



Rewarding Learning

General Certificate of Secondary Education
January 2013

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Candidate Number

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Mathematics

Unit T1

(With calculator)

Foundation Tier



[GMT11]

GMT11

FRIDAY 11 JANUARY, 9.15 am–10.45 am

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page. **You must answer the questions in the spaces provided. Do not write outside the box, around each page, on blank pages or tracing paper.**

Complete in blue or black ink only. **Do not write in pencil or with a gel pen.**

Answer **all twenty-five** questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Functional Elements will be assessed in this paper.

Quality of written communication will be assessed in **questions 21 and 24.**

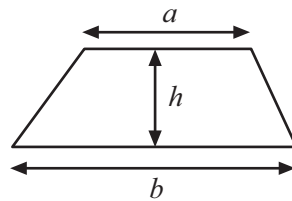
You should have a calculator, ruler, compasses and a protractor.

The Formula Sheet is overleaf.

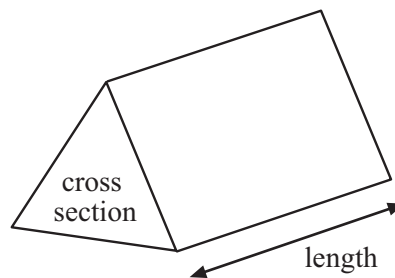


Formula Sheet

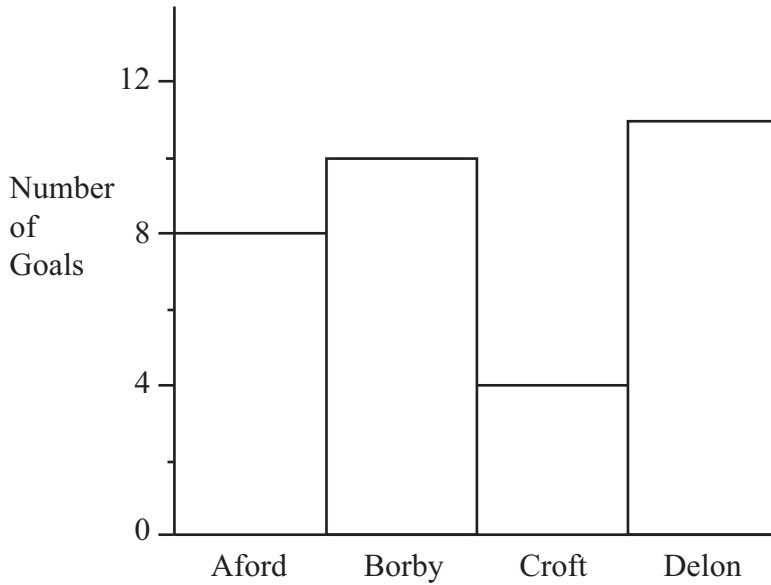
$$\text{Area of trapezium} = \frac{1}{2}(a + b)h$$



$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$



1 The bar chart shown gives the number of goals scored by four football teams during the month of December.



(a) Which team scored the smallest number of goals?

Answer _____ [1]

(b) How many more goals did Borby score than Aford?

Answer _____ [1]

(c) What was the total number of goals scored by the four teams?

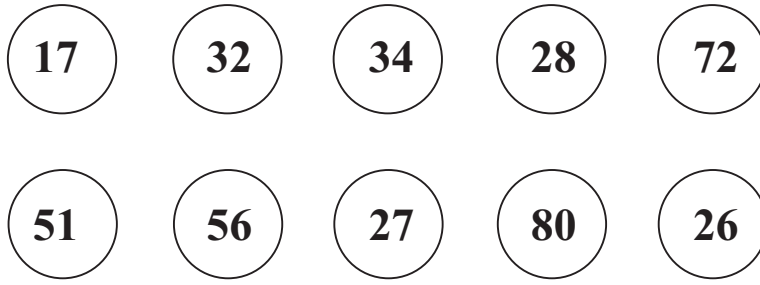
Answer _____ [2]

Examiner Only	
Marks	Remark

Total Question 1	

[Turn over]





(a) From the numbers in the circles, write down

(i) two numbers with a total of 60,

Answer _____, _____ [1]

(ii) two numbers with a difference of 40,

Answer _____, _____ [1]

(iii) a multiple of 7,

Answer _____ [1]

(iv) a cube number.

