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| Centre Number | | | | | | Candidate Number | | | | |
| Surname | | | | | | | | | | |
| Other Names | | | | | | | | | | |
| Candidate Signature | | | | | | | | | | |

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|---------------------|------|
| For Examiner's Use | |
| Examiner's Initials | |
| Pages | Mark |
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| TOTAL | |



General Certificate of Secondary Education
Foundation Tier
January 2013

Applications of Mathematics **93701F**

(Linked Pair Pilot)

Unit 1 Finance and Statistics

F

Thursday 17 January 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> | |
|--|--|

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 5 and 11. 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 3 9 3 7 0 1 F 0 1

WMP/Jan13/93701F

93701F

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

1 (a) A café sells these drinks.

| | | | |
|---------------|--------|-------|--------|
| Coffee | £ 2.15 | Juice | 90p |
| Tea | £ 1.90 | Cola | £ 1.10 |
| Hot chocolate | £ 2.25 | Milk | £ 1.00 |

Work out the total cost of

2 coffees

2 teas

1 milk.

.....

.....

.....

.....

.....

£ (4 marks)



1 (b) The café sells these meals.

| | |
|---------------|--------|
| Pizza | £ 3.65 |
| Fish pie | £ 4.20 |
| Chicken salad | £ 4.00 |

Tom buys one meal.
 He pays with a £ 5 note.
 He is given exactly **three** coins as change.

Work out which meal he buys and the coins he is given as change.

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.....

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.....

.....

Meal

Coins (4 marks)

Turn over for the next question

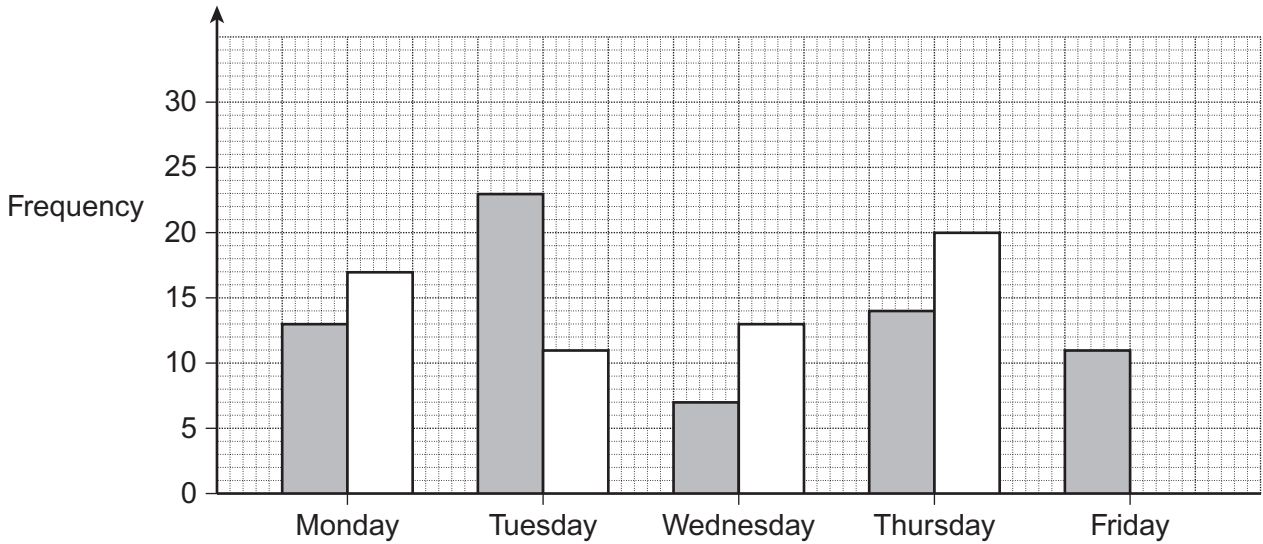
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|---|
| 8 |
|---|

Turn over ►



2 The bar chart shows the number of dogs and cats taken to a vet one week.
The bar for cats on Friday is missing.

 = dogs  = cats



2 (a) How many dogs were taken to the vet on Tuesday?

Answer (1 mark)

2 (b) Work out the total number of dogs and cats taken to the vet on Monday.

.....

