

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

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
June 2011

Applications of Mathematics (Linked Pair Pilot)

93701F

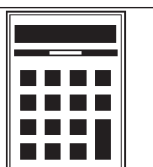
F

Unit 1 Finance and Statistics

Monday 13 June 2011 1.30 pm to 3.00 pm

For this paper you must have:

- mathematical instruments.
- You may use a calculator.



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 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 5 and 12. Those 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 U N 1 1 9 3 7 0 1 F 0 1

WMP/Jun11/93701F

93701F

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

1 Carl and Lia go shopping.

1 (a) Carl buys

2 jars of coffee at £3.25 each

1 packet of tea at £2.79

3 packets of biscuits at £1.12 each

1 (a) (i) How much does he spend?

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

Answer £ (3 marks)

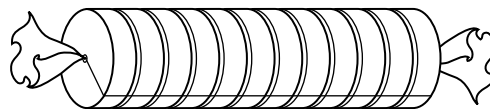
1 (a) (ii) Carl pays with a £20 note.

How much change does he receive?

.....

Answer £ (1 mark)

1 (b) (i) Lia buys a packet of 12 sweets.



She gives $\frac{1}{3}$ of the packet of sweets to Carl.

She eats $\frac{1}{2}$ of the packet of sweets.

How many sweets does she have left?

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

Answer (3 marks)



1 (b) (ii) The packet of sweets costs 80 pence.
Lia uses four coins to pay the exact amount for the sweets.

Write down **two** possible combinations of coins Lia could have used.

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

Combination 1

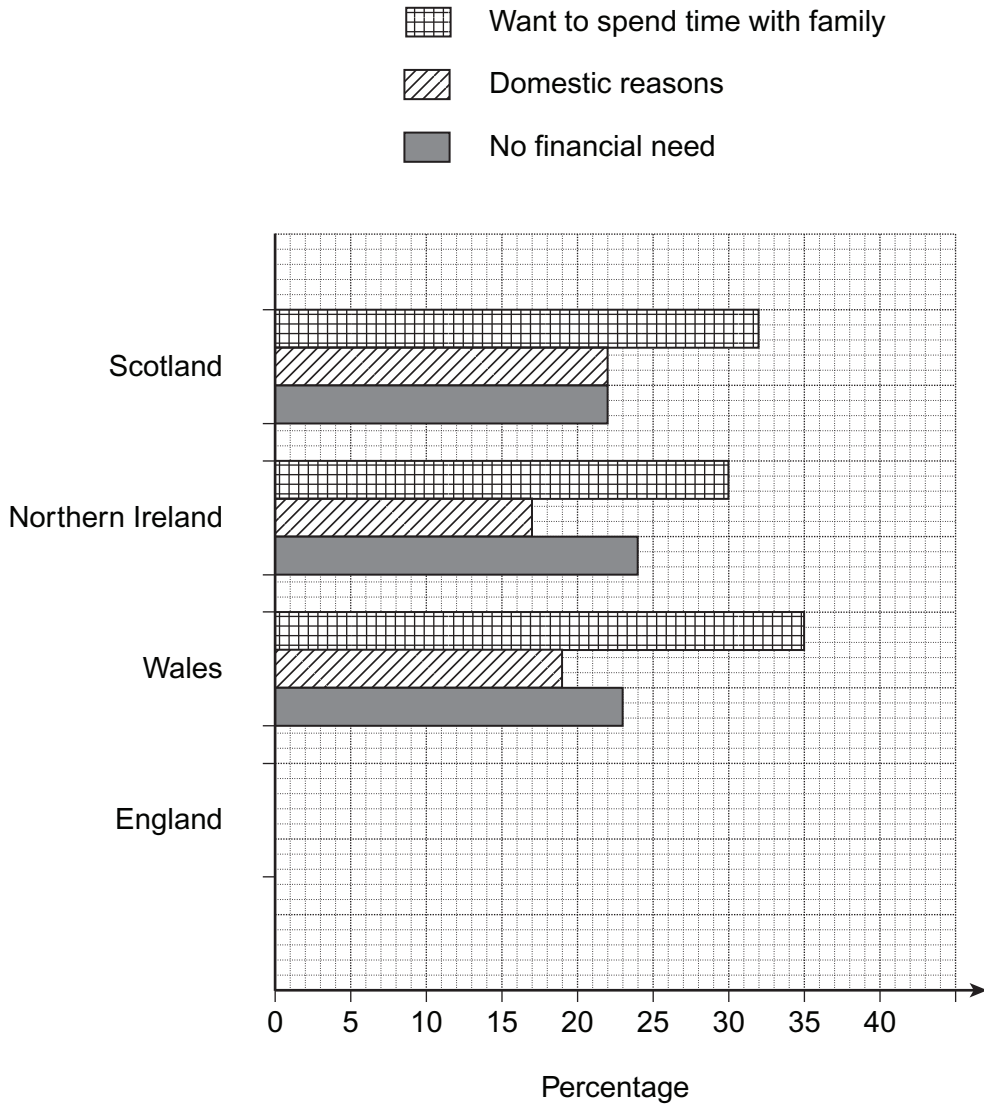
Combination 2

(2 marks)

Turn over for the next question



2 Women do not always want to work full-time.
The bar chart shows some of the reasons why.



2 (a) What percentage of women in Scotland 'Want to spend time with family'?

