

1MA1 Foundation themed papers: Right or wrong?

Write your name here			
Surname	Other names		
Centre Number		Candidate Number	
Pearson Edexcel Level 1/Level 2 GCSE (9–1)			
Mathematics			
Right or wrong?			
			Paper Reference 1MA1
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.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is **67**. There are **23** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

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.

1MA1 Foundation themed papers: Right or wrong?



1

Rehan is on holiday in the USA.

He has \$200 to spend on clothes.

Rehan buys

1 pair of trainers costing \$60

3 T-shirts costing \$25 each.

He also wants to buy a jacket costing \$80

(a) Has Rehan got enough money to buy the jacket?

You must show how you get your answer.

(3)

The trainers cost \$60

The exchange rate is $\$1 = \pounds 0.749$

Rehan says,

“The trainers cost less than £40”

Rehan is wrong.

(b) Using a suitable approximation, show working to explain why.

(2)

(Total for Question 1 is 5 marks)

1MA1 Foundation themed papers: Right or wrong?

- 2** The first term of a sequence of numbers is 24
The term-to-term rule of this sequence is ‘add 8’

Josie says,

“No number in this sequence is in the 5 times table.”

- (a) Give an example to show that Josie is wrong.

.....
(1)

- (b) Is 85 a number in this sequence?
Give a reason for your answer.

.....
.....
(1)

(Total for Question 2 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?

3 Here is a list of numbers.

12 15 14 17 22 19 13

Bridgit says,

“To work out the median you find the middle number,
so the median of these numbers is 17”

Bridgit’s answer is **not** correct.

(a) What is wrong with Bridgit’s method?

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.....

(1)

(b) Work out the range of the numbers in the list.

.....
(2)

(c) Work out the mean of the numbers in the list.

.....
(2)

(Total for Question 3 is 5 marks)

1MA1 Foundation themed papers: Right or wrong?

4 Jenny is asked to find the value of $12 - 2 \times 4$

Here is her working.

$$12 - 2 \times 4 = 10 \times 4 = 40$$

Jenny's answer is wrong.

(a) Explain what Jenny has done wrong.

.....
.....

(1)

Rehan is asked to find the range of the numbers 3 1 8 7 5

Here is his working.

$$\text{Range} = 5 - 3 = 2$$

This is wrong.

(b) Explain why.

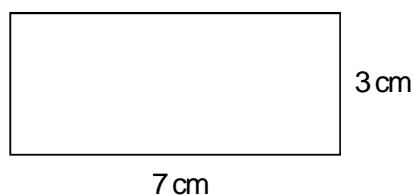
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(1)

(Total for Question 4 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?

5 Here is a rectangle.



Coby has to find the perimeter of this rectangle.

He writes,

$$\text{Perimeter} = 7 \times 3$$

(a) What mistake has Coby made?

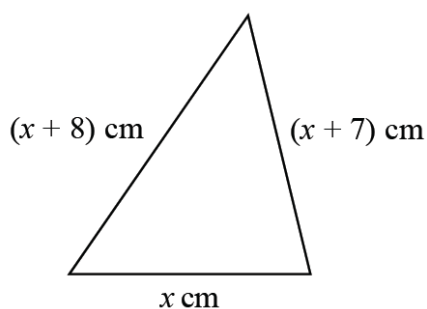
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(1)

Here is a triangle.



Iram solves a problem about this triangle to find the value of x .

Her answer is

$$x = -2$$

(b) Explain why Iram's answer must be wrong.

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(1)

(Total for Question 5 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?



6

(a) Work out $\frac{1}{5}$ of 70

.....
(1)

Fiona has to work out the exact value of $48 \div \frac{1}{2}$

She writes

$$48 \div \frac{1}{2} = 24$$

Fiona's reason is,

“There are 2 halves in 1, so there will be 24 halves in 48”

(b) Explain what is wrong with Fiona's reason.

.....
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(1)

(Total for Question 6 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?

