

Centre Number						Candidate Number				
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For Examiner's Use	
Examiner's Initials	
Pages	Mark
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4 – 5	
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22	
TOTAL	



General Certificate of Secondary Education
Foundation Tier
June 2015

Applications of Mathematics (Linked Pair)

93701F

F

Unit 1 Finance and Statistics

Thursday 4 June 2015 9.00 am to 10.30 am

<p>For this paper you must have:</p> <ul style="list-style-type: none"> • a calculator • mathematical instruments. 	
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Time allowed

- 1 hour 30 minutes

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. Cross through any work that you do not want to be marked.
- If your calculator does not have a π button, take the value of π to be 3.14 unless another value is given in the question.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80
- The quality of your written communication is specifically assessed in Questions 2, 10 and 15
These questions are indicated with an asterisk (*).
- You may ask for more answer paper, tracing paper and graph paper.
These must be tagged securely to this answer book.
- You are expected to use a calculator where appropriate.

Advice

- In all calculations, show clearly how you work out your answer.



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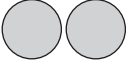
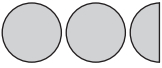


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ANSWER IN THE SPACES PROVIDED**




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

1 30 people describe the service at a hotel.

The pictogram shows the results.
The information for 'Very poor' is missing.

		Frequency
Excellent		8
Very good		
Average		
Poor		
Very poor		

1 (a) Complete the key below.

 represents people

[1 mark]

1 (b) How many people said the service was 'Very good'?

[1 mark]

.....

Answer

1 (c) Complete the pictogram for the 30 people.

[3 marks]

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.....

5

Turn over ►



2 Here is the menu at a café.

Drinks	
Tea	£1.40
Coffee	£1.90
Hot Chocolate	£2.10

Snacks	
Biscuit	85p
Muffin	£1.80
Scone	£1.20

*2 (a) Sue buys a coffee and a scone.
She pays with a £10 note.

Work out the change she should get.

[2 marks]

.....

.....

Answer £

2 (b) Jan spends £3.65
She pays the right amount using **exactly** 5 coins.

What coins did she pay with?

[2 marks]

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.....

.....

Answer , , , ,



2 (c) The café has an ‘afternoon tea’ deal.

<p>Afternoon tea deal</p> <p>Tea and muffin £2.75</p>
--

Scott buys **three** ‘afternoon tea’ deals.

How much less than the full price does he pay?

[3 marks]

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Answer £

2 (d) Colin has £10

What is the greatest number of scones he can buy?

[2 marks]

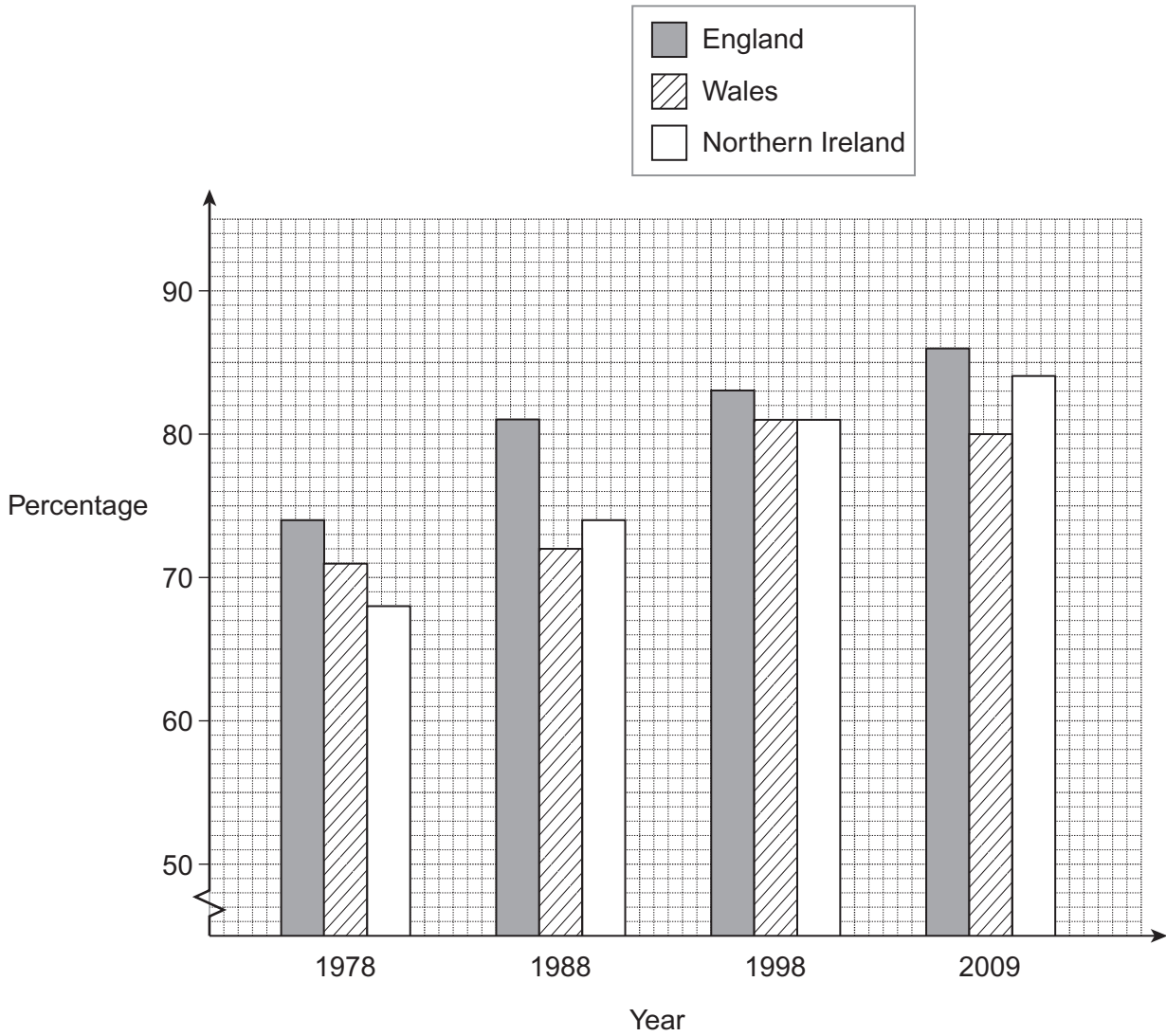
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Answer



