Surname	Centre Number	Candidate Number
Other Names		0

GCSE LINKED PAIR PILOT

4362/01

APPLICATIONS OF MATHEMATICS

UNIT 2: FINANCIAL, BUSINESS AND OTHER APPLICATIONS

FOUNDATION TIER

A.M. THURSDAY, 21 June 2012

$1\frac{1}{2}$ hours

4362
010001

ADDITIONAL MATERIALS

A calculator will be required for this paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

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

Take π as 3·14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

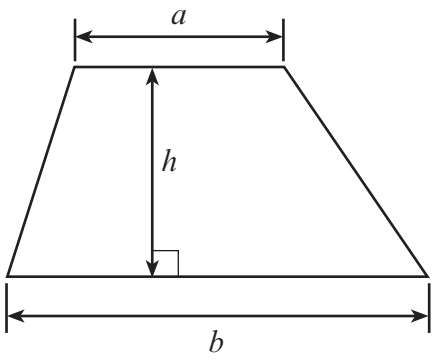
The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question ***3(c)***.

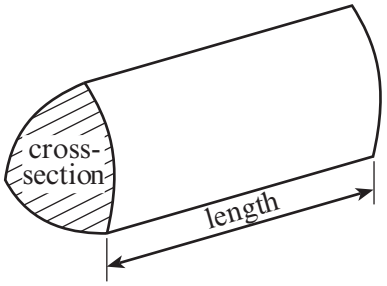
For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1	**12**	
2	**6**	
3	**12**	
4	**3**	
5	**10**	
6	**3**	
7	**6**	
8	**6**	
9	**7**	
10	**15**	
TOTAL MARK		

Formula List

Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = area of cross-section × length



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Examiner only

1. Jane needs to buy plants and shrubs for her garden.
She goes to her local gardening shop 'Buds in Bloom'.

(a) Jane sees the following on display.

Rose Bushes
£4.99 each

Busy Lizzie Plants
£1.39 each

Compost
£3.50 per bag

Plant food
£7.89 per box

(i) Jane buys a box of plant food, 3 bags of compost, 4 rose bushes and 25 Busy Lizzie plants.
Complete the following table to show her bill for these items.

Item	Cost
1 box of plant food	£7.89
	£
	£
	£
Total	£

[4]

(ii) Jane belongs to the gardening club, so the store offers her a discount of 10% of the total cost of these items.
How much discount does she receive?

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[2]

(iii) After receiving her discount, Jane pays for the items with four twenty pound notes.
How much change should she be given?

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[3]

(b) Jane's neighbour has given her £20 to buy as many Busy Lizzie plants as she can.
How much change should Jane give back to her neighbour?

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[3]

Examiner only

2. *(a)* In a school quiz, pupils were asked to state the units used to measure certain items. Below are the questions that were asked. State the answers for each question.

(i) What is the best metric unit that could be used to measure

- the volume of liquid in a large tank, ...
- the distance between London and Wrexham? .....

(ii) What unit could be used to measure

- the weight of a person? .....

[3]

(b) One of the questions was a puzzle to find the values of the letters a, b and c.
The letters represent different values and the sum for each row is given in the last column.
Using the information given in the table, find the value of each of the letters.

	a	a	18
	a	b	20
a	b	c	17

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a = ... b = ... c = ...

[3]

Examiner only

3. Ashley earns £6.50 per hour in her job at a local shop.

(a) How much will she earn for working 8 hours on a Saturday?

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[2]

(b) One week she works on a Bank Holiday Monday and earns double her usual rate. If she works for 5 hours, how much will she earn?

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[3]

(c) *You will be assessed on the quality of your written communication in this part of the question.*

Ashley usually works 32 hours a week at £6.50 per hour.

She pays one tenth of her weekly earnings in tax and national insurance.
She gives £50 of her weekly earnings to her family for her room and food.
She spends £60 a week on socialising, clothing and other things.
She saves the rest of her weekly earnings.

Ashley wants to book a week's holiday to Portugal costing £439.
How many weeks will it take her to pay for her holiday?

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[7]

Examiner only

4. The diagram below, which is drawn to scale, shows a man standing next to an Olympic-sized rowing boat.

Using your knowledge of the height of a man, estimate the **actual length** of the boat.