7 Victoria throws an ordinary fair 6-sided dice once.

She says,

“The probability of getting a 3 is half the probability of getting a 6”

(a) Is Victoria correct?

You must explain your answer.

.....
.....

(1)

Andy throws the dice twice.

He says,

“The probability of getting a 6 on both throws is $\frac{2}{6}$ ”

(b) Is Andy correct?

You must explain your answer.

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.....

(1)

Indre throws the dice once.

She also throws a coin to get Heads or Tails.

(c) List all the possible outcomes she can get.

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.....

(2)

(Total for Question 7 is 4 marks)

1MA1 Foundation themed papers: Right or wrong?

- 8** Bill wants to increase 150 by 3%
He writes down

$$150 \times 1.3 = 195$$

Bill's method is wrong.

- (a) Explain why.

.....
.....

(1)

Sally wants to decrease 150 by 3%

- (b) Complete this statement to show how Sally can decrease 150 by 3%

$$150 \times \dots\dots\dots = \dots\dots\dots$$

(1)

(Total for Question 8 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?

9 Four biased coins, A, B, C and D are thrown.

The probability that each coin will land on Heads is shown in the table.

Coin	Probability
A	0.33
B	0.033
C	$\frac{1}{3}$
D	30%

(a) (i) Which coin is least likely to land on Heads?

.....
(1)

(ii) Which coin is most likely to land on Heads?

.....
(1)

Julie says,

“The probability that coin C will land on Heads is the same as the probability that coin C will land on Tails.”

(b) Is she correct?

Give a reason for your answer.

.....
.....
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(1)

Coin B is going to be thrown 4000 times.

(c) Work out an estimate for the number of times coin B will land on Heads.

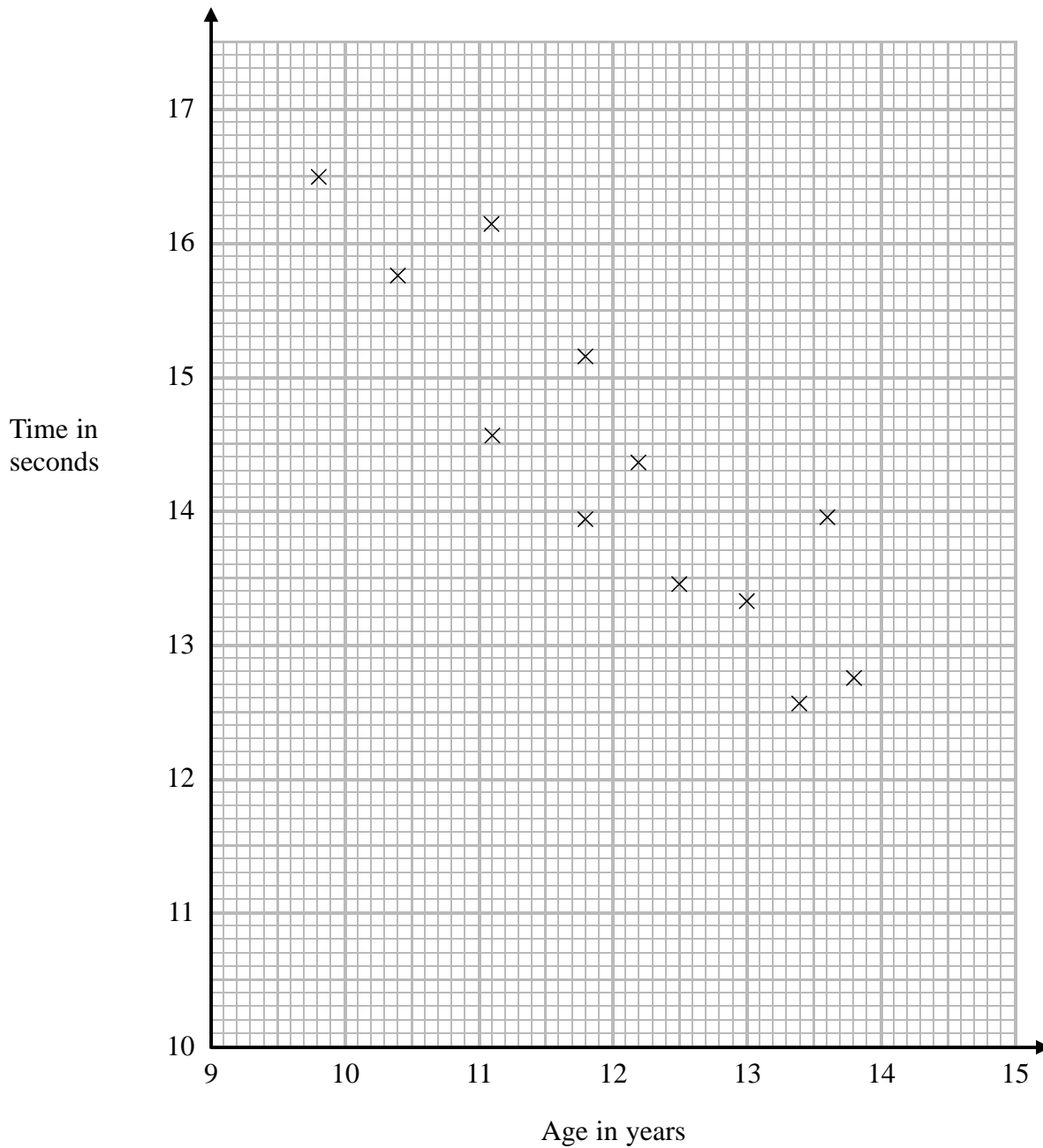
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(2)