Answer _____ [1]

(b) What is the largest number you can get by multiplying any two numbers in the circles?

Answer _____ [2]

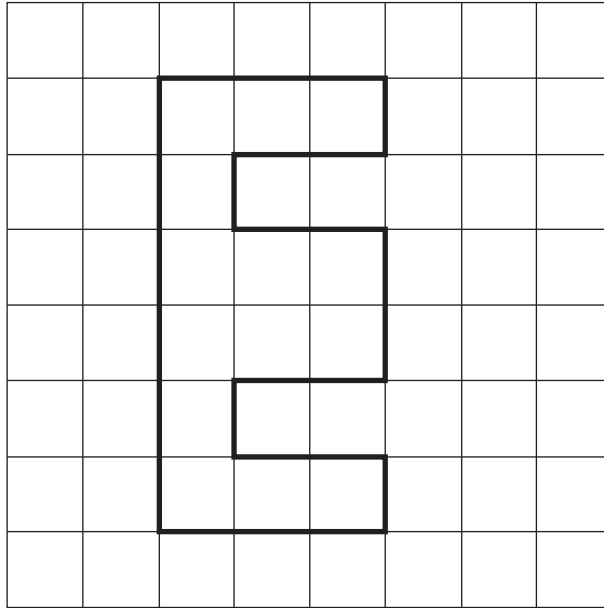
Examiner Only

Marks Remark

Total Question 2



3 The shape below is drawn on a centimetre square grid.



Calculate:

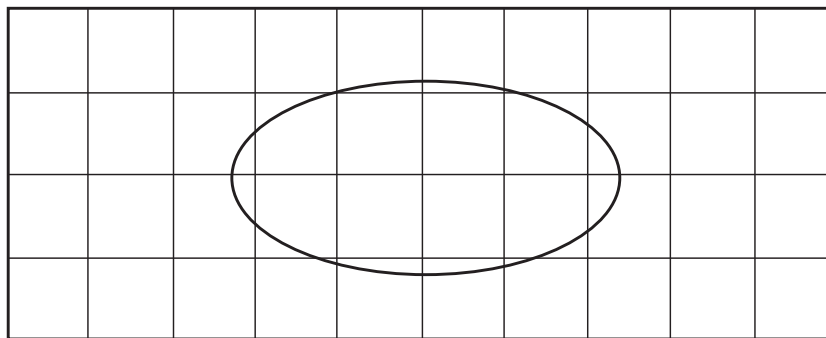
(a) the area of the shape.

Answer _____ cm^2 [1]

(b) the perimeter of the shape.

Answer _____ cm [1]

(c) An oval shape is drawn on a centimetre square grid below.



Estimate the area of the oval shape.

Answer _____ cm^2 [2]

Examiner Only

Marks Remark

Total Question 3

[Turn over

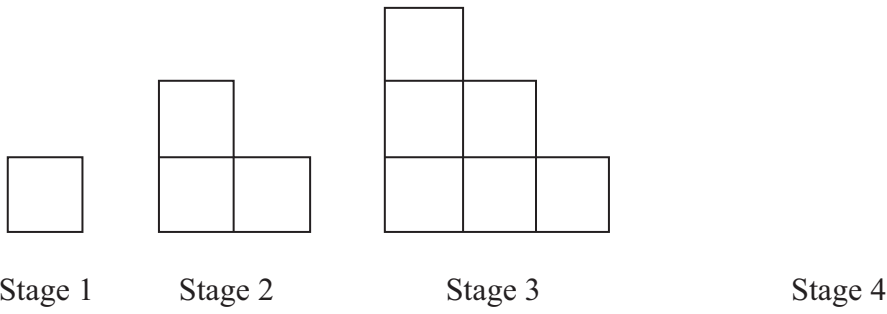


4 (a) Find the **next** term in the sequence

1000, 100, 10, 1,

Answer _____ [1]

(b) Boxes are stacked to form the pattern shown.



(i) Draw Stage 4 [1]

(ii) Complete the table below. [1]

Pattern	1	2	3	4	5
Boxes	1	3	6		

(iii) What is the special name given to the numbers in the Boxes row?