Answer (1 mark)



2 (c) In this week, an equal number of dogs and cats were taken to the vet.

How many cats were taken to the vet on Friday?

.....

.....

.....

.....

Answer (4 marks)

Turn over for the next question



3 Prices are reduced in a sale.

| | Usual price | Sale price |
|---------|-------------|------------|
| Jumper | £ 5.00 | £ 3.00 |
| Pyjamas | £ 8.00 | £ 5.50 |
| T-shirt | £ 7.95 | £ 2.50 |
| Socks | £ 2.25 | £ 1.50 |
| Vest | £ 2.50 | £ 1.95 |

3 (a) Which item is reduced by more than £ 5.00?

.....

Answer (1 mark)

3 (b) Mr Darwin buys one item.
It is reduced by less than £ 1.00

Write down **one** item he could have bought.

.....

Answer (1 mark)



3 (c) Which **two** items are reduced by £4.50 in total?

.....

.....

.....

Answer and (2 marks)

Turn over for the next question



- 4** A family lives in Killingworth.
They go to a water park by bus.

- 4 (a)** Here is the bus timetable.

| | | | |
|---------------------|------|------|------|
| Newcastle | 0915 | 0945 | 1015 |
| Killingworth | 0944 | 1014 | 1044 |
| Water park | 1018 | 1048 | 1118 |

- 4 (a) (i)** The family wants to arrive at the water park by 11 am.

Write down the time of the latest bus they can catch from Killingworth.

Answer (1 mark)

- 4 (a) (ii)** How long does their bus take from Killingworth to the water park?

.....

Answer..... minutes (1 mark)



4 (b)

| Water park ticket prices | |
|--------------------------|------|
| Adult | £ 12 |
| Child | £ 10 |
| Senior | £ 7 |

The family pays £ 61 for their tickets.
They buy at least one ticket of each type.

Work out the tickets they buy.

.....

.....

.....

.....

Adult

Child

Senior

(4 marks)

Turn over for the next question

6

Turn over ►



***5** Mr Singh uses 967 units of electricity.
He pays
26 pence per unit for the first 135 units
19.5 pence per unit for the rest of the units.

Is £ 200 enough to pay for the electricity he uses?
You **must** show your working.

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(5 marks)



6 Mrs Shah buys pepper plants.

Here are the numbers of peppers she grows from 10 plants.

10 13 11 10 12 15 13 12 11 10

6 (a) Work out the median.

.....

Answer (2 marks)

6 (b) Work out the mean.

.....

.....

.....

Answer (3 marks)

6 (c) Mrs Shah buys some more pepper plants.
She says,

“On average, I should get about 12 peppers from each plant.”

Give a reason why her data shows she is correct.

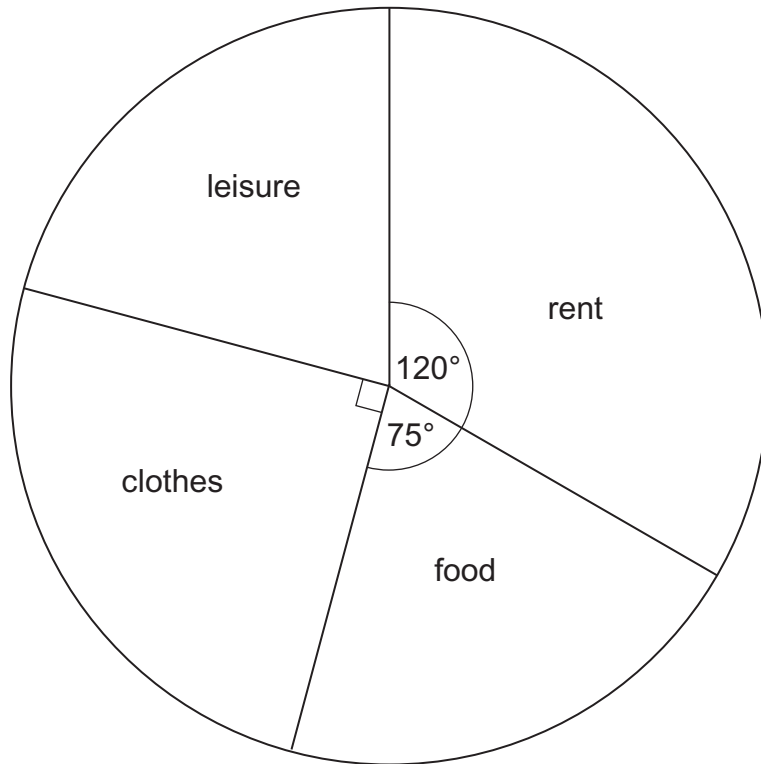
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(1 mark)



7 (a) Kate is paid £240 a week.
The pie chart shows how she spends her pay.