(Total for Question 9 is 5 marks)

10 The scatter diagram shows information about 12 girls.

1MA1 Foundation themed papers: Right or wrong?

It shows the age of each girl and the best time she takes to run 100 metres.



(a) Write down the type of correlation.

..... (1)

1MA1 Foundation themed papers: Right or wrong?

Kristina is 11 years old.

Her best time to run 100 metres is 12 seconds.

The point representing this information would be an outlier on the scatter diagram.

(b) Explain why.

.....
.....
(1)

Debbie is 15 years old.

Debbie says,

“The scatter diagram shows I should take less than 12 seconds to run 100 metres.”

(c) Comment on what Debbie says.

.....
.....
(1)

(Total for Question 10 is 3 marks)

1MA1 Foundation themed papers: Right or wrong?

- 11** Steve says,
“There are more prime numbers between 20 and 30
than there are between 10 and 20”

Is Steve right?

You must show how you get your answer.

(Total for Question 11 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?



12 Jake and Sarah each played a computer game six times.
Their scores for each game are shown below.

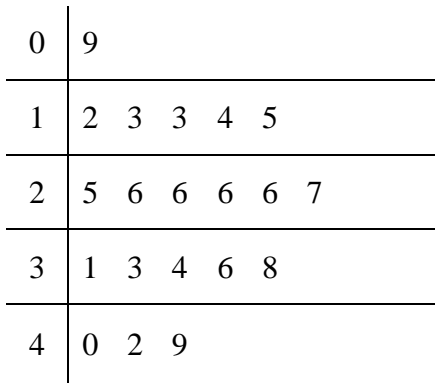
Jake	10	9	8	11	12	8
Sarah	2	10	7	14	4	10

(a) Who had the most consistent scores, Jake or Sarah?
You must give a reason for your answer.

.....

 (1)

Jake played a different game 20 times.
The stem and leaf diagram shows information about his scores.



Key
1 | 2 represents 12 points

Jake said his modal score was 6 points because 6 occurs most often in the diagram.

(b) Is Jake correct?
You must explain your answer.

.....

 (1)

(Total for Question 12 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?

13 (a) Write down all the prime numbers between 20 and 30.

.....
(2)

Catherine says,

“2 is the only even prime number.”

(b) Is Catherine right?
You must give a reason for your answer.

