

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 2012

Applications of Mathematics (Linked Pair Pilot)

93701F

F

Unit 1 Finance and Statistics

Tuesday 19 June 2012 1.30 pm to 3.00 pm

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

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 4 and 9.
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.



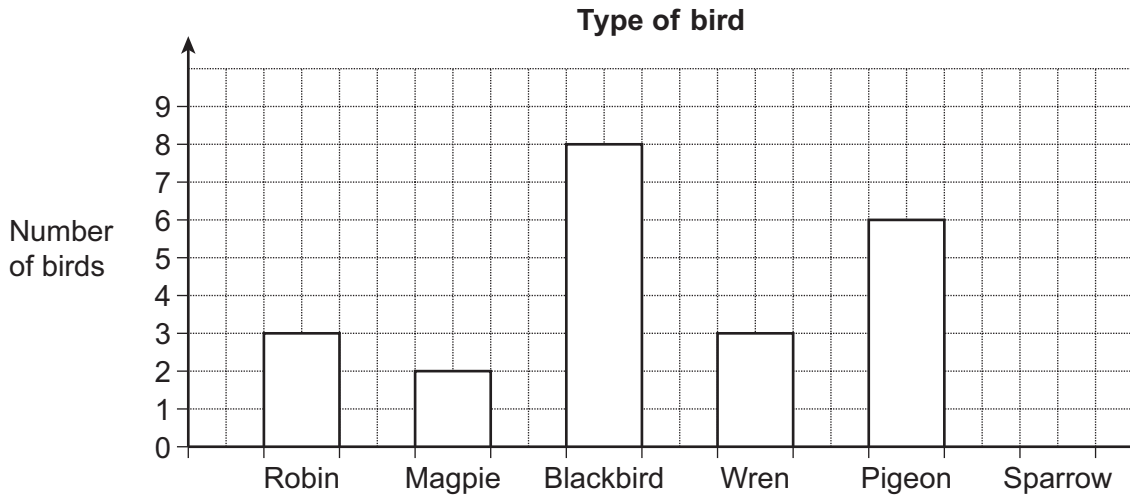
J U N 1 2 9 3 7 0 1 F 0 1

WMP/JUN12/93701F

93701F

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

- 1** Sam records the number of different types of bird that visit her garden one lunchtime. Some of her results are shown in the bar chart.



- 1 (a)** Four sparrows visit the garden.

Complete the bar chart.

(1 mark)

- 1 (b)** How many pigeons visit the garden?

Answer

(1 mark)

- 1 (c)** Which type of bird visits the garden most often?

Answer

(1 mark)



1 (d) Which **two** types of bird visit the same number of times?

Answer and (1 mark)

1 (e) A website states
"If you put water out for the birds,
the number that visit a garden will increase by 50%"

Sam puts water out for the birds.

How many **more** birds can she expect to visit the garden?

.....
.....

Answer (4 marks)

Turn over for the next question



2 (a) Robert wants to watch a film on TV.
The film starts at 3.15 in the afternoon.

2 (a) (i) The film lasts 90 minutes.

At what time does it end?

.....
.....

Answer (2 marks)

2 (a) (ii) Robert has jobs to do first.

Job	Time needed (minutes)
Ironing	45
Washing up	10
Tidying bedroom	40
Vacuum front room	5

What is the latest time Robert can start his jobs?

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

Answer (4 marks)



2 (b) Robert wants to buy a DVD player priced at £250.
In a sale the price is reduced by 30%.

Work out the reduction.

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

Answer £ (2 marks)

