

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
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TOTAL	



General Certificate of Secondary Education
Foundation Tier
November 2013

Applications of Mathematics (Linked Pair Pilot)

93701F

F

Unit 1 Finance and Statistics

Friday 8 November 2013 9.00 am to 10.30 am

<p>For this paper you must have:</p> <ul style="list-style-type: none"> mathematical instruments. <p>You may use a calculator</p>	
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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 1, 10, 11 and 15. 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/Nov13/93701F/E4

93701F

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

- 1** 20 teenagers were asked how many films they watched last week.
Here are their answers.

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

- *1 (a)** Complete the tally column and frequency column for the data.

Number of films	Tally	Frequency
0		
1		
2		
3		
4		

(3 marks)

- 1 (b)** Draw a pictogram for the data.

Use  to represent 2 teenagers.

(3 marks)



20 adults were asked how many films they watched last week.
The results are

Number of films	Frequency
0	6
1	8
2	4
3	1
4	1

One of these adults is chosen at random.

Circle the word that describes the probability of each of the following events.

1 (c) The adult watched 4 films.

impossible unlikely evens likely certain

(1 mark)

1 (d) The adult watched 8 films.

impossible unlikely evens likely certain

(1 mark)

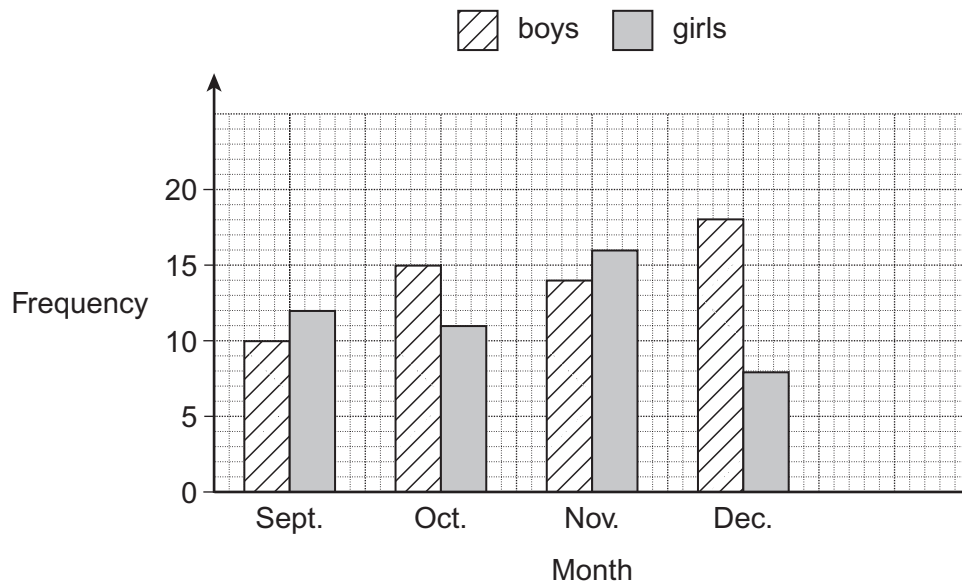
1 (e) The adult watched less than 3 films.

impossible unlikely evens likely certain

(1 mark)



- 2 A cycling club organises a bike ride for children once a month.
The bar chart shows the numbers of boys and girls on the ride for four months.



- 2 (a) How many **girls** went on the bike ride in October?

Answer (1 mark)

- 2 (b) In which of these months did the fewest **boys** go on the bike ride?

Answer (1 mark)



2 (c) In two of the months there were the same number of children on the bike ride.

Which two months?

You **must** show your working.

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

Answer and (2 marks)

2 (d) There are 20 boys and 18 girls in the cycling club altogether.

In January, $\frac{3}{5}$ of the boys and $\frac{1}{2}$ of the girls went on the bike ride.

Complete the bar chart for January.

Show your working below.

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(5 marks)



3 Ali buys a book for £2.65
He pays the **exact** amount using 5 coins.
List **two** possible sets of coins he could have used.

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

First set , , , ,

Second set , , , ,

(3 marks)



4 A jacket potato stall offers these toppings.

Tuna (T)

Cheese (C)

Beans (B)

Prawn (P)

4 (a) List all the possible combinations of **two** different toppings.

(2 marks)

4 (b) Zak does not like cheese.