.....
.....
(1)

(Total for Question 13 is 3 marks)

1MA1 Foundation themed papers: Right or wrong?

14 Here are the first six terms of an arithmetic sequence.

3 8 13 18 23 28

(a) Find an expression, in terms of n , for the n th term of this sequence.

.....
(2)

The n th term of a different sequence is $3n^2$
Nathan says that the 4th term of this sequence is 144.

(b) Is Nathan right?
Show how you get your answer.

(1)

(Total for Question 14 is 3 marks)

1MA1 Foundation themed papers: Right or wrong?

15 (a) Write 32 460 000 in standard form.

.....
(1)

(b) Write 4.96×10^{-3} as an ordinary number.

.....
(1)

Asma was asked to compare the following two numbers.

$$A = 6.212 \times 10^8 \quad \text{and} \quad B = 4.73 \times 10^9$$

She says,

“6.212 is bigger than 4.73 so A is bigger than B .”


(c) Is Asma correct?

You must give a reason for your answer.

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(1)

(Total for Question 15 is 3 marks)

1MA1 Foundation themed papers: Right or wrong?

-  **16** A bonus of £2100 is shared by 10 people who work for a company.
40% of the bonus is shared equally between 3 managers.
The rest of the bonus is shared equally between 7 salesmen.

One of the salesmen says,

“If the bonus is shared equally between all 10 people I will get 25% more money.”

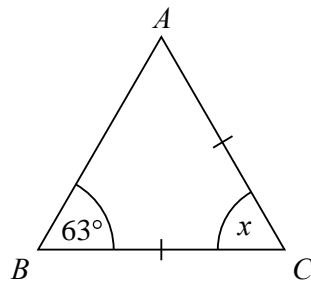
Is the salesman correct?

You must show how you get your answer.

(Total for Question 16 is 5 marks)

1MA1 Foundation themed papers: Right or wrong?

17 Mary needs to work out the size of angle x in this diagram.



She writes

$x = 63^\circ$ because base angles of an isosceles triangle are equal.

Mary is wrong.

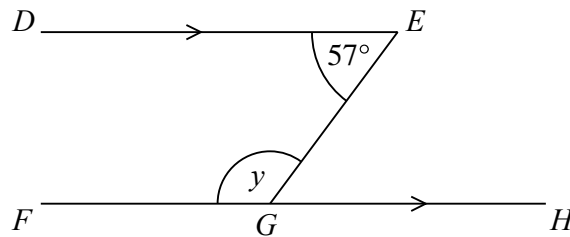
(a) Explain why.

.....

.....

(1)

William needs to work out the size of angle y in this diagram.



William writes

Working	Reason
angle $EGH = 57^\circ$	because corresponding angles are equal
$y = 180^\circ - 57^\circ$ $y = 123^\circ$	because angles on a straight line add up to 180°

One of William's reasons is wrong.

(b) Write down the correct reason.

.....

.....

(1)

(Total for Question 17 is 2 marks)

1MA1 Foundation themed papers: Right or wrong?

18 The table shows some information about the dress sizes of 25 women.

Dress size	Number of women
8	2
10	9
12	8
14	6

(a) Find the median dress size.

.....
(1)

3 of the 25 women have a shoe size of 7.

Zoe says that if you choose at random one of the 25 women, the probability that she has either a shoe size of 7 or a dress size of 14 is $\frac{9}{25}$ because

$$\frac{3}{25} + \frac{6}{25} = \frac{9}{25}$$

(b) Is Zoe correct?
You must give a reason for your answer.

