

Centre Number						Candidate Number					
Surname											
Other Names											
Candidate Signature											

For Examiner's Use	
Examiner's Initials	
Pages	Mark
2 – 3	
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TOTAL	



General Certificate of Secondary Education
Foundation Tier
June 2013

Applications of Mathematics (Linked Pair Pilot)

93701F

F

Unit 1 Finance and Statistics

Monday 17 June 2013 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 3, 5 and 17. These questions are indicated with an asterisk (*).
- You may ask for more answer paper, graph paper and tracing 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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WMP/Jun13/93701F

93701F

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

- 1** A snack bar sells these drinks and snacks.

Drinks		Snacks	
Tea	80p	Scone	£ 1.20
Coffee	£ 1.35	Cake	£ 1.65

- 1 (a)** James buys two teas and one coffee.

How much does he pay?

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.....

£ (2 marks)

- 1 (b)** James pays with a £ 10 note.

How much change should he get?

.....

£ (1 mark)



1 (c) Anita has £5.

Can she buy three drinks and three snacks?
You **must** show your working.

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(3 marks)

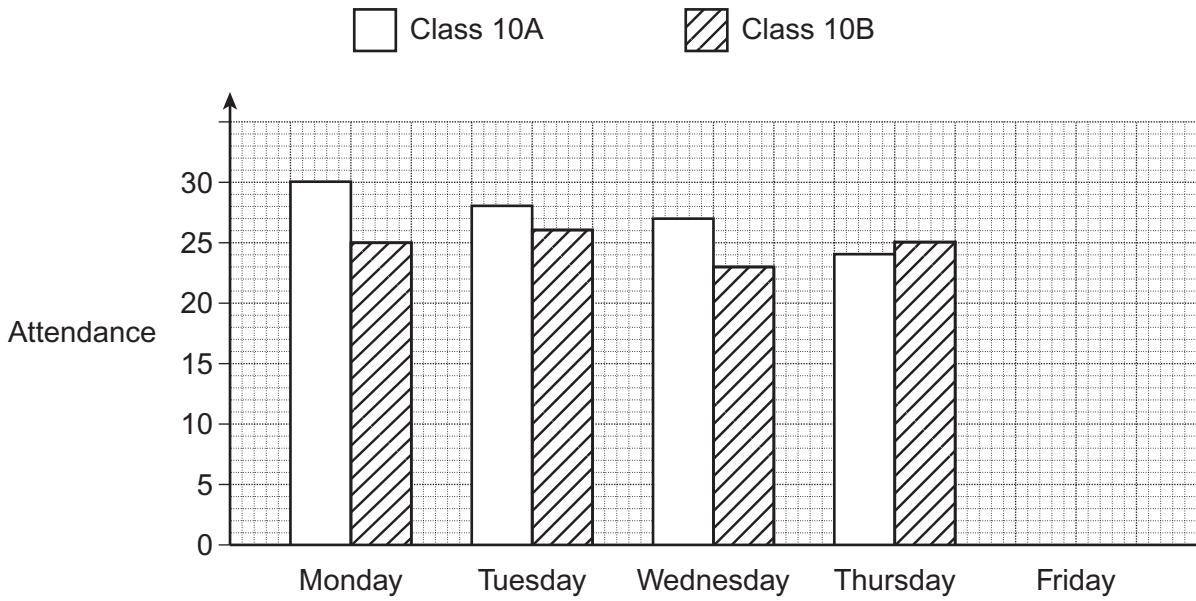
Turn over for the next question

6

Turn over ►



2 The attendances of classes 10A and 10B for four days are shown.



2 (a) How many students from 10A attended school on **Tuesday**?

Answer (1 mark)

2 (b) How many more students from 10A than 10B attended school on **Wednesday**?

.....

Answer (2 marks)



2 (c) On which of the four days was the **total** attendance of classes 10A and 10B the highest?

.....
.....

Answer (1 mark)

2 (d) On Friday the total attendance of classes 10A and 10B was 43.

Three more students attended in 10B than in 10A.