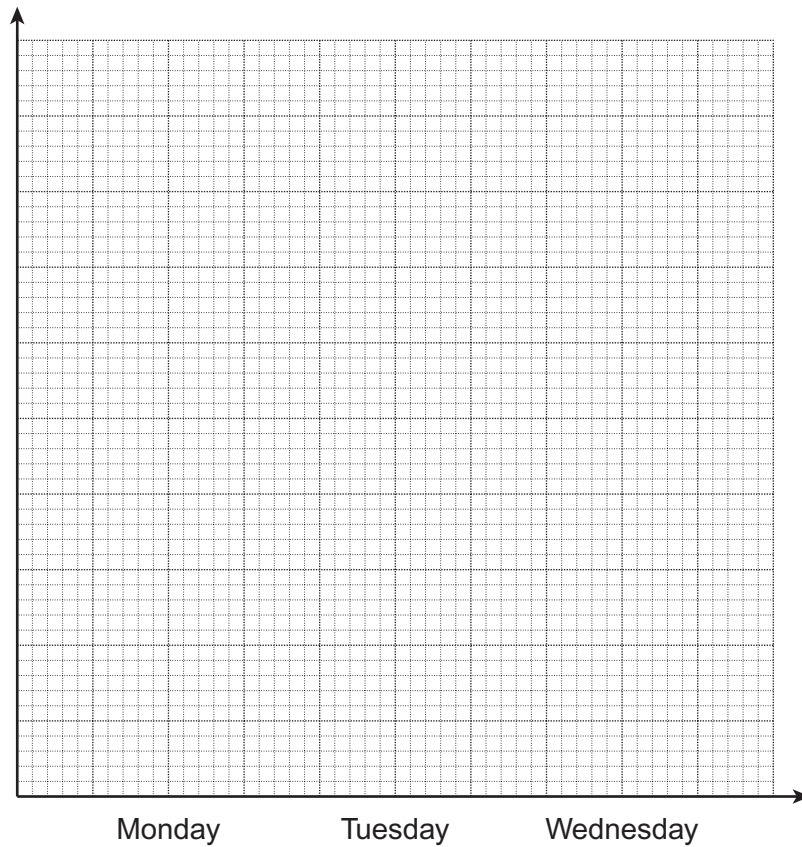
Turn over for the next question



- 3 A swimming club is held three times each week.
The table shows the number of boys and girls who attend one week.

	Boys	Girls
Monday	10	5
Tuesday	14	9
Wednesday	8	12

- 3 (a) Draw a suitable diagram to compare the number of boys and girls who attend.



(4 marks)

- 3 (b) Do more boys or girls attend this week?
You **must** show your working.

.....

.....

.....

(2 marks)



***4 (a)** Potatoes cost 80 p per kg
 Milk costs 65 p per litre

4 (a) (i) Phil buys 2 kg of potatoes and 4 litres of milk.

Work out the total cost.

.....

Answer £ (4 marks)

4 (a) (ii) He pays with a £10 note.

How much change should he get?

.....

Answer £ (1 mark)

4 (b) Phil earns two loyalty points for every £1 he spends at the shop.
 He now has 220 points.
 500 points earn a gift voucher.

How much more does he need to spend to earn a gift voucher?

.....

Answer £ (3 marks)



5 The pictogram shows the number of books read by the 20 students in Class A in one month.

0	☺
1	☺
2	☺ ☺
3	☺ ☺ ☺
4	☺ ½
5	½
6	☺

Key ☺ represents 2 students

5 (a) How many students in class A read three books?

Answer (1 mark)

5 (b) This list shows the number of books read by the 20 students in Class B in the same month.

- 1 2 1 3 4 6 0 5 4 2
 1 1 4 1 2 3 1 1 3 1

5 (b) (i) Work out the mode for Class B.

.....

Answer (1 mark)

5 (b) (ii) Work out the mean for Class B.

.....

Answer (3 marks)



5 (b) (iii) Complete the following table for Class B.

Number of books	Tally	Frequency
0		
1		
2		
3		
4		
5		
6		

(2 marks)

5 (c) Work out the total number of students in the **two** classes who read 4 or more books.

.....

.....

.....

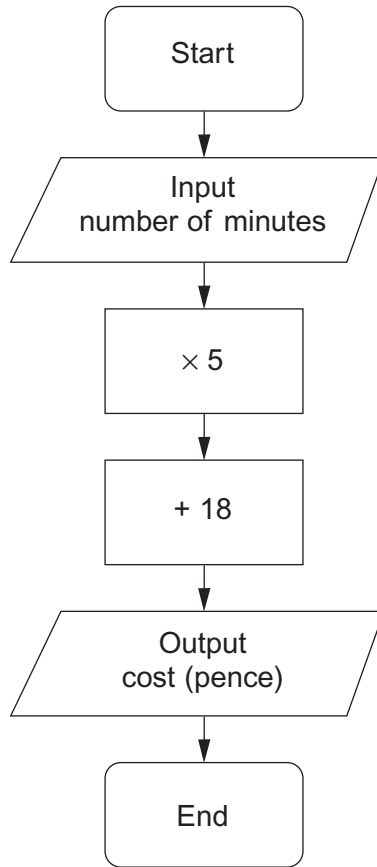
.....

Answer (4 marks)

Turn over for the next question



6 The flowchart shows how Company A work out the cost, in pence, of phone calls.



6 (a) Work out the cost of a 3-minute phone call.

.....

.....

Answer pence (2 marks)

6 (b) A phone call costs £2.28

How long is the call?

.....

.....

Answer minutes (2 marks)



6 (c) Company B charge 6p for every complete minute of call made plus a 9p connection fee.

A call is made.
The call would cost the same for Company A as for Company B.

How long is the call?
You **must** show your working.

.....

.....

.....

.....