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(1)

(Total for Question 18 is 2 marks)

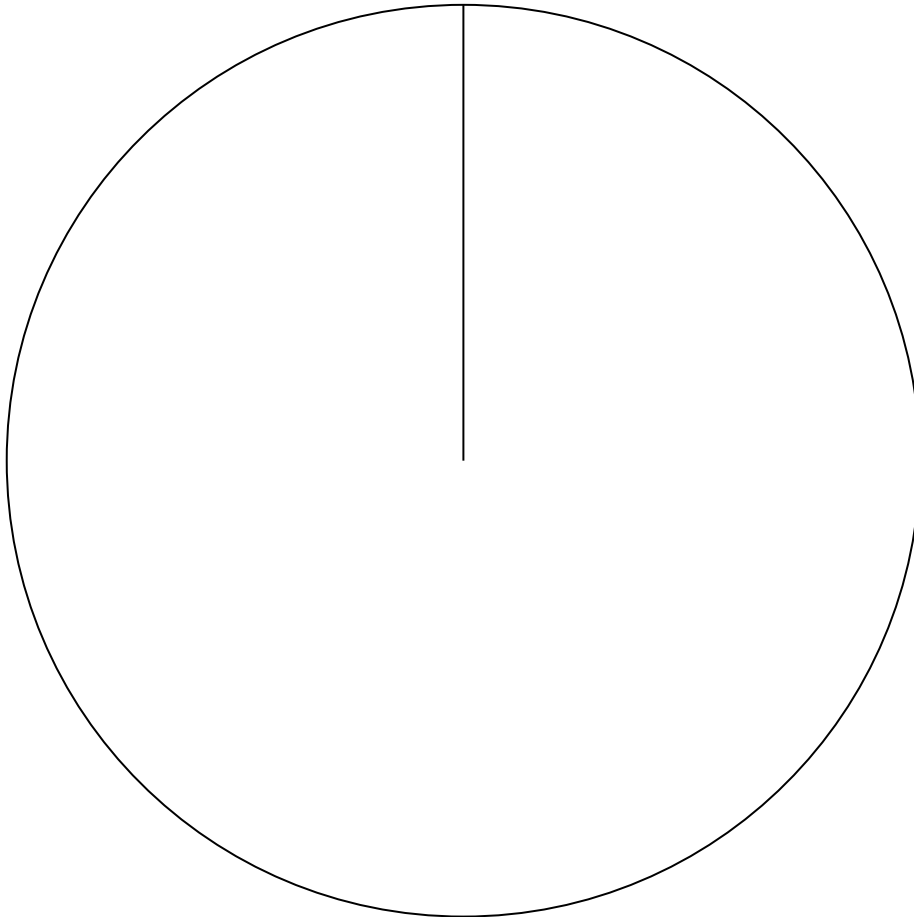
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- 19** Year 9 students from Halle School were asked to choose one language to study. The table shows information about their choices.

Language	Number of students	
French	56	
Spanish	40	
German	24	

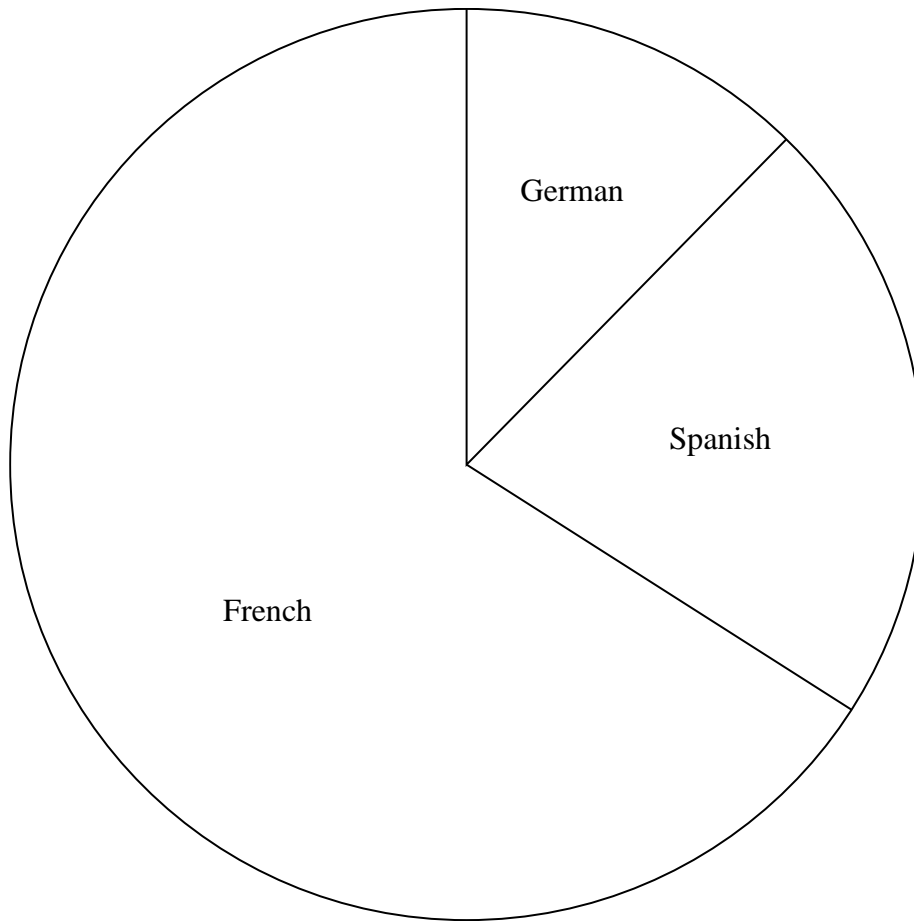
- (a) Draw an accurate pie chart to show this information.