7 (a) (i) Which **two** items does Kate spend the same amount on?

.....

Answer and (1 mark)

7 (a) (ii) What fraction of her pay does Kate spend on clothes?

Answer (1 mark)



7 (b) Liam is also paid £ 240 a week.

7 (b) (i) He spends $\frac{3}{10}$ of his pay on leisure.

How much does he spend on leisure each week?

.....

£ (2 marks)

7 (b) (ii) Liam saves 15% of his pay.

How much does he save each week?

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.....

£ (2 marks)

7 (c) Liam spends £ 86 on rent each week.

How much more than Kate does Liam spend on rent?

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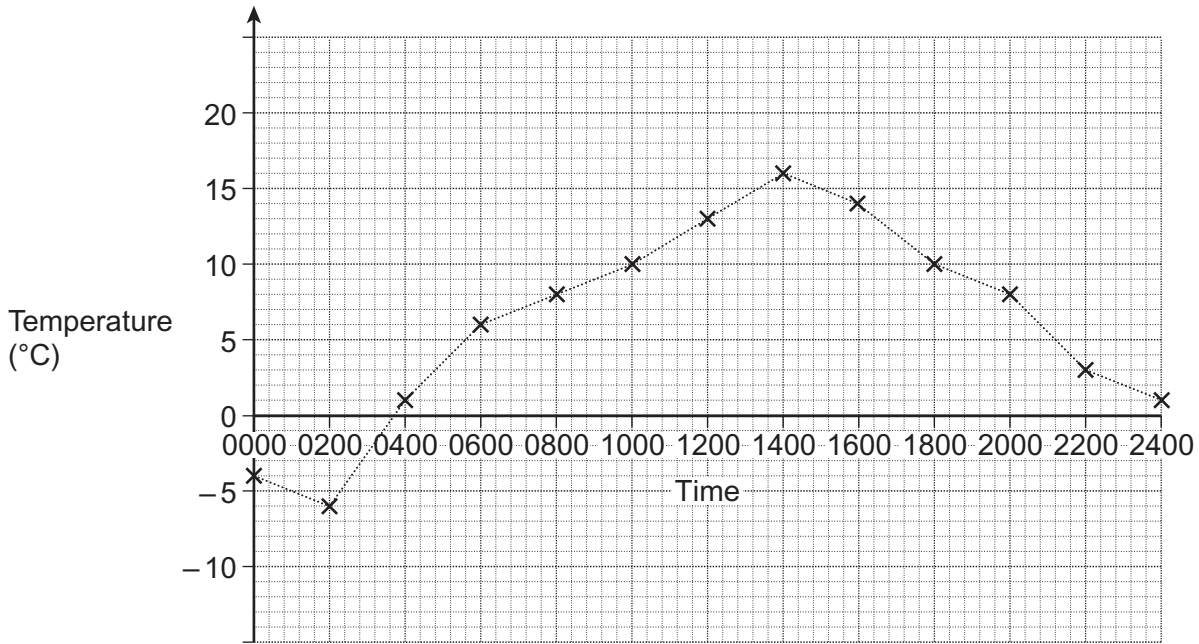
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£ (3 marks)



8 The graph shows the temperature in a garden over 24 hours.



8 (a) Write down the temperature at 0200.

Answer °C (1 mark)



8 (b) A heater in the greenhouse switches on when the temperature in the garden is below 10 °C.

For how many hours was the heater switched on?

.....
.....

Answer hours (2 marks)

8 (c) Work out the temperature range in the garden.

.....