Answer _____ [1]

Examiner Only

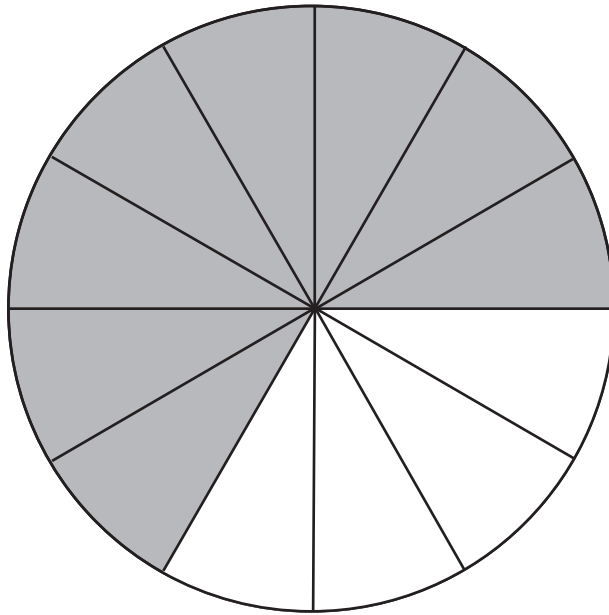
Marks Remark

Total Question 4



5 (a) What fraction of the circle is shaded?

Give your answer in its **simplest form**.



Answer _____ [2]

(b) Write $\frac{3}{5}$ as a percentage.

Answer _____ % [1]

(c) Round 6783 to the nearest 100

Answer _____ [1]

(d) Write down the number fifty-one thousand and seventy-four in figures.

Answer _____ [1]

(e) Write 35% as a decimal.

Answer _____ [1]

Examiner Only

Marks

Remark

Total Question 5

[Turn over



- 6 The number of letters delivered to the houses in a street were recorded in this frequency table.

Number of Letters	Frequency
1	9
2	4
3	7
4	5
5	1
6	3

- (a) Write down the modal number of letters delivered.

Answer _____ [1]

- (b) Write down the range of the number of letters delivered.

Answer _____ [1]

- (c) How many houses are there in the street?

Answer _____ [1]

Examiner Only

Marks Remark

Total Question 6



7 Caroline bought 3.5 kg of onions at 32p per kilogram and 3 bags of potatoes at £1.74 per bag.

(a) How much did she spend in total?

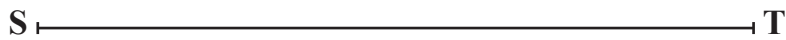
Answer £ _____ [3]

(b) What change did she get from £10?

Answer £ _____ [1]

Examiner Only	
Marks	Remark
Total Question 7	

8



(a) Measure the length of the line ST.

Answer _____ [2]

(b) On the diagram above, mark with × the midpoint of the line ST.

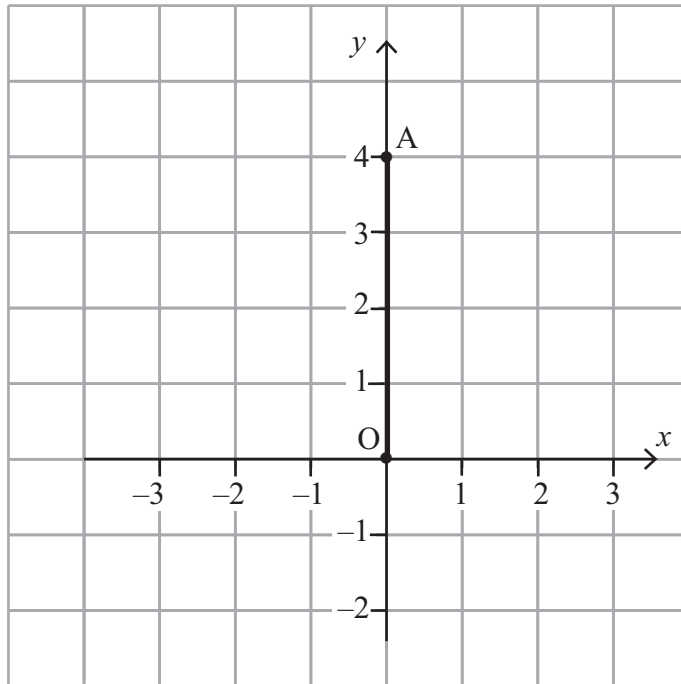
[1]

Total Question 8	

[Turn over



9 On the grid two points A and O are plotted and joined by a straight line.



(a) Write down the coordinates of A.