How many combinations of **two** different toppings could Zak choose?

Answer

(1 mark)

Turn over for the next question



5 The cost of fruit at a shop is shown.

Bananas	86p per kg
Plums	£ 2.80 per kg
Pineapples	£ 1.25 each
Limes	40p each
Melons	£ 1.79 each

5 (a) Lynn buys 1.5 kg of bananas and 0.5 kg of plums.

Work out the total cost.

.....

.....

.....

£ (4 marks)

5 (b) Lynn pays with a £5 note.

How much change should she get?

.....

£ (1 mark)

5 (c) How many melons can you buy for £ 10?

.....

.....

Answer (2 marks)



5 (d) Sanjay buys some pineapples and some limes.

Pineapples cost £ 1.25 each.

Limes cost 40p each.

He spends exactly £ 4.50

How many of each does he buy?

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.....

He buys pineapples
and limes (3 marks)

Turn over for the next question



6

Theme Park tickets

Price on the day

Age 16 years and over	£ 34
Age under 16 years	£ 29

Buy in advance - save 15%

12 friends want to visit the theme park.

4 of the group are under 16 years.

How much money will they **save** in total if they buy their tickets in advance?

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£ (4 marks)



7 The charge for holding a meeting in a hotel is
£ 230 for room hire **plus** £ 28 per person.

7 (a) Work out the charge for a meeting with 31 people.

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.....

£ (2 marks)

7 (b) The charge for a different meeting at the hotel is £ 650.
How many people are at the meeting?

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.....

Answer (3 marks)

8 Callum and Jack collect picture cards.

Callum has three times as many cards as Jack.
Callum has 28 more cards than Jack.

Work out how many cards each person has.

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

Callum

Jack (4 marks)

13

Turn over ►



- 9** A shop sells televisions.
The data shows the number sold each month for the first 11 months of a year.

57	18	33	21	28	24
17	42	37	35	49	

- 9 (a)** Draw an ordered stem-and-leaf diagram to show this information.
Remember to complete the key.

Key | represents

1
2
3
4
5

(3 marks)



9 (b) Work out the median number of televisions sold.

Answer (1 mark)

9 (c) Work out the range.

.....

Answer (1 mark)

9 (d) In the final month of the year 52 televisions were sold.
This value is added to the data.

Describe the effect this has on

the median

.....

.....

the range

.....

.....

(2 marks)

Turn over for the next question

7

Turn over ►



***10** Here are two adverts for van hire.

<p style="text-align: center;">Vijay's Vans</p> <p style="text-align: center;">£ 40 for the first 50 miles plus 30p for each extra mile</p>
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<p style="text-align: center;">U-Drive Vans</p> <p style="text-align: center;">48p per mile</p>
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Which company charges less for 120 miles?

You **must** show your working.

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Answer (5 marks)



11 The spreadsheet shows information about some items sold in a shop.

	A	B	C	D
1	Item	Price (£)	Quantity sold	Income (£)
2	Bolts	2.28	30	68.40
3	Screws	1.79	42	75.18
4	Locks	3.42	15	
5				

11 (a) What formula is used in cell D2?

Answer (1 mark)

11 (b) Work out the value in cell D4.

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Answer (1 mark)

*11 (c) Cell D5 is used for the total income.
Write down the formula for cell D5.