Complete the bar chart for Friday.

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

(3 marks)

Turn over for the next question

7

Turn over ►



3 Distances, in miles, between places are shown.

For example, the distance between Manchester and York is 73 miles.

Kendal					
75	Manchester				
130	113	Scarborough			
87	73	41	York		
160	83	116	87	Nottingham	
262	200	251	210	127	London

3 (a) What is the distance between Manchester and Nottingham?

Answer miles (1 mark)



3 (b) Work out the total distance of this journey.

Nottingham → Manchester → Kendal → Nottingham

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

Answer miles (3 marks)

***3 (c)** Megan puts 35 litres of petrol in her car.

One litre of petrol costs £ 1.48

How much does she pay?

.....
.....

£ (2 marks)

Turn over for the next question



4 To make 12 biscuits you need

- 100 g butter
- 100 g sugar
- 150 g flour
- 50 g cocoa
- 30 ml milk

4 (a) How much cocoa do you need to make 36 biscuits?

.....

.....

Answer g (2 marks)

4 (b) You need 100 g of butter to make 12 biscuits.

You have 250 g of butter.

You have plenty of everything else.

What is the maximum number of biscuits you can make?

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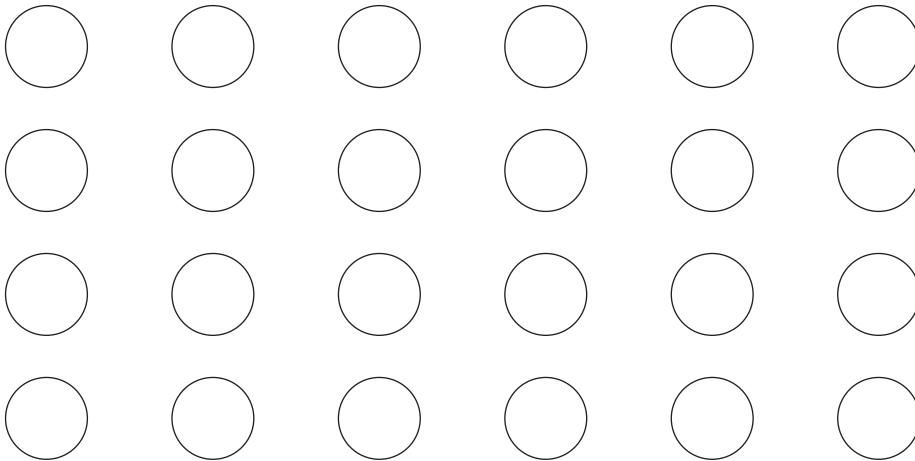
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Answer (3 marks)



4 (c) Jed makes 24 biscuits.



He sells $\frac{2}{3}$ of the biscuits.

He eats $\frac{1}{2}$ of the biscuits that are left.

How many biscuits does he eat?

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.....

.....

Answer (4 marks)



5 The number of DVDs bought last month by each girl in a class are shown.

2 0 5 4 3 1 5 2
3 3 4 3 3 2 4 3

***5 (a)** Complete the table.

Number of DVDs	Tally	Frequency
0		
1		
2		
3		
4		
5		

(3 marks)

5 (b) Write down the mode.

Answer

(1 mark)



5 (c) The number of DVDs bought last month by each boy in the class are shown.

Key: ○ represents 2 boys

Number of DVDs	
0	○
1	○ ○ ○
2	○ ○
3	○ ◐
4	◐

The class teacher says



On average, the girls in my class buy more DVDs than the boys.

Compare the modes for the girls and boys to decide if the teacher is correct.

.....

.....

.....

(2 marks)



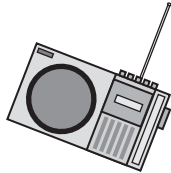

6 An inkjet printer can print 6 pages per minute.
A laser printer can print 10 pages per minute.

How much quicker is it to use the laser printer to print 30 pages?

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.....