Answer (_____, _____) [1]

(b) C is to be plotted so that angle AOC is obtuse. Write down possible coordinates for C.

Answer (_____, _____) [1]

Examiner Only

Marks Remark

Total Question 9



- 10 In the diagram of the triangle ABC below, $AB = AC$.
Angle $ABC = 49^\circ$.

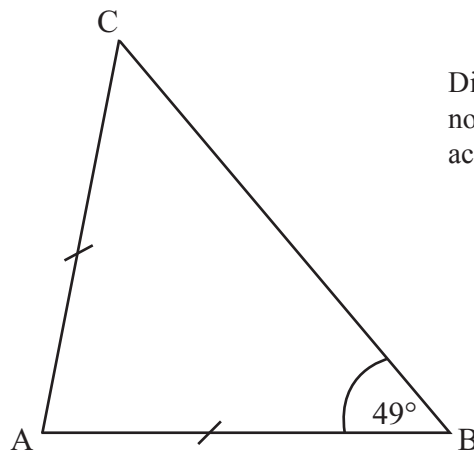


Diagram
not drawn
accurately

- (a) What type of angle is 49° ?

Answer _____ [1]

- (b) What type of triangle is ABC?

Answer _____ [1]

- (c) Write down the size of the angle BCA.

Answer _____ $^\circ$ [1]

- (d) Calculate the size of the angle BAC.

Answer _____ $^\circ$ [2]

Examiner Only

Marks Remark

Total Question 10

[Turn over



- 11 The distances in kilometres between five towns are shown in the table below.

	Billo					
24		Collen				
35		20		Disford		
28		34		27	Entwane	
26		20		18	33	Follony

- (a) What is the distance between Collen and Entwane?

Answer _____ km [1]

- (b) Which town is the furthest away from Billo?

Answer _____ [1]

- (c) Which two towns are closest together?

Answer _____ and _____ [1]

- (d) Petra travels from Billo to Follony and then travels on to Disford. How many kilometres in total has she travelled when she reaches Disford?

Answer _____ [2]

Examiner Only

Marks Remark

Total Question 11



12 There are 8000 drawing pins to be packed into boxes. Each box contains 72 drawing pins when full. As many boxes as possible are completely filled.

(a) How many full boxes are there?

Answer _____ [2]

(b) How many drawing pins are left over?

Answer _____ [1]