3 The bar chart shows the percentage of adults who have 21 or more of their own teeth. The data are shown for England, Wales and Northern Ireland for four years.



3 (a) Work out the difference in the percentages for England and Northern Ireland in 1988 [1 mark]

.....

Answer %



3 (b) How did the percentages for England change from 1978 to 2009?

Circle your answer.

[1 mark]

They decreased

They stayed the same

They increased

3 (c) Which country's data showed the largest change from 1978 to 1988?

Circle your answer.

[1 mark]

England

Wales

Northern Ireland

3 (d) Jack says,

“In Northern Ireland, 20% more of the population had 21 or more teeth in 2009 than in 1978.”

Is Jack correct?

You **must** show your working.

[2 marks]

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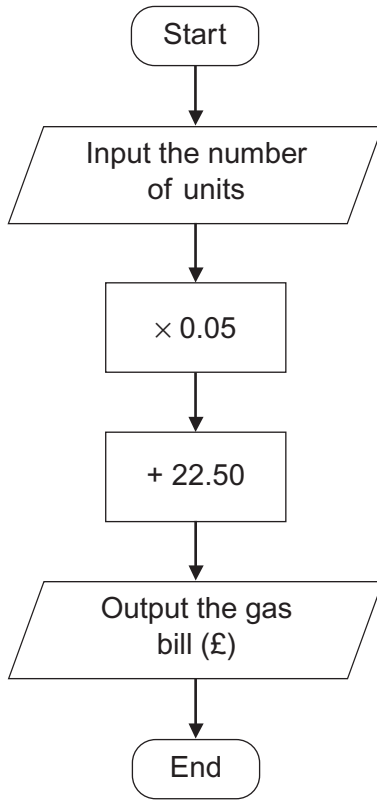
Turn over for the next question

5

Turn over ►



4 This flow chart is used to work out gas bills.



4 (a) Javed uses 315 units.

Work out his gas bill.

[2 marks]

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Answer £



4 (b) Kim receives a gas bill for £53.50

How many units of gas did Kim use?

[3 marks]

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Answer

5 A stall sells second-hand books.

Paperback books cost 70p each.

Hardback books cost £1.20 each.

Julie spends exactly £9 on books at the stall.

How many of each type of book does she buy?

[3 marks]

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..... paperbacks

.....hardbacks

8

Turn over ►



6 The pie chart shows the storage space on Sarah's computer for different types of file.



6 (a) Which **two** types of file have the same amount of storage space?

[1 mark]

.....

.....

.....

Answer and



6 (b) What fraction of the total storage space is 'Free'?
Give your answer in its simplest form.

[2 marks]

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

Answer

6 (c) Sarah and Phil both have the same amount of storage space on their computers.
Phil uses 20% of the storage space on his computer for 'Music'.

