

Centre Number						Candidate Number				
Surname										
Other Names										
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For Examiner's Use	
Examiner's Initials	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
TOTAL	



General Certificate of Secondary Education  
Foundation Tier  
January 2011

# Applications of Mathematics (Linked Pair Pilot)

**93701F**

**F**

Unit 1 Finance and Statistics

Friday 14 January 2011 9.00 am to 10.30 am

<p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>mathematical instruments.</li> </ul> <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 space 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 you do not want to be marked.
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  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, 5 and 6.  
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 booklet.
- You are expected to use a calculator where appropriate.

### Advice

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



J A N 1 1 9 3 7 0 1 F 0 1

WMP/Jan11/93701F

**93701F**

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

\*1 Here is the menu of a café.

Food	
Soup	£1.95
Toastie	£2.75
Sandwich	£2.25

Drink	
Tea	£1.10
Coffee	£1.25
Juice	90p

1 (a) Chris buys a sandwich and a juice.  
How much does he pay?

.....

Answer £ ..... (2 marks)

1 (b) Ella buys two toasties and two coffees.  
How much change does she get from £10?

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

Answer £ ..... (3 marks)

1 (c) Leon has £3.10  
He wants to buy one item of food and one drink.

Give **one** suggestion of what he could buy.

.....  
.....

Answer Food .....

Drink..... (2 marks)



1 (d) The café has a Meal Deal.

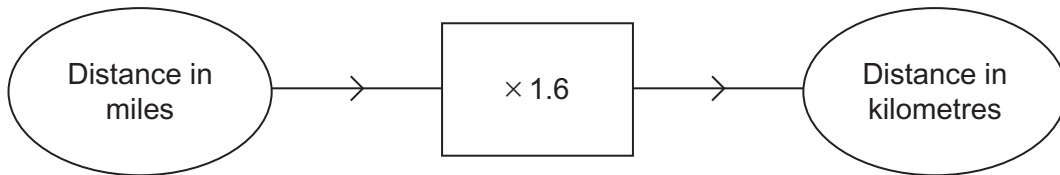
£5 for  
soup + toastie + tea

Asif buys the Meal Deal.  
How much does he save?

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.....

Answer ..... (3 marks)

2 The diagram shows how to convert miles to kilometres.



2 (a) Marie travels 215 miles from London to Paris.  
Convert 215 miles to kilometres.

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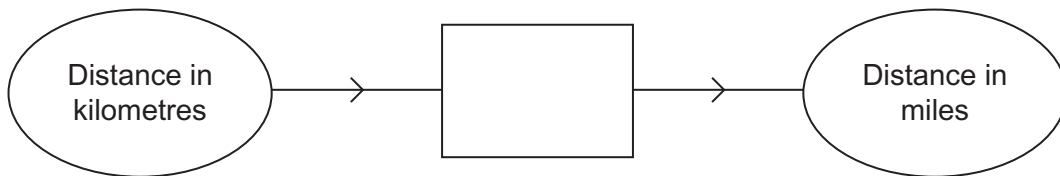
Answer ..... km (1 mark)

2 (b) She then travels 37 kilometres to her parents' house.  
Work out the **total** number of kilometres she travels from London.

.....

Answer ..... km (1 mark)

2 (c) Complete this diagram to show how to convert kilometres to miles.

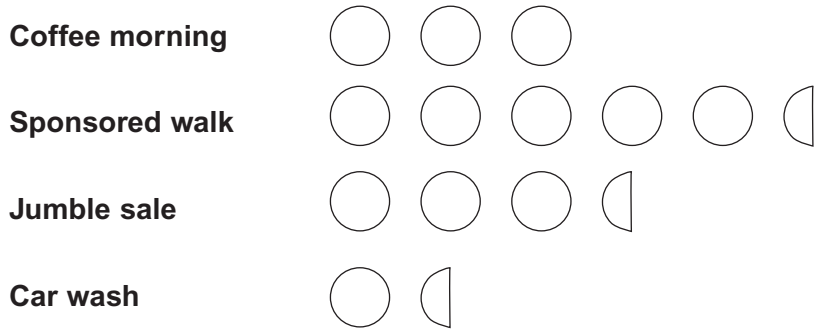


(1 mark)



3 The pictogram shows the amount of money a youth club has raised for charity.

Key  represents £50



3 (a) Which event raised the most money?

Answer ..... (1 mark)

3 (b) How much money did the jumble sale raise?

.....