Answer % (1 mark)

2 (b) Which country has the smallest percentage for 'No financial need'?

Answer (1 mark)



2 (c) Write down one similarity in the data shown for Scotland, Northern Ireland and Wales.

.....
.....

(1 mark)

2 (d) The figures for England are shown.

Want to spend time with family	26%
Domestic reasons	23%
No financial need	30%

Use these figures to complete the diagram.

(3 marks)

Turn over for the next question



3 A group of nine people are weighed.
The results, in kilograms, are shown.

67 58 62 71 59 83 74 84 90

3 (a) Work out the mean weight.

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

Answer kg (3 marks)

3 (b) Another person joins the group.
She weighs 69 kilograms.

Tick a box to show what happens to the mean weight of the group.
Give a reason for your answer.

Decreases

Stays the same

Increases

Reason

.....

(2 marks)



4 (a) Steve cleans windows.
He takes 12 minutes to clean the windows of each house in a street.
He takes 4 minutes to move from one house to the next house.

One afternoon he works from 1 pm until 5 pm.

How many houses does he complete?

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

Answer (3 marks)

4 (b) Steve uses this formula to work out his charge.

$$\text{Charge} = \text{£}1.25 + 40 \text{ pence per window}$$

A house has eight windows.

How much does he charge?

.....

Answer (2 marks)

Turn over for the next question



*5

Faraj works in a factory.
His normal working week is 40 hours.
He is paid £5.78 per hour.

If he works for more than 40 hours he is paid a higher amount for each extra hour he works.

Here is his time sheet for one week.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of hours worked	8	9	9	10	7

Faraj is paid £257.21 for this week.

Work out the amount per hour he is paid for the extra hours.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Answer £ (6 marks)



- 6 (a) Mel lives in London.
She is going to visit New York.
Times in London and New York are connected by this formula.

$$\text{Time in New York} = \text{Time in London} - 5 \text{ hours}$$

Mel's plane leaves London at 9 am.
It takes 7 hours to fly to New York.

What is the time in New York when she lands?

.....

.....

Answer (2 marks)

- 6 (b) Mel wants a travel card for travelling around New York.
In London this travel card costs £52
In New York it costs \$70.

$$£1 = \$1.45$$

Should Mel buy her travel card in London or New York?
You **must** show your working.

.....

.....

.....

(3 marks)

Turn over for the next question



7 A road outside a school is very busy.

Sophie and Katie count the number of cars passing the school every minute, for 15 minutes.

7 (a) Sophie starts at 10.00 am on Monday.

Her results are

4 3 5 3 4 5 2 3 2 5 4 4 3 4 4

7 (a) (i) Use these results to complete the table below.

Number of cars	Tally	Frequency
2		
3		
4		
5		

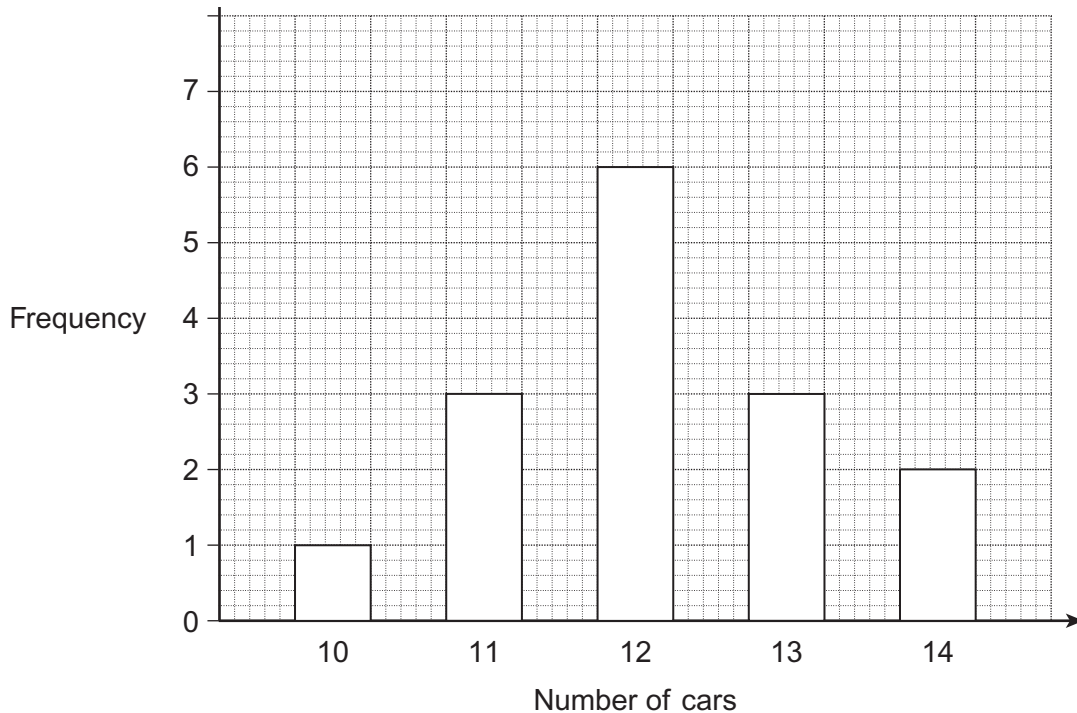
(2 marks)