Answer minutes (4 marks)

Turn over for the next question

8

Turn over ►



7 The table shows the age distribution of people living in Keswick.

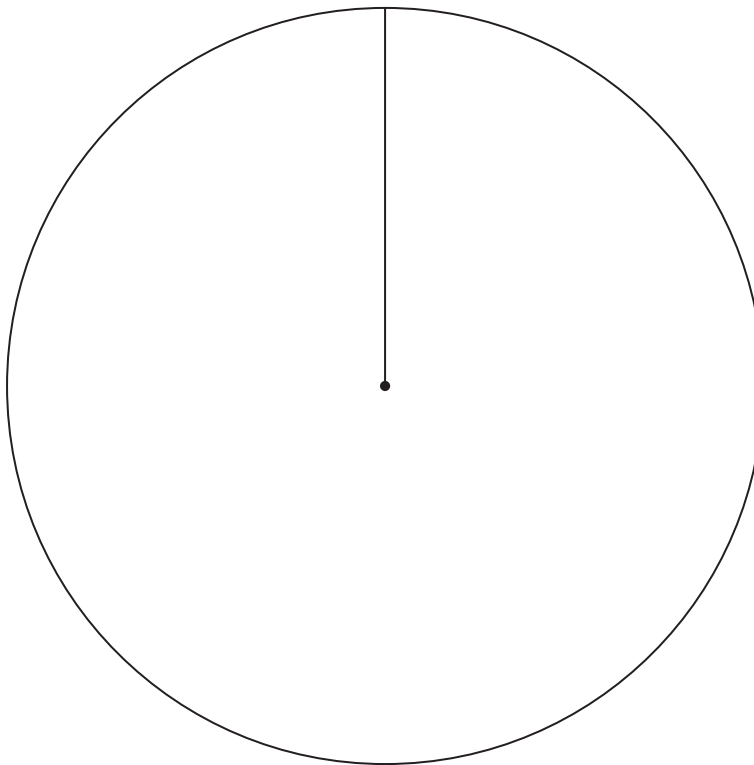
Age	Number of people
under 21	1050
21 to 40	1200
41 to 60	1500
61 to 80	1200
81 to 100	450
Total	5400

7 (a) Draw a pie chart to represent this information.

.....

.....

.....



(4 marks)



7 (b)

Keswick is a town in the Lake District.
One-fifth of the population of the Lake District are over 60 years of age.

Is the proportion of people over 60 the same in Keswick as in the Lake District?
You **must** show your working.

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

(3 marks)

8

Christmas cards are sold in boxes.

- A box of 6 cards costs £2.80
- A box of 8 cards costs £3.50
- A box of 10 cards costs £4.45

What is the cheapest way to buy **exactly** 30 cards?
You **must** show your working.

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

Cheapest way

Cheapest cost £

(3 marks)

10

Turn over ►



***9** Three sisters do a sponsored swim to collect money for charity.

9 (a) Ella collects x pounds.

9 (a) (i) Chloe collects £5 more than Ella.

Write an expression, in terms of x , for the amount Chloe collects.

Answer £ (1 mark)

9 (a) (ii) Danni collects twice as much as Ella.

Write an expression, in terms of x , for the amount Danni collects.

Answer £ (1 mark)

9 (a) (iii) Altogether the three sisters collect £65.

Set up and solve an equation to work out the amount Ella collects.

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

Answer £ (4 marks)

9 (b) The three sisters swim a total of 575 metres divided in the ratio of their ages.

Chloe is 10 years old.
Danni is 8 years old.
Ella is 5 years old.

Work out the distance Ella swims.

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

Answerm (3 marks)



10 Some men, women and children watch a school football match.

There are less than 100 men.

The number of women is exactly one-eighth of the number of men.

The number of children is exactly 10% of the number of men.

What is the **least** number of men there could be?

You **must** show your working.

.....

.....

.....

.....

.....

.....

.....

Answer (3 marks)

Turn over for the next question



11 (a) The number of minutes 50 people ski one morning is recorded.

Time, t (minutes)	Number of people	Midpoint	
$0 < t \leq 30$	7		
$30 < t \leq 60$	17		
$60 < t \leq 90$	26		

11 (a) (i) Use midpoints to calculate an estimate of the mean number of minutes these people ski for.

.....

.....

.....

.....

Answerminutes (3 marks)

11 (a) (ii) One of these people is chosen at random.

James says

“The probability that this person skis for longer than 1 hour is 0.5”

Is James correct?

You **must** show your working.

.....

.....

(2 marks)



11 (b) The cost to ski on a dry slope is £5 per session.
The cost to hire equipment is £4 per session.
80% of people who ski hire equipment.

It costs £123 per session to open the slope.

What is the smallest number of people needed to cover the cost of opening the slope?
You **must** show your working.

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

Answer (4 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**