Answer £ ..... (1 mark)

3 (c) How much more money did the sponsored walk raise than the car wash?

.....

Answer £ ..... (1 mark)

3 (d) Altogether the youth club wants to raise £1200.  
Terry is sponsored to run a marathon of 42 kilometres.  
He raises the rest of the money.

How much is he sponsored for each kilometre?  
You **must** show your working.

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Answer £ ..... (4 marks)



4 Mr Walker reads his gas meter.  
Here are his readings.

September 2010	3692 units
December 2010	4874 units

Gas costs 6.5 pence per unit.  
Mr Walker has saved £80 to pay his gas bill for September 2010 to December 2010.

Has he saved enough?  
You **must** show your working.

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(4 marks)

Turn over for the next question



**\*5** The table shows the number of advert breaks for 20 films.

Number of advert breaks	Frequency
0	3
1	1
2	5
3	4
4	7

**5 (a)** How many of the films have no advert breaks?

Answer ..... (1 mark)

**5 (b)** How many advert breaks are there in total for these 20 films?

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

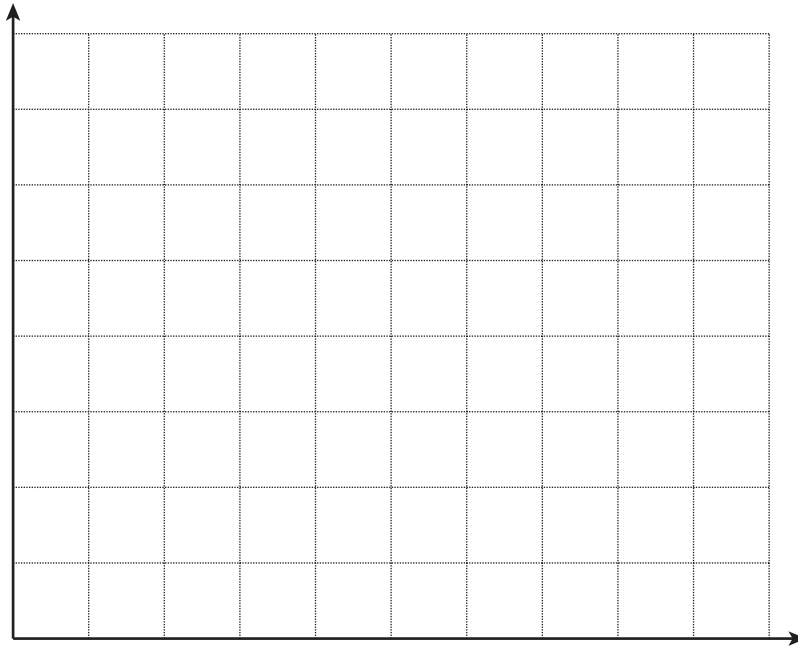
Answer ..... (2 marks)

**5 (c)** Write down the mode of the number of advert breaks.

Answer ..... (1 mark)



5 (d) Draw a suitable diagram to show the data on the grid below.



(4 marks)

Turn over for the next question



**\*6** Josh is a builder in Sheffield.  
He charges  
£250 for the first day  
plus  
£190 for each additional day.

**6 (a)** A job takes 3 days.  
How much does Josh charge?

.....  
.....

Answer £ ..... (2 marks)

**6 (b)** Josh charges £1580 for a different job.  
How many days does the job take?

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

Answer ..... days (3 marks)





**6 (c)** Khaled is a builder in Hull.  
He works in other towns.  
The chart shows the distances in miles between the towns.

Hull			
60	Leeds		
66	36	Sheffield	
38	24	57	York

Khaled charges £500 for a 3-day job plus 40p per mile travelled.

Is Khaled or Josh more expensive for a 3-day job in Sheffield?  
You **must** show your working.

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(6 marks)

**Turn over for the next question**



**7 (a)** Ahmed and Reanne each spell 50 words.  
 Ahmed spells 42 of the words correctly.  
 Reanne spells 80% of the words correctly.

Who spells more of the words correctly?  
 You **must** show your working.

.....  
 .....

Answer ..... (3 marks)

**7 (b)** Mrs Simpson gives her students a mental arithmetic test.  
 The stem-and-leaf diagram shows the number of correct answers for each student.



**7 (b) (i)** How many students have fewer than 15 correct answers?

.....

Answer ..... (1 mark)

**7 (b) (ii)** Work out the median.

.....

