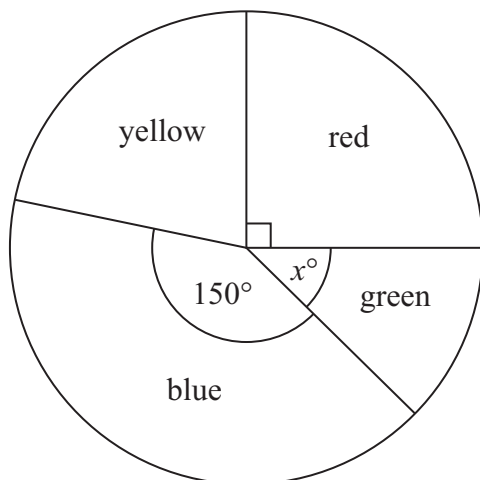


Diagram **NOT** accurately drawn

(a) What fraction of the total number of pencils in the box is red?

.....  
(1)

In the pie chart, the angle used for yellow is twice the angle used for green.

(b) Write down an expression, in terms of  $x$ , for the angle used for yellow.

.....  
(1)

There are 48 pencils in the box.

(c) Work out the number of blue pencils in the box.

.....  
(2)

**(Total for Question 8 is 4 marks)**



\*9 Here are two different ways to invest £2500

**Investment A**

Invest £2500 for 3 years  
and get £5 interest each month.

**Investment B**

Invest £2500 for 3 years  
at 2.5% simple interest each year.

Which investment gives the most interest?

(Total for Question 9 is 4 marks)



- 10** There are 57 musicians in an orchestra.  
Each musician plays a brass instrument or a woodwind instrument or a string instrument.  
The incomplete two-way table gives information about the musicians.

	<b>Brass</b>	<b>Woodwind</b>	<b>String</b>	<b>Total</b>
<b>Female</b>	4			
<b>Male</b>		5		27
<b>Total</b>		20	21	57

(a) Complete the table. (3)

(b) Write down the number of male musicians who play a woodwind instrument.

.....  
(1)

(c) Write down the number of female musicians who do **not** play a string instrument.

.....  
(1)

**(Total for Question 10 is 5 marks)**

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11 Kerry wants to find out how much time people spend watching rugby on television.

She is going to carry out a survey using a questionnaire.

(a) Design a suitable question for Kerry to use on her questionnaire.

(2)

Kerry asks the girls in her class to do her questionnaire.

Her sample is biased.

(b) Give **two** reasons why.

1 .....

.....

2 .....

.....

(2)

**(Total for Question 11 is 4 marks)**



**12** Tim plays a game.

He can win the game or he can lose the game or he can draw the game.

The probability that Tim will win the game is 0.25

The probability that Tim will lose the game is  $x$ .

(a) Give an expression, in terms of  $x$ , for the probability that he will draw the game.

.....  
(2)

Tim plays the game 240 times.

(b) Work out an estimate for the number of times he will win the game.