7 (a) (ii) Write down the mode of this data.

Answer cars (1 mark)

7 (b) Katie starts at 3.30 pm on Wednesday.

Her results are shown in the bar chart



How many cars did Katie count in total?

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

Answer (3 marks)

7 (c) Katie says "I think the data shows that we need a pedestrian crossing on this road."

Sophie says "I agree, but I don't think we have enough evidence to show this."

Suggest **two** ways that Katie and Sophie can provide better evidence for a pedestrian crossing.

(i)
.....

(ii)
.....

(2 marks)

Turn over for the next question



8 Jack carries out a survey of people using two different bus companies. He records the number of people waiting at bus stops for the red bus.

12	16	26	9	14	19	24	7
30	17	13	15	20	5	14	

8 (a) Complete the ordered stem-and-leaf diagram for Jack's results.

.....

.....

.....

.....

Key..... |represents.....people

0	
1	
2	
3	

(3 marks)

8 (b) Jack also records the number of people waiting at bus stops for the blue bus. He uses his data to work out these results.

Median = 10 people
Range = 20 people

Comment on the differences between the number of people waiting for the red and blue buses.

.....

.....

.....

.....

.....

(4 marks)



9 (a) Tariq wants to save £270 to buy a guitar.
He saves £15 each week.
How many weeks does it take him to save enough money for the guitar?

.....

Answer (2 marks)

9 (b) Rachel invests £2500 in a savings plan for 4 years.
The plan pays 3% per year simple interest.
Work out the total value of her investment after 4 years.

.....

Answer £ (3 marks)

Turn over for the next question



10 The spreadsheet gives details of the cost price and selling price of three kitchen appliances sold in a shop.

	A	B	C	D	E
1	Appliance	Cost price (£)	Store profit (£)	Selling price (£)	Percentage profit (%)
2	Washing machine	190	57	247	30
3	Dishwasher	160	56		
4	Fridge	100			40

10 (a) This formula is used for column D row 2 (D2) = B2 + C2
What formula is used for D3?

.....

Answer (1 mark)

10 (b) The formula for E2 is = C2 / B2 * 100

Use this information to complete row 3 of the spreadsheet.

.....

.....

.....

(2 marks)

10 (c) Complete row 4 of the spreadsheet.

.....

.....

.....

(2 marks)



11 The table shows some information about the number of holidays taken by 60 people.

Holidays abroad

		0	1	2	3
Holidays in Great Britain	0	1	12	3	1
	1	6	8	6	2
	2	4	3	5	1
	3	2	4	2	0

11 (a) How many people did **not** have a holiday?

Answer (1 mark)

11 (b) How many people had two holidays in Great Britain?

.....
.....

Answer (2 marks)

11 (c) Work out the percentage of the 60 people who had **more** holidays abroad than holidays in Great Britain.

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

Answer % (3 marks)

Turn over for the next question



***12(a)** Jake is exactly 160 centimetres tall.
Sam is exactly 135 centimetres tall.
Reanne is shorter than Jake but taller than Sam.

Write an inequality for Reanne's height, h .
You **must** use all the information given.

Answer (2 marks)

12 (b) Sita's mum is twice as tall as Sita.
Sita's dad is eight centimetres taller than her mum.
The total of their three heights is 423 centimetres.

How tall is Sita?

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

Answer cm (3 marks)



13 A box of mixed grass seed contains Rye seed and Fescue seed in the ratio

$$\text{Rye : Fescue} = 1 : 3$$

13 (a) Rye seed is £3.80 per kg.
Fescue seed is £5.20 per kg.

Work out the cost of a 5 kg box of mixed grass seed.

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

Answer £ (5 marks)

13 (b) A small bag of grass seed costs £4.80 plus VAT.
VAT is charged at 20%.

Work out the total cost of a small bag of grass seed.

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

Answer £ (3 marks)

END OF QUESTIONS



There are no questions printed on this page

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



There are no questions printed on this page

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



There are no questions printed on this page

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