Who uses more space for storing 'Music'?
You **must** show your working.

[2 marks]

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.....
.....

Answer

Turn over for the next question

5

Turn over ►



7 Jane is planning her summer holiday.

She finds the price **per person**, in pounds, of holidays in Athens.

784	950	1027	943	969	880
1084	989	1000	900	826	

7 (a) Work out the median price.

[1 mark]

.....

.....

£

7 (b) Work out the range of the prices.

[1 mark]

.....

£

7 (c) Jane works out the following information for the price per person for holidays in Rhodes.

Median	£ 905
Range	£ 276

Compare the price of holidays in Athens and Rhodes.

[2 marks]

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8 A company sells and delivers bags of logs.
The company uses this formula to work out the charge, £*C*.

$$C = 11N + 2D$$

N is the number of bags of logs a customer buys.
D is the distance in miles the customer lives from the company.

8 (a) What is the delivery charge for each mile?

[1 mark]

Answer £

8 (b) Harry buys 5 bags of logs.
He lives 9 miles from the company.

Work out the charge.

[2 marks]

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Answer £

8 (c) Jo buys 7 bags of logs.
The charge is £107
How many miles does she live from the company?

[2 marks]

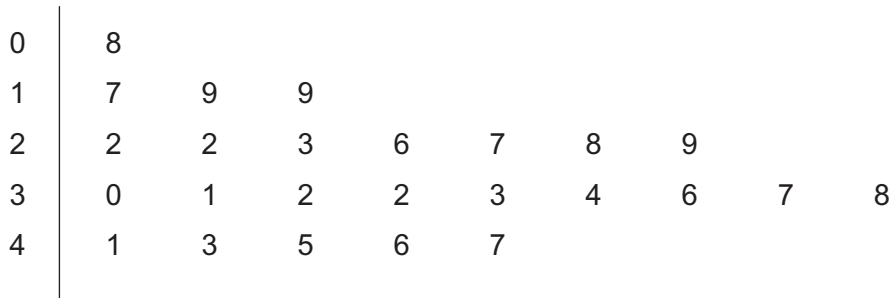
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Answer miles



9 The stem-and-leaf diagram shows the marks in a test for a group of 25 students.

Key: 4 | 1 represents 41 marks



9 (a) Students need to resit the test if they get less than 24 marks.

How many students need to resit the test?

[1 mark]

.....

Answer

9 (b) Work out the median mark.

[1 mark]

.....

Answer

9 (c) The test is marked out of 50
One of the students says he got **exactly** 30% in the test.

How can you tell that the student is not correct?

[2 marks]

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9 (d) Students with more than 35 marks were given a certificate.

Work out the percentage of the 25 students given a certificate.

[3 marks]

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Answer %

***10** A supermarket sells cartons of apple juice.
They are sold either as single cartons or in packs of 4 cartons.

The supermarket has two special offers.

Offer 1
3 cartons for £2.50

Offer 2
One pack for £3.40

Which offer is the better value?
You **must** show your working.

[3 marks]

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Answer

10

Turn over ►



11 Lucy is working out the number of euros she needs for her holiday.

She needs money for **six** days.

Lunch	12 euros each day
Drinks	10 euros each day
Snacks	5 euros each day

Postcards and souvenirs	50 euros altogether
Emergency fund	60 euros altogether

The exchange rate is £1 = 1.18 euros

Will £220 be enough for the six days?
You **must** show your working.

[4 marks]