Answer..... minutes (3 marks)

7 Here is an advert.

<p>Radio</p>  <p>Was: £46</p> <p>Now: half this price</p>	<p>Iron</p>  <p>Was: £28</p> <p>Now: 25% off this price</p>
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How much do you **save**, in total, if you buy the radio **and** the iron?

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£ (4 marks)



8 Here are the prices at an ice cream van.

Ice cream £ 1.70

Ice lolly £ 1.20

Zach spends **exactly** £ 7.00 at the ice cream van.

What does he buy?

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He buys ice creams

and ice lollies (3 marks)

Turn over for the next question

10

Turn over ►



9 This rule is used to estimate the time for mountain walks.

Every 5 km walked takes one hour
plus
an extra 30 minutes for every 300 metres of height gained.

Paul is planning a 10 km walk with 900 metres of height gained.

Use the rule to estimate the time needed for this walk.
You **must** show your working.

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Answer hours minutes (3 marks)



10 Jane has an income of £ 13 500 a year.

10 (a) She does **not** pay tax on the first £ 9205 of her income.

Work out her taxable income.

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£ (1 mark)

10 (b) Income tax paid is 20% of taxable income.

How much income tax does she pay?

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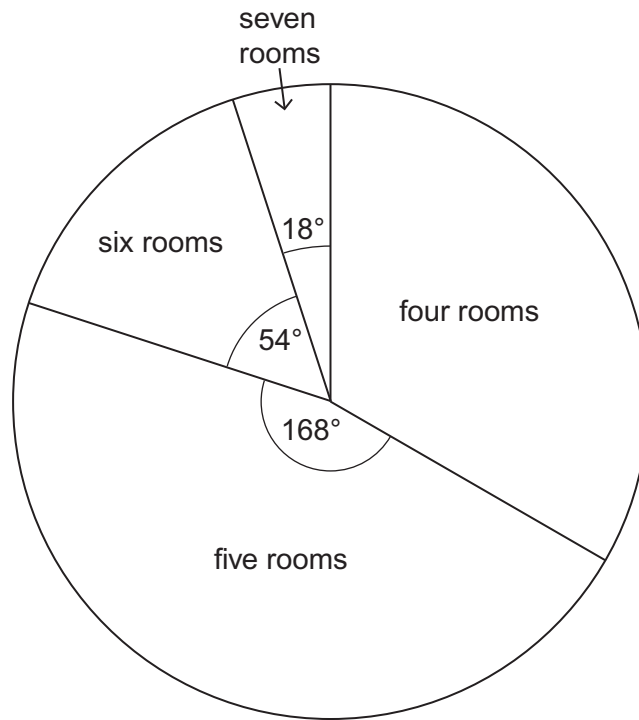
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£ (2 marks)

Turn over for the next question



11 The pie chart represents the number of rooms in houses in one part of Manchester.



11 (a) What fraction of these houses have seven rooms?
Give your answer in its simplest form.

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.....

Answer (2 marks)

11 (b) The number of houses with four rooms is 940.
How many houses does the whole pie chart represent?

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.....

Answer (3 marks)



12 Ravi, Sue and Tom do some jobs.

They are each paid £4 an hour.

They are paid £216 in total.

12 (a) Show that they work for 54 hours in total.

..... (1 mark)

12 (b) Ravi works for x hours.
Sue works 5 hours less than Ravi.
Tom works 8 hours more than Ravi.

Work out how much Ravi is **paid**.

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£ (5 marks)



13 The table shows the number of desktop computers and laptops in 50 households.

		Desktop computers			
		0	1	2	3
Laptops	0	0	6	1	0
	1	5	10	4	4
	2	1	8	5	0
	3	3	2	1	0

13 (a) How many households have two laptops?

.....

Answer (1 mark)

13 (b) How many households have more laptops than desktop computers?

.....

Answer (2 marks)



14 Alice wants to collect data to find out how many cars drive past the school gates.
Bev wants to collect data to find out what people think about school uniform.
Craig wants to collect data to test people’s memory.

Below are three data collection methods.