(3)

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Year 9 students from Lowry School were also asked to choose one language to study. This accurate pie chart shows information about their choices.



Shameena says,

“The pie chart shows that French was chosen by more Year 9 students at Lowry School than at Halle School.”

(b) Is Shameena right?
You must explain your answer.

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(1)

(Total for Question 19 is 4 marks)

1MA1 Foundation themed papers: Right or wrong?



20 The table shows information about the weekly earnings of 20 people who work in a shop.

Weekly earnings (£x)	Frequency
$150 < x \leq 250$	1
$250 < x \leq 350$	11
$350 < x \leq 450$	5
$450 < x \leq 550$	0
$550 < x \leq 650$	3

(a) Work out an estimate for the mean of the weekly earnings.

£.....
(3)

Nadiya says,

“The mean may **not** be the best average to use to represent this information.”

(b) Do you agree with Nadiya?
You must justify your answer.

.....
.....
(1)

(Total for Question 20 is 4 marks)

1MA1 Foundation themed papers: Right or wrong?



- 21** 4 red bricks have a mean weight of 5 kg.
5 blue bricks have a mean weight of 9 kg.
1 green brick has a weight of 6 kg.

Donna says,

“The mean weight of the 10 bricks is less than 7 kg.”

Is Donna correct?

You must show how you get your answer.

(Total for Question 21 is 3 marks)

1MA1 Foundation themed papers: Right or wrong?



22 Jacqui wants to work out $3480 \div 5$

She knows that $3480 \div 10 = 348$

Jacqui writes $3480 \div 5 = 174$

because $10 \div 5 = 2$

and $348 \div 2 = 174$

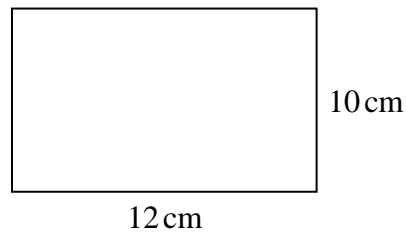
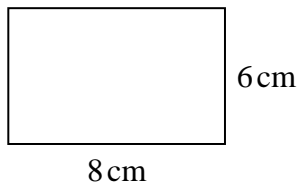
What mistake did Jacqui make in her method?

.....
.....

(Total for Question 22 is 1 mark)



23 Here are two rectangles.



Jim says,

“The two rectangles are similar because $8 + 4 = 12$ and $6 + 4 = 10$ ”

Is Jim correct?

Explain your answer.

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.....

(Total for Question 23 is 1 mark)

TOTAL MARKS FOR PAPER: 67