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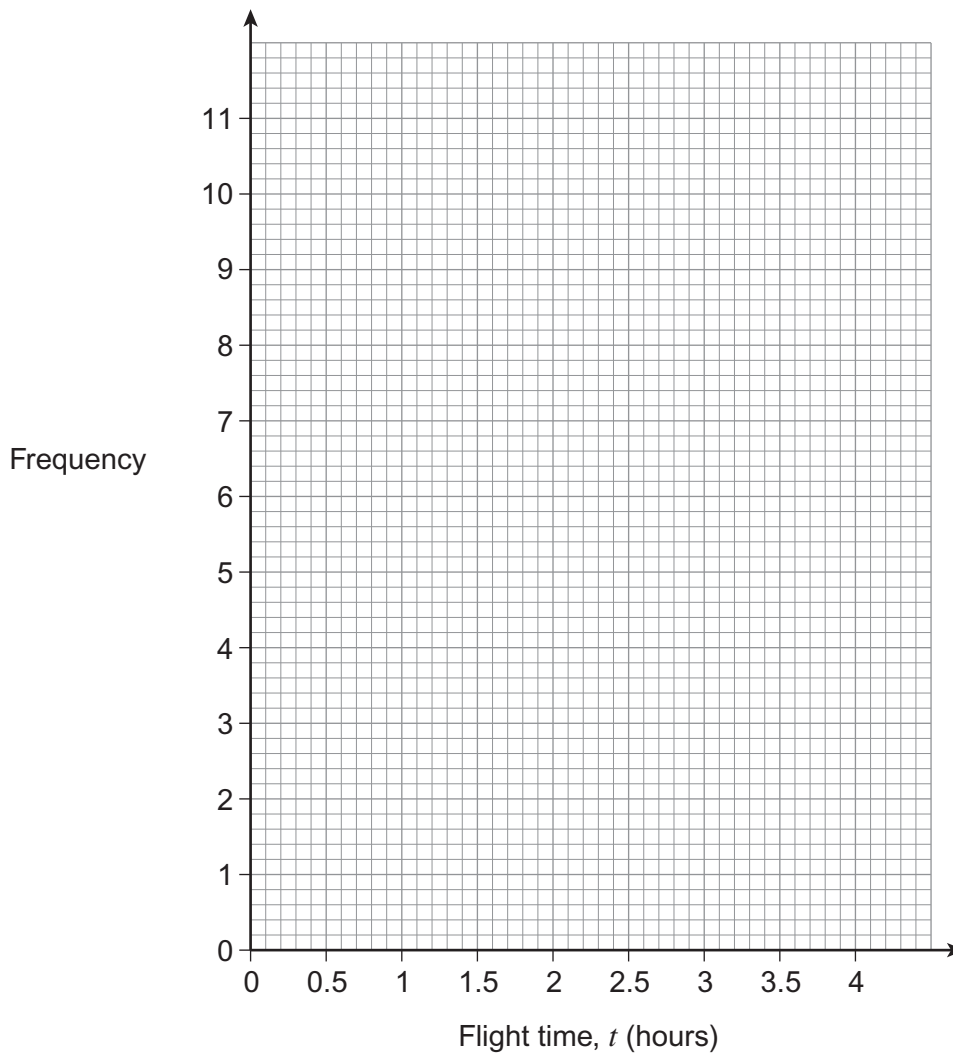
Answer (2 marks)



- 12 The table shows information about 20 flight times, t (hours) to Spain.

Flight time, t (hours)	Frequency
$2 \leq t < 2.5$	4
$2.5 \leq t < 3$	10
$3 \leq t < 3.5$	5
$3.5 \leq t < 4$	1

- 12 (a) Draw a frequency diagram to represent the data.



(3 marks)



12 (b) Flights of less than 3 hours are called short-haul flights.

What percentage of these flights to Spain are short-haul flights?

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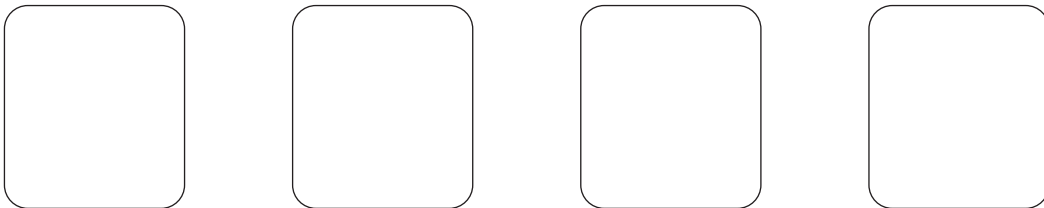
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Answer % (2 marks)

13 A **single digit** number is written on each of the cards below so that

- all of the numbers are greater than zero
- the mean of the four numbers is twice the mode.

Work out a possible set of numbers.



(3 marks)

8

Turn over ►



14 Jane earns £ 1200 per month, before any deductions.
Her tax allowance is £ 9440 per year.
She pays tax at 20% of her taxable income.
How much tax does Jane pay in a year?

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

£ (4 marks)



***15** In a school election there are three candidates, Amir, Beth and Carla.

Amir gets x votes.

Beth gets $2x$ votes.

Carla gets 40 votes fewer than Beth.

500 pupils vote in the election.

Set up and solve an equation to work out how many votes Beth gets.

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Answer (5 marks)

END OF QUESTIONS



There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