Examiner Only

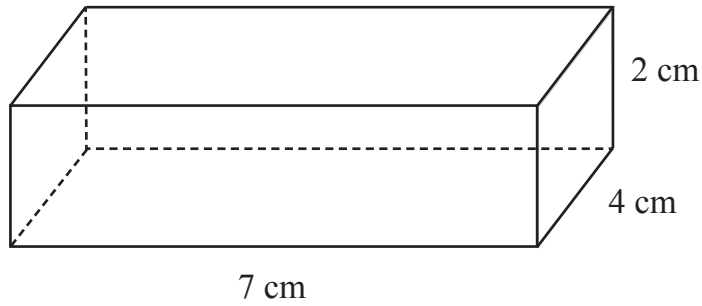
Marks Remark

Total Question 12

[Turn over



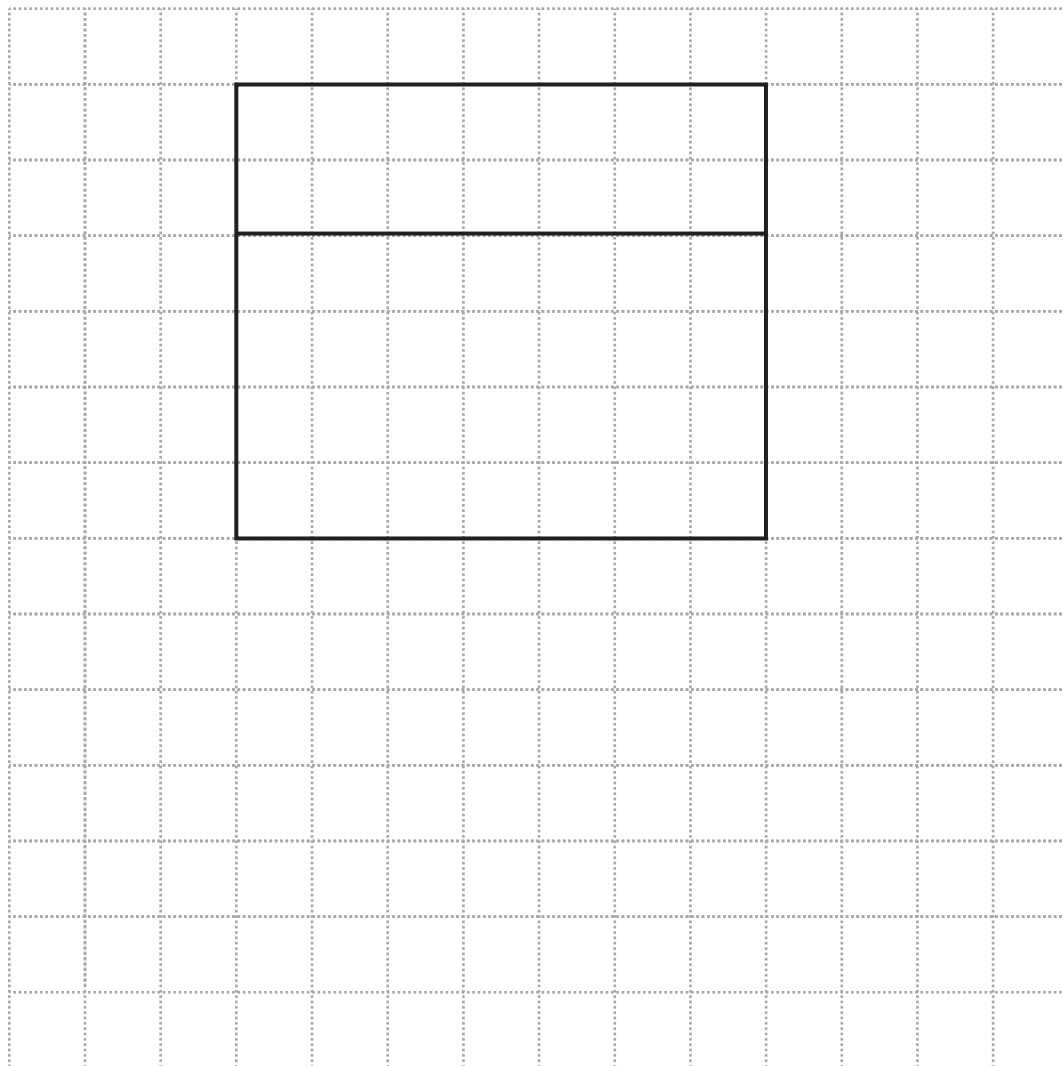
13 The diagram shows a cuboid.



(a) Work out the volume of the cuboid.

Answer _____ cm^3 [2]

(b) On the centimetre grid below complete a net of the cuboid.



[3]

Examiner Only

Marks Remark

Total Question 13



14 The marks in a French test scored by the pupils in a class were

33, 30, 26, 35, 27, 19, 37, 24, 31, 18

(a) Find the median of these marks.

Answer _____ [2]

(b) Find the mean mark of the class.

Answer _____ [3]

Examiner Only

Marks Remark

Total Question 14

[Turn over



15 The table below shows the lowest temperatures in four cities on a winter's night.

City	Temperature ($^{\circ}\text{C}$)
London	-3
Belfast	-8
Oslo	-12
Madrid	7

(a) Write down the difference in temperature between

(i) Madrid and Belfast,

Answer _____ $^{\circ}\text{C}$ [1]

(ii) Oslo and London.