Answer °C (2 marks)

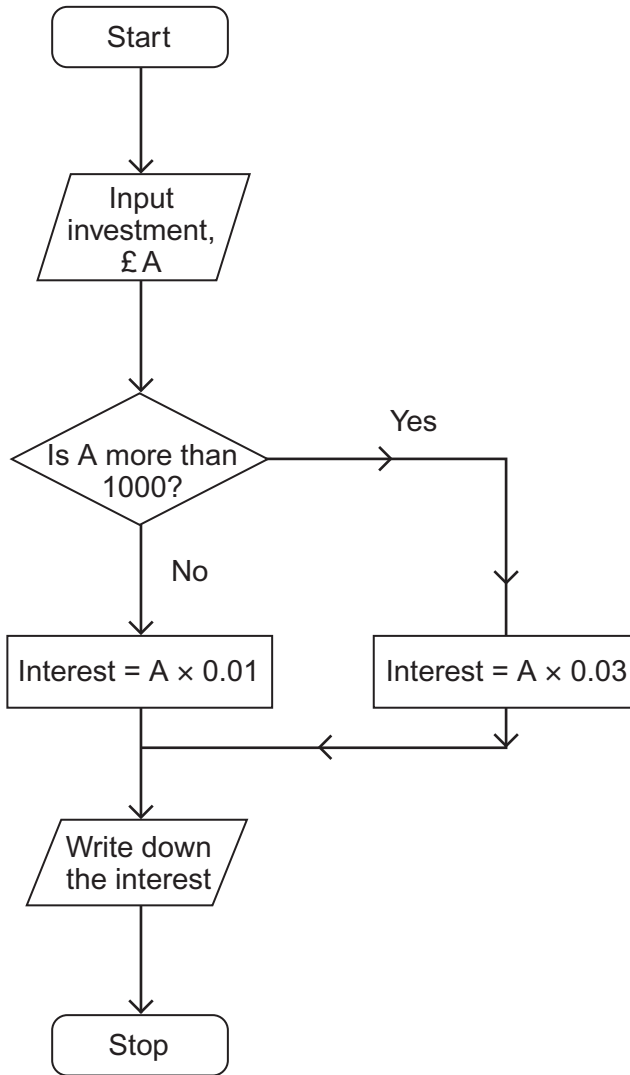
Turn over for the next question

5

Turn over ►



9 This flow chart works out the interest added to an investment after one year.



Phil makes an investment of £ 1200.

Work out the total amount he will have after one year.

.....

.....

.....

£ (3 marks)



10 Meg goes on holiday.

10 (a) She changes £ 700 to euros.
The exchange rate is £ 1 = 1.1 euros.

How many euros does she receive?

.....
.....

Answer euros (2 marks)

10 (b) Meg spends 596 euros.
She changes the rest back to pounds (£).
The exchange rate is now £ 1 = 1.2 euros.

How much, in pounds, does she get back?

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

£ (3 marks)

Turn over for the next question



11 A smoothie recipe uses banana, kiwi and yoghurt in the ratio 4 : 1 : 3 by weight.

11 (a) A smoothie is made using 280 g of banana.

How much kiwi and yoghurt are needed?

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

Kiwi g

Yoghurt g

(3 marks)

***11 (b)** Each smoothie costs 72p to make.

The smoothies are sold at the school fayre.

The school wants to make at least 30% profit on each smoothie.

Work out the cheapest selling price to do this.

.....
.....
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Answer

(4 marks)



12

| |
|--|
| <p>Flags-4-U</p> <p>Paving slabs £ 4 each + Delivery £ 20</p> |
|--|

12 (a) Write down a formula for the cost, £ C, of buying x paving slabs and having them delivered.

.....

C = (2 marks)

12 (b)

| |
|---|
| <p>Stones-R-Us</p> <p>Paving slabs £ 2.50 each + Delivery £ 35</p> |
|---|

James wants to buy some paving slabs and have them delivered.
The total cost is the same from both companies.

How many paving slabs does he want to buy?