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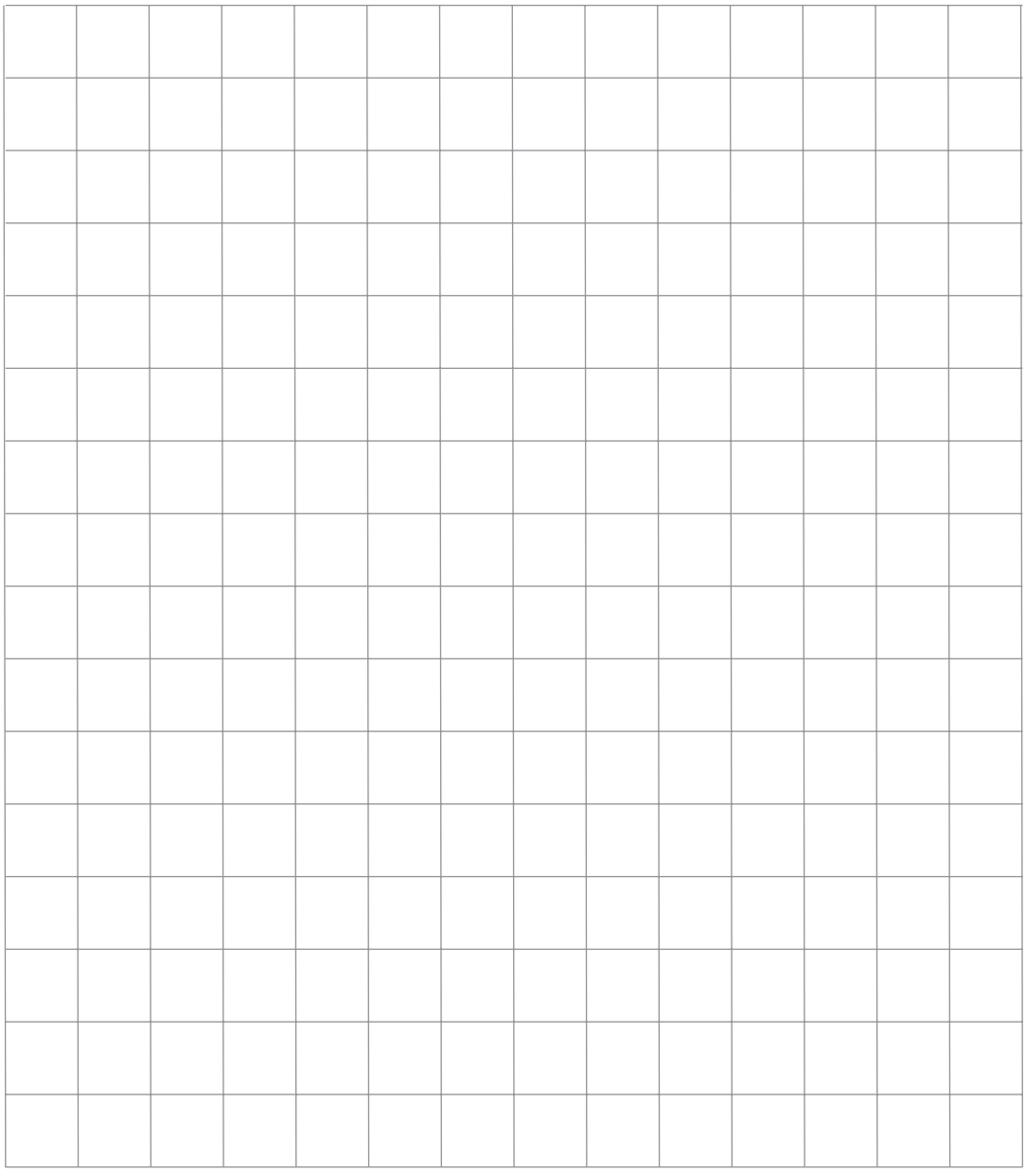
[3]

Examiner only

5. *(a)* Ben carries out a survey of his class, to find each pupil's favourite type of music. His results are shown in the following table.

Type of music	Number of children	Frequency
Rock	𝍸 ||	7
R & B	𝍸 𝍸 𝍸 |	16
Dance	𝍸 𝍸 |	11

Use this data to draw a suitable bar chart on the squared paper below. [3]



Examiner only

(b) Ben also records the number of music CDs his friends have.

56	37	15	28	68
23	28	39	42	24
18	49	18	31	52

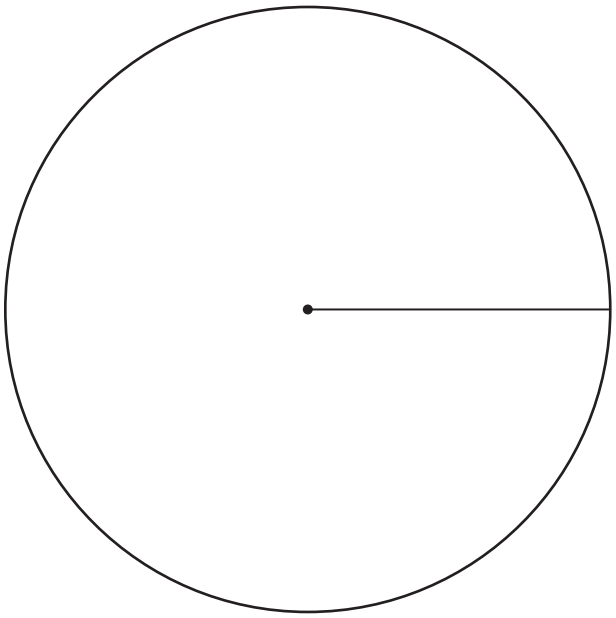
Construct a stem and leaf diagram to show this data.