Answer _____ $^{\circ}\text{C}$ [1]

(b) The next day all these temperatures rose by 7°C .
Write down the temperature for the next day in

(i) London,

Answer _____ $^{\circ}\text{C}$ [1]

(ii) Oslo.

Answer _____ $^{\circ}\text{C}$ [1]

Examiner Only

Marks Remark

Total Question 15



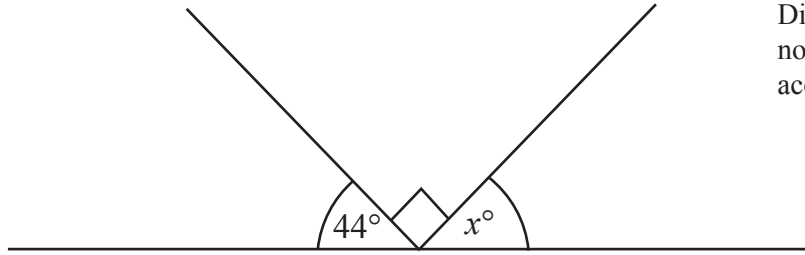


Diagram
not drawn
accurately

- (a) Work out the value of x .

Answer $x =$ _____ [1]

- (b) Give a reason for your answer.

_____ [1]

Examiner Only

Marks Remark

Total Question 16

[Turn over



- 17 (a) Norman's yearly salary is £18 000. This is increased by 8%.
How much extra is this **per month**?



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Answer £ _____ [3]

- (b) Write down a factor of 85 between 10 and 20

Answer _____ [1]

Examiner Only

Marks Remark

Total Question 17



- 18 Claire buys 3 pens at k pence each.
Claire pays with a 50p coin.
Write an expression, in terms of k , for the change in pence she should receive.

Answer _____ [2]

- 19 (a) Calculate $\sqrt{7.29}$

Answer _____ [1]

- (b) Write these three numbers in order starting with the smallest.

0.698 0.73 0.6899

Answer _____ , _____ , _____ [1]

- (c) Write down the next two prime numbers after 43

Answer _____ , _____ [2]

- (d) Find the cube root of 125

Answer _____ [1]

Examiner Only

Marks Remark

Total Question 18

Total Question 19

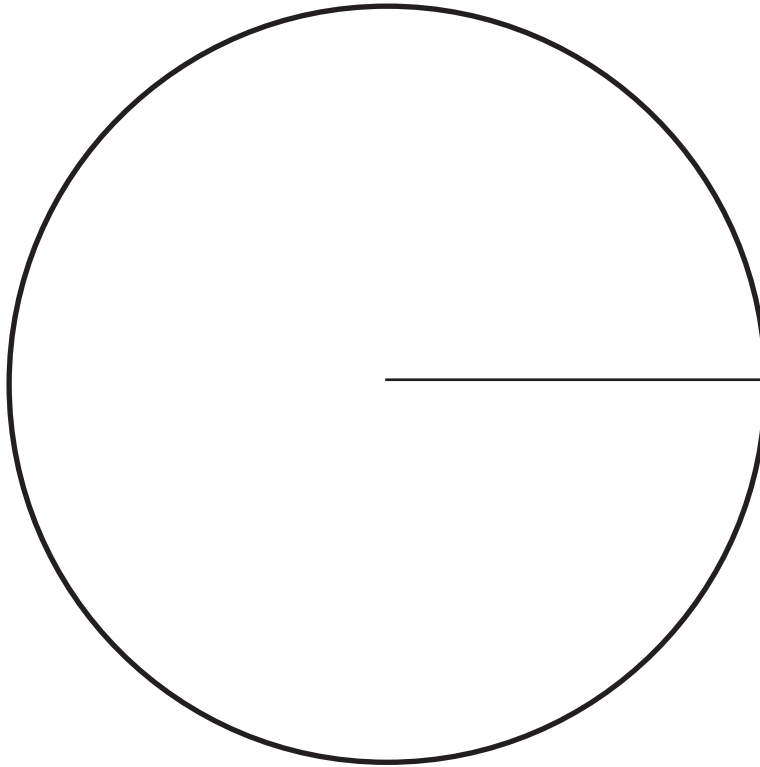
[Turn over



20 The table below shows the number of different types of birds on a lake.

BIRD	TERNs	WADERS	GEESE	DUCKs	SWANs
NUMBER	50	20	30	10	10
ANGLE					

Draw a clearly labelled pie chart to show the number of different types of birds.