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

Answer (3 marks)

12

Turn over ►



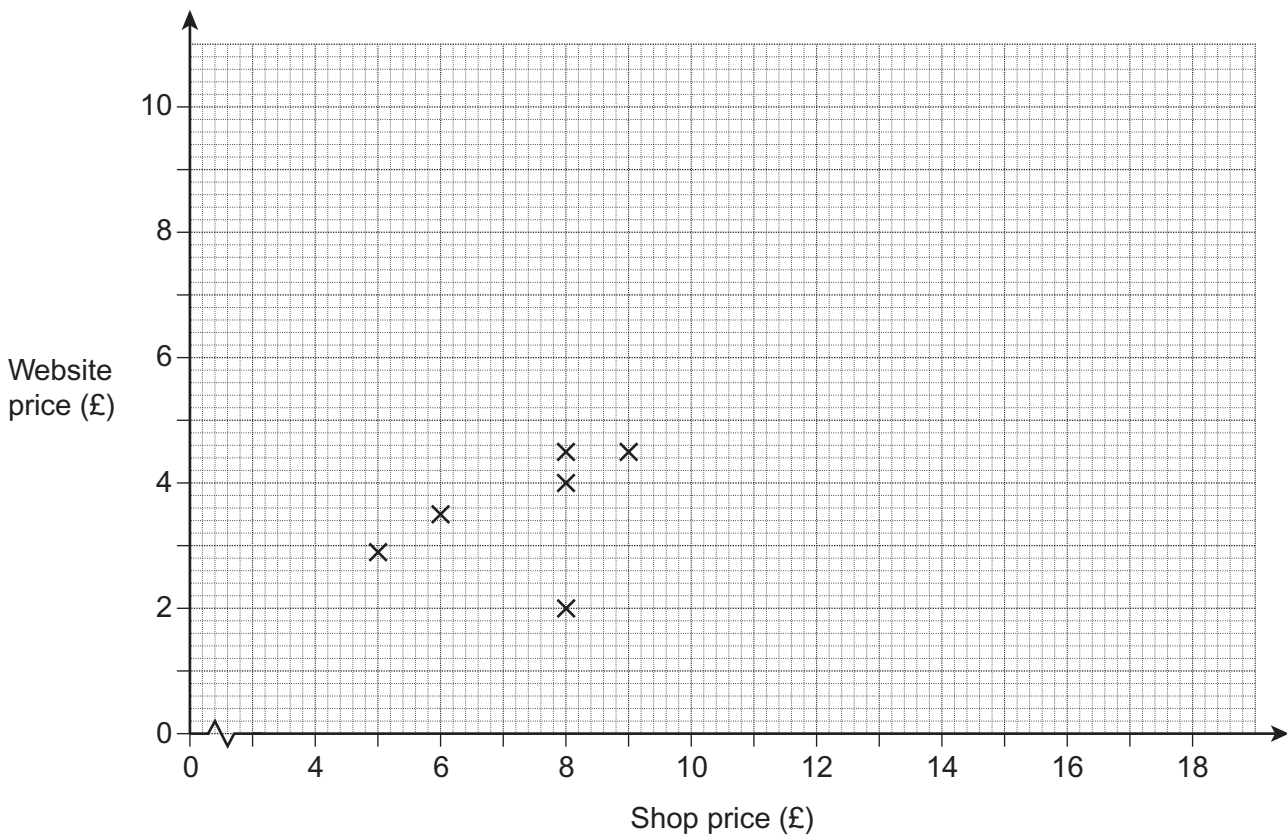
13 Here are the shop and website prices of some books.

| | | | | | | | | | | |
|--------------------------|------|------|---|---|------|------|------|------|------|------|
| Shop price (£) | 5 | 6 | 8 | 8 | 8 | 9 | 10 | 13 | 13 | 17 |
| Website price (£) | 2.90 | 3.50 | 2 | 4 | 4.50 | 4.50 | 5.40 | 7.20 | 8.00 | 9.80 |

13 (a) The first six points have been plotted on this scatter diagram.

Complete the scatter diagram.

(2 marks)



13 (b) Describe the type of correlation shown on the scatter diagram.

.....
(1 mark)

13 (c) A book has a shop price of £ 15.

Estimate its website price.
You **must** show your working.

£ (2 marks)

13 (d) The shop manager thinks that one of the prices on the website is incorrect.

Circle this point on the graph.
Give a reason for your answer.

.....
.....
(2 marks)

Turn over for the next question



14 Some boys share a bag of sweets.

If each boy has 6 sweets, there will be 5 sweets left in the bag.
If there were 3 more sweets in the bag, each boy could have exactly 7 sweets.

How many sweets were in the bag?

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Answer (4 marks)

END OF QUESTIONS

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|---|
| 4 |
|---|



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