- 1 Questionnaire
- 2 Controlled experiment
- 3 Observation

Choose the method each person should use to collect their data.

Alice

Bev

Craig

(2 marks)

Turn over for the next question

5

Turn over ►



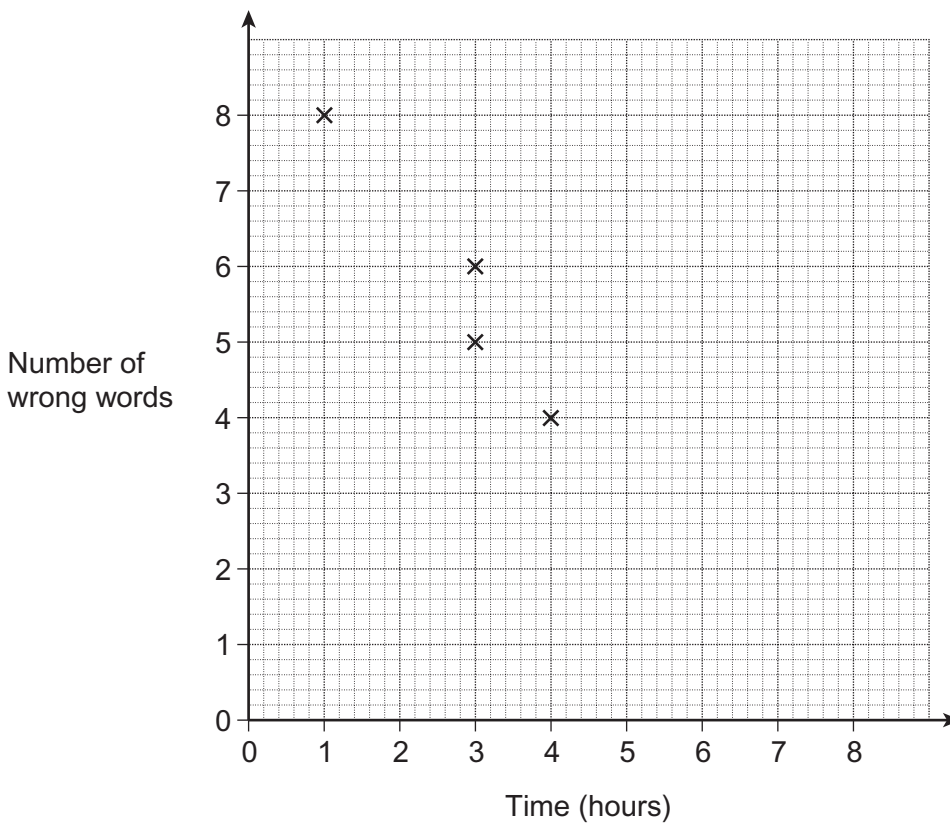
15 Seven students have to learn some French words.

The table shows the time they spent learning the words and the number of words they got wrong in a test.

Time (hours)	1	3	3	4	6	7	8
Number of wrong words	8	6	5	4	3	2	2

15 (a) The first four points have been plotted.

Complete the scatter diagram.



(1 mark)

15 (b) Describe the relationship shown by the scatter diagram.

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(1 mark)



15 (c) Another student spent 5 hours learning the words.

Use a line of best fit to estimate the number of words he got wrong.

Answer (2 marks)

15 (d) Ellie has to take the test.

She says,

“If I learn the words for 12 hours, I will definitely not get any wrong.”

Is she correct?

Give a reason for your answer.

.....
.....

(1 mark)

16 A water tank is $\frac{3}{4}$ full.

56 litres of water are taken from the tank.

The tank is now $\frac{2}{5}$ full.

Show clearly that the tank holds 160 litres when full.

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(4 marks)

9

Turn over ►



***17**

Last year Mrs Hart used 5600 units of electricity.
The electricity cost her £ 784.

This year the cost of electricity has increased by 15 %.
She has reduced the electricity used to 4900 units.

Does she pay **less** than she did last year?
You **must** show your working.

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(5 marks)

END OF QUESTIONS

5



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