[4]

Examiner Only	
Marks	Remark
Total Question 20	



21 Quality of written communication will be assessed in this question.
Show your working.



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A TV costs £265
Sam pays a deposit of £85 for this TV.
He then pays £15 each month.
How many complete months will it take before he has paid for the TV?
Explain your working clearly, using words and numbers.

Answer _____ months [3]

Examiner Only

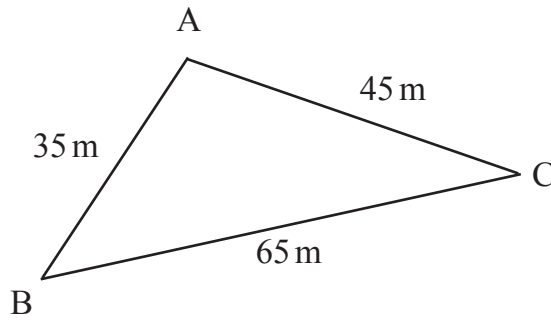
Marks Remark

Total Question 21

[Turn over



22 (a) The diagram below shows a rough sketch of a triangular plot of land.



Using ruler and compasses only, make an accurate scale drawing below of the plot of land.

Use a scale of 1 cm to represent 5 metres.

[3]

(b) The diagram below represents the positions of Armagh and Portadown. Calculate the actual distance between them.



Answer _____ km [2]

Examiner Only	
Marks	Remark
Total Question 22	



23 (a) Calculate $3^2 \times 8^3$

Answer _____ [1]

(b) Calculate $3.6^2 + \sqrt{2.89}$

Answer _____ [2]

Examiner Only

Marks Remark

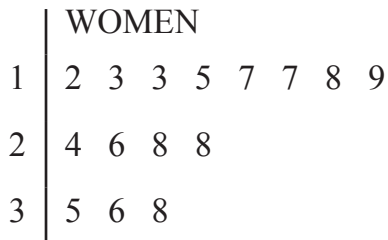
Total Question 23

[Turn over



24 Quality of written communication will be assessed in this question. Show your working.

The times, in minutes, taken by 15 women to complete a crossword are shown in this stem and leaf diagram.



Key: 2 | 4 means 24 minutes

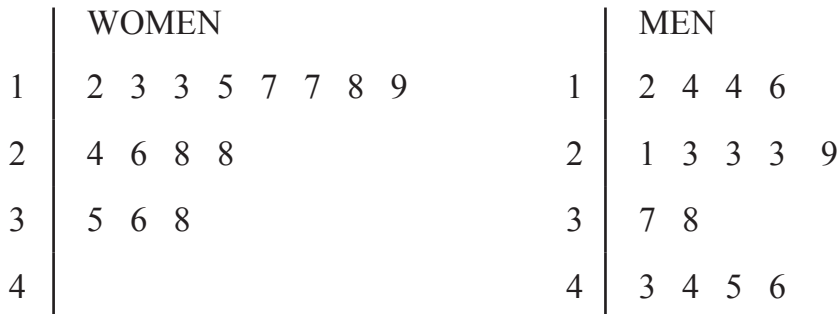
(a) Find the range of the women's times.

Answer _____ [1]

(b) Find the median of the women's times.

Answer _____ [1]

The women's times were then compared with the times of 15 men in this new stem and leaf diagram.



Key: 2 | 4 means 24 minutes

(c) The men say that they were quicker at completing the crossword. Do you agree? Give a reason for your answer.

_____ because _____
 _____ [2]

Examiner Only	
Marks	Remark
Total Question 24	



25 (a) Expand $4(3t - 1)$

Answer _____ [2]

(b) Solve $\frac{y}{4} = 8$

Answer $y =$ _____ [1]

(c) Solve $3p - 2 = 16$

Answer $p =$ _____ [2]

Examiner Only

Marks Remark

Total Question 25



THIS IS THE END OF THE QUESTION PAPER





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For Examiner's use only	
Question Number	Marks
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Total Marks	
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Examiner Number

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