



Rewarding Learning

General Certificate of Secondary Education  
2012

--	--	--	--	--

Candidate Number

--	--	--	--

StudentBounty.com

## Mathematics

Unit T2

(With calculator)



Foundation Tier

[GMT21]



\*GMT21\*

WEDNESDAY 6 JUNE 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.

Write your answers in the spaces provided in this question paper.

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

Answer **all twenty-two** 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 1, 4 and 10.**

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

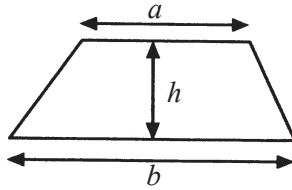
The Formula Sheet is overleaf.

7417

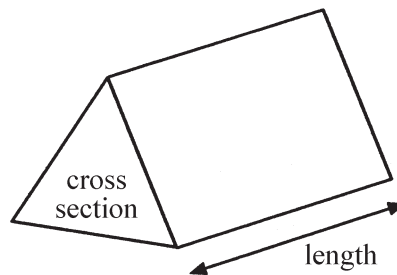


# Formula Sheet

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



**Volume of prism** = area of cross section  $\times$  length



Quality of written communication will be assessed in this question.