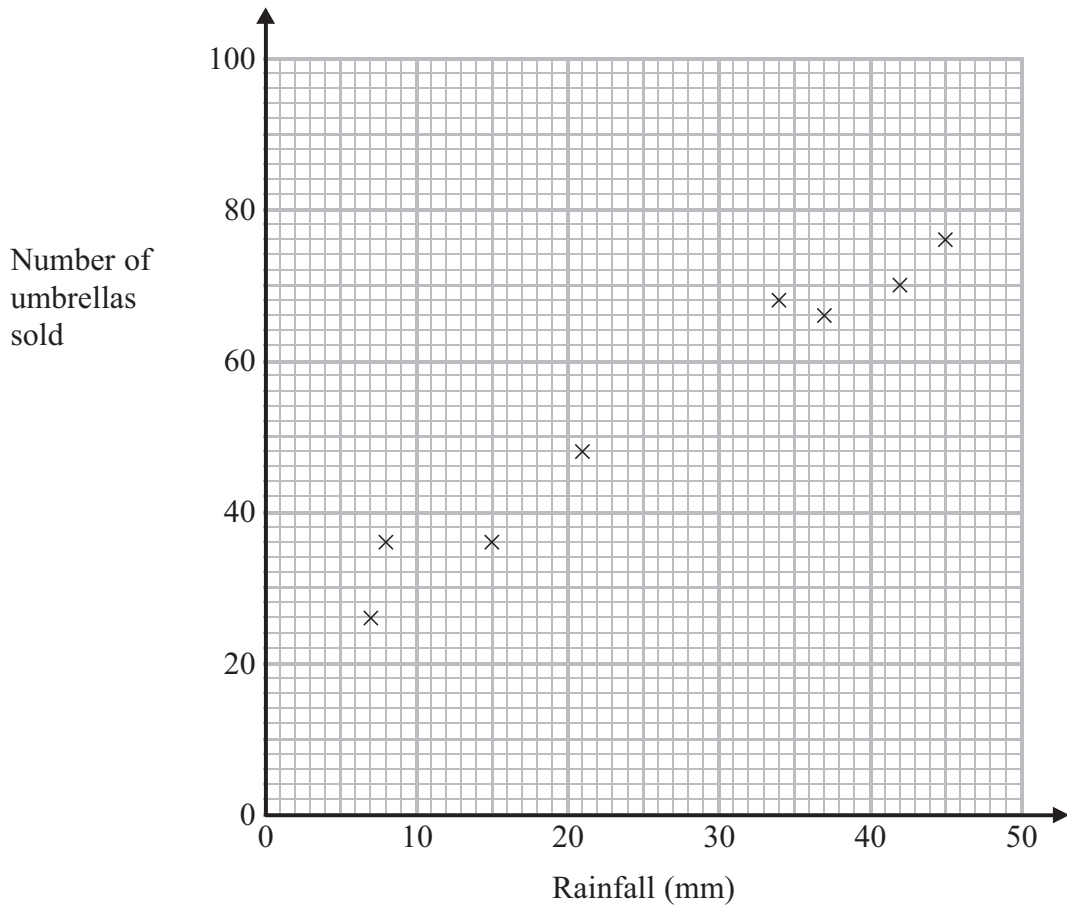
.....  
(2)

**(Total for Question 12 is 4 marks)**

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13 The scatter graph gives information about the rainfall (mm) and the number of umbrellas sold in a shop for each of eight months last year.



(a) Describe the relationship between the rainfall and the number of umbrellas sold.

(1)

In a different month, the rainfall was 28 mm.

(b) Estimate the number of umbrellas sold in the shop that month.

(2)

(Total for Question 13 is 3 marks)

Turn over for Question 14



- \*14 The Kumar family are going to go to New York.  
They will go with Highway Airlines or Jetstream Airlines.  
The tables show how much it costs for each adult and each child to go with these airlines.

**Highway Airlines**

Date	Adult	Child
4 – 10 July	£475	£280
11 – 17 July	£488	£282
18 – 24 July	£516	£304
25 – 31 July	£506	£297
1 – 7 August	£462	£251
8 – 14 August	£430	£238
15 – 21 August	£421	£235
22 – 28 August	£399	£221

**Jetstream Airlines**

Date	Adult	Child
4 – 10 July	£483	£286
11 – 17 July	£493	£296
18 – 24 July	£526	£315
25 – 31 July	£519	£303
1 – 7 August	£485	£218
8 – 14 August	£429	£245
15 – 21 August	£409	£232
22 – 28 August	£401	£222

Highway Airlines give a discount of 5% of the total cost for booking online.  
Jetstream Airlines give a discount of £25 per person for booking online.

The Kumar family are going to New York on 3 August.  
They will buy 2 adult tickets and 1 child ticket.  
They will book online.

The Kumar family want to pay the lower total cost.  
Which airline should they choose?

**(Total for Question 14 is 5 marks)**

**TOTAL FOR PAPER IS 60 MARKS**