[3]

(c) A music store notes the number of hits it receives on the Internet for some pieces of equipment it sells.
The results are summarised in the table below.

Equipment	Number of hits on the Internet
Drum kit	28
Microphone	31
Electric guitar	37
Keyboard	24

Draw a pie chart to illustrate these results. You should show how you calculate the angles of your pie chart. [4]



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Examiner only

6. Jenny wants to record six episodes of her favourite programme onto a DVD.
Each programme lasts exactly 45 minutes.
Will she be able to record all the programmes onto a DVD that can hold 4 hours of programmes?
Explain your answer carefully.

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[3]

7. On Monday, Gary went to the gym and worked out on four machines.
The fraction of the time he spent on each machine is represented in the diagram below.

(a) What fraction of the total time was Gary on the bike?

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[2]

(b) Gary spent 24 minutes on the treadmill.
How long did Gary spend in the gym on Monday?

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[4]

Examiner only

8. The local council decided to lay a $1\frac{1}{2}$ metre wide concrete path around their bowling green, as shown in the diagram.

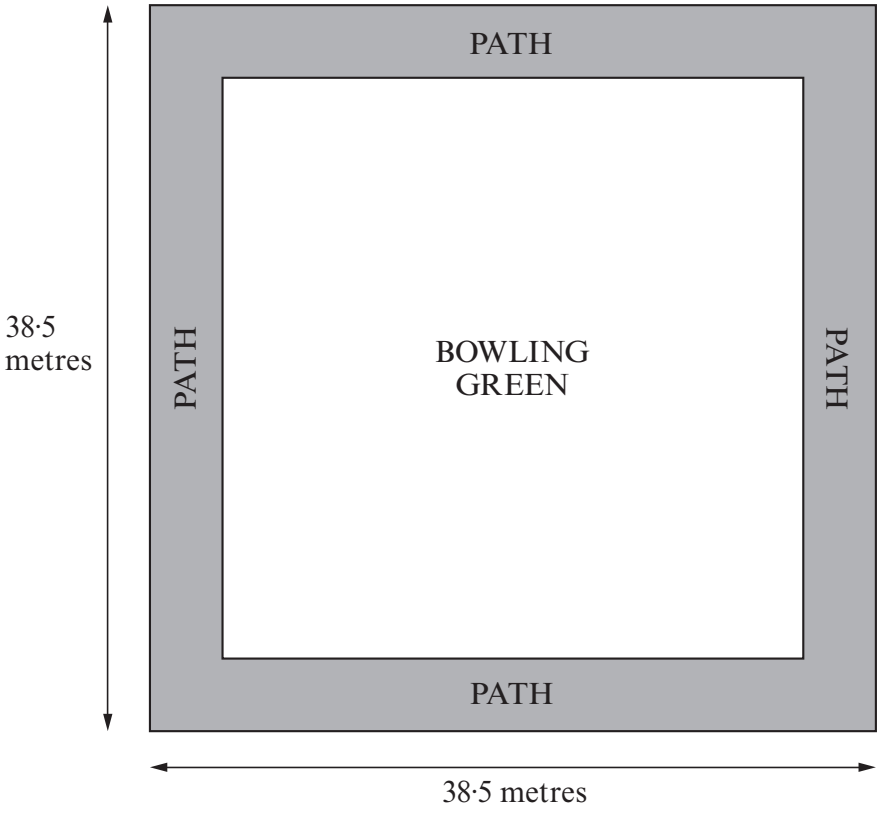


Diagram not drawn to scale

Calculate the area, in square metres, of the concrete path.