Answer ..... (1 mark)





**8 (a)** Harry buys three jars of jam.  
He pays with a £5 note.  
He gets £1.49 change.

What is the price of one jar of jam?

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

Answer £ ..... (3 marks)

**8 (b)** The table shows the prices of chocolate bars.

	Small	Large
Milko	32p	46p
Chunky choc	34p	48p

Lucy spends exactly £2 buying some of these chocolate bars.

Work out the number and size of the bars she buys.

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

Answer            Milko .....  
                          Chunky choc ..... (3 marks)



**9** You want a loan of £5000.  
Here are two offers.

<b>Bank A</b>
£5000 loan
Pay £158 per month for 3 years

<b>Bank B</b>
£5000 loan
Pay monthly for 5 years Total interest added: £1120

**9 (a)** For Bank A, work out the total amount you have to pay.

.....  
Answer £ ..... (2 marks)

**9 (b)** For Bank B, work out the amount you pay per month.

.....  
.....  
Answer £ ..... (3 marks)

**9 (c)** Choose a bank for your loan.  
Give a reason for your choice.

Bank .....

Reason .....

..... (1 mark)

**Turn over for the next question**



10 The table shows the number of cars owned by 775 households in a village.

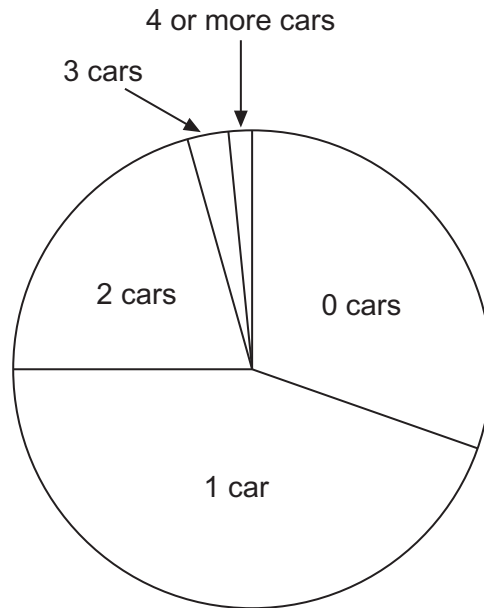
Number of cars owned	Number of households
0	93
1	354
2	273
3	46
4 or more	9

10 (a) Work out the percentage of households in the village that do **not** own a car.

.....  
 .....

Answer ..... % (2 marks)

10 (b) Information about the number of cars owned by households in a nearby town is shown in the pie chart.



Compare the information given for the village and the town.  
 Write down **one** similarity and **one** difference.

Similarity .....

.....

Difference .....

.....

(2 marks)



**10 (c)** Grace does a survey to find out what people think about parking in her town.  
Here is one of the questions.

Do you agree that there is a problem with parking in town?	
Tick a box	
Yes definitely <input style="width: 40px; height: 20px; vertical-align: middle;" type="checkbox"/>	No <input style="width: 40px; height: 20px; vertical-align: middle;" type="checkbox"/>

Give **one** criticism of the question and **one** criticism of the response section.

Question .....

.....

Response section .....

.....

(2 marks)

**11** Mel bought a house for £142 000 in April 2002.  
She sold it for £176 000 in April 2009.  
Here is a formula to work out annual appreciation.

$$\text{Annual appreciation} = \frac{\text{Final price} - \text{Original price}}{\text{Number of years}}$$

Work out the annual appreciation of Mel's house.  
Give your answer to the nearest £5.

.....

.....

.....

Answer £ ..... (3 marks)



**12** Rachel does ironing to earn pocket money.

The table shows the number of hours she spends ironing each week during the last 20 weeks.

Number of hours, $h$	Frequency
$0 \leq h < 2$	5
$2 \leq h < 4$	7
$4 \leq h < 6$	4
$6 \leq h < 8$	3
$8 \leq h < 10$	1

**12 (a) (i)** Calculate an estimate of the mean amount of time Rachel spends ironing each week.

.....

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.....

Answer ..... hours (4 marks)

**12 (a) (ii)** Give a reason why your answer to part (a)(i) is an estimate.

.....

.....

(1 mark)





**12 (b)** Rachel is paid £5 per hour for ironing.  
She saves all the money she earns from ironing.  
Rachel wants to buy a mobile phone costing £130.

Calculate an estimate of the number of weeks she has to save for the mobile phone.  
You **must** show your working.

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Answer ..... (4 marks)

**END OF QUESTIONS**



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