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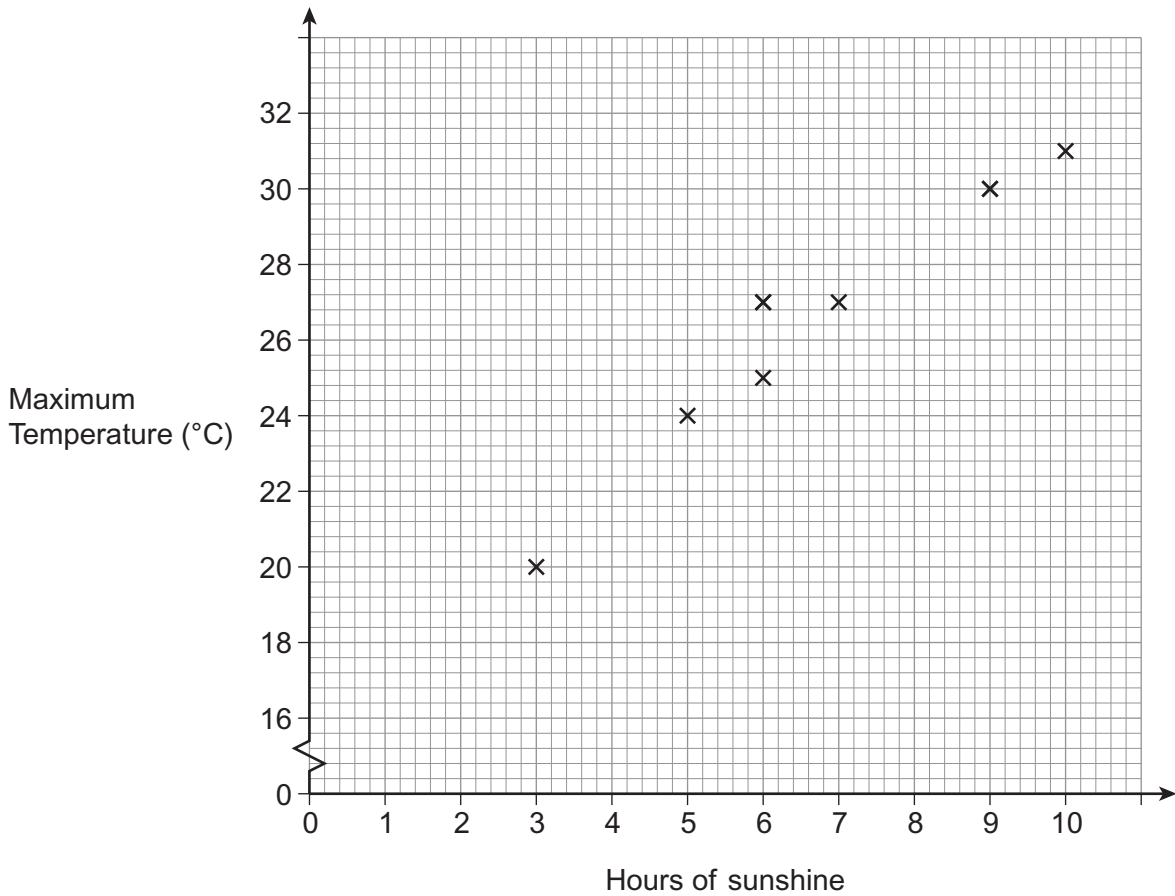
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12 The number of hours of sunshine and the maximum temperature in London were measured on seven days in July.

The information is shown in the scatter diagram.



12 (a) Use a line of best fit to estimate the maximum temperature on a day in July when there are 8 hours of sunshine.

[2 marks]

Answer °C

12 (b) Can this graph be used to predict the maximum temperature for a day in **December** when there are 4 hours of sunshine?

Tick a box

Yes

No

Give a reason for your answer.

[1 mark]

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7

Turn over ►



13 Chump dog food costs £1.60 per kilogram.
Pally dog food costs £1.20 per kilogram.

15 kg of Chump is mixed with 25 kg of Pally.

Work out the cost of 1 kg of the mixture.

[4 marks]

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Answer £



14 A restaurant manager is planning a survey.
He wants to find out how often his customers come to the restaurant.

Here is one of his questions with its response section.

Question	How often do you come to this restaurant?		
Response (Tick a box)			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Never	Rarely	Very often	All the time

14 (a) Give **two** criticisms of this question and response section.

[2 marks]

Criticism 1

.....

Criticism 2

.....

14 (b) Write a more suitable question the manager could ask.
Include a response section.

[2 marks]



***15** Andrew, Nigel and Sam are picking oranges.

Andrew picks x oranges.

Nigel picks $2x$ oranges.

Sam picks 12 oranges more than Andrew.

Altogether they pick 84 oranges.

Set up and solve an equation to find the number of oranges Sam picks.

[5 marks]

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Answer



16 Lily has a box containing plastic bricks in three different colours.

$\frac{1}{4}$ of the bricks are red.

$\frac{1}{8}$ of the bricks are yellow.

30 bricks are blue.

What is the total number of bricks in the box?

[4 marks]

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Answer

Turn over for the next question



17 The manager of a company records the time taken for every phone call made. The table shows the results for 20 phone calls made one day.

Time taken for phone call, t (minutes)	Frequency		
$0 \leq t < 5$	2		
$5 \leq t < 10$	6		
$10 \leq t < 15$	8		
$15 \leq t < 20$	3		
$20 \leq t < 25$	1		

17 (a) Calculate an estimate of the mean time taken for a phone call.

[4 marks]

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Answer minutes

17 (b) Give a reason why your answer to part (a) is an estimate.

[1 mark]

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END OF QUESTIONS

5



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