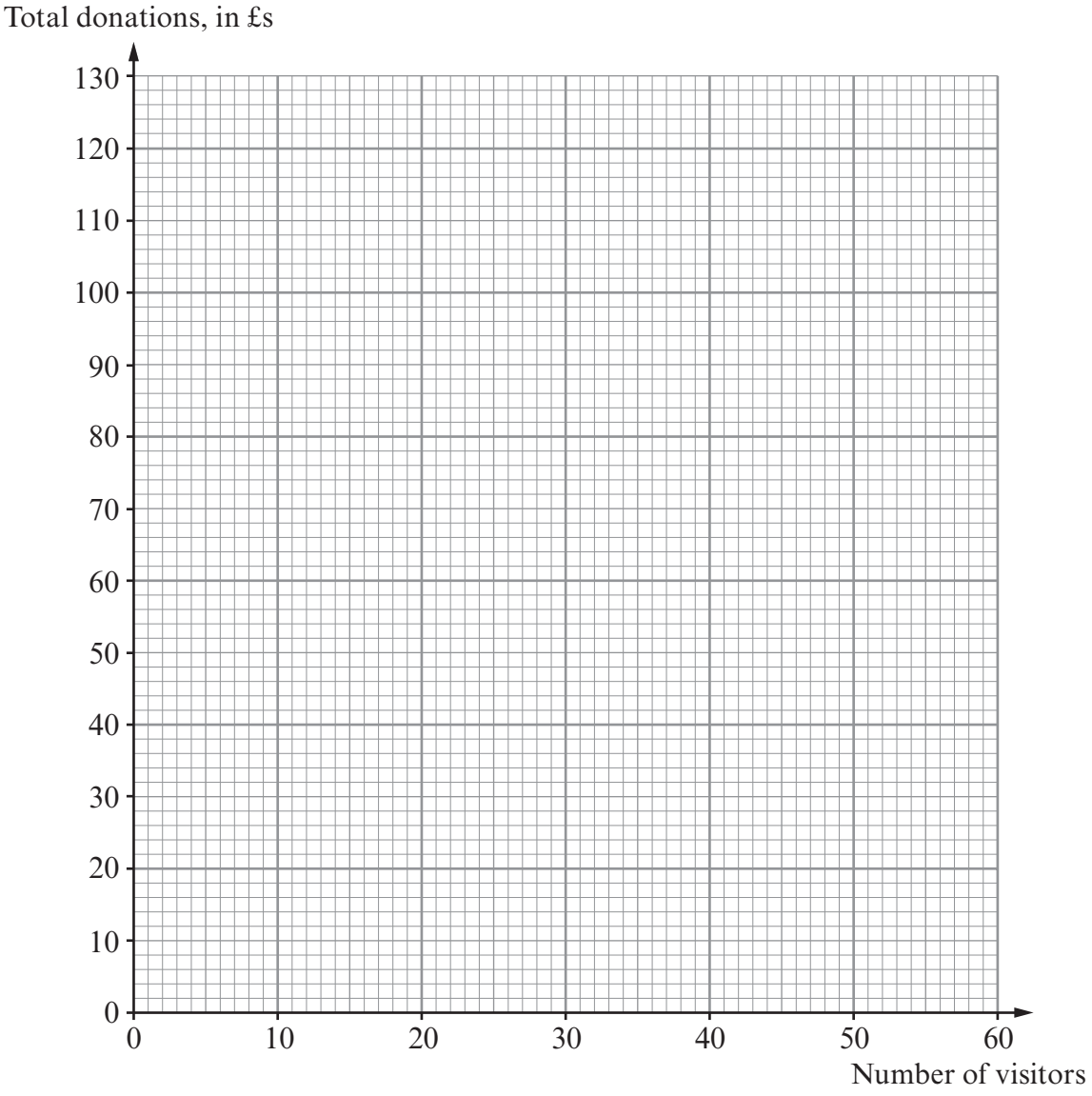
[6]

Examiner only

9. The number of visitors to an animal rescue centre and the total donations received were recorded every day for 7 days.
The table below shows the results.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of visitors	40	10	16	30	25	55	12
Total donations, in £s	90	28	46	70	62	120	100

(a) On the graph paper provided, draw a scatter diagram of these results. [2]



Examiner only

(b) Draw, by eye, a line of best fit on your scatter diagram. [1]

(c) Describe the correlation between the number of visitors and the total donations.

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[1]

(d) Which particular day does not fit the correlation?

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[1]

(e) The animal rescue centre is given a target to raise £100 a day on each of the next 5 days. The manager says this should be possible just by making sure that they advertise and get 50 visitors a day.

The number of visitors on each of the next 5 days was as follows:

62, 55, 51, 52, and 58.

Can the manager be sure of achieving her target of £100 per day in total donations? You must give a reason for your answer.

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[2]

Examiner only

10.

Maple Beech Furniture Store
Fantastic discounts available!
Ask our sales personnel for details

A large furniture store decides to offer various discounts.

Sales personnel are given the following instructions:

- When a customer's total spend is less than £400, then offer a 6% discount.
- When a customer's total spend is £400 or more, then offer a 12% discount.
- After calculating the discount, if a customer is buying more than one item, then offer a **further** 2% discount on the **already discounted price**.

(a) Construct a flowchart to show the most efficient process of giving discounts.

[6]

Examiner only

(b) Calculate how much these customers would pay when buying the following items from Maple Beech Furniture Store.

(i) Ms Johnson buys a bed for £350.

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[3]

(ii) Mr Grange buys 4 chairs for £160 **each**, and a table for £450.

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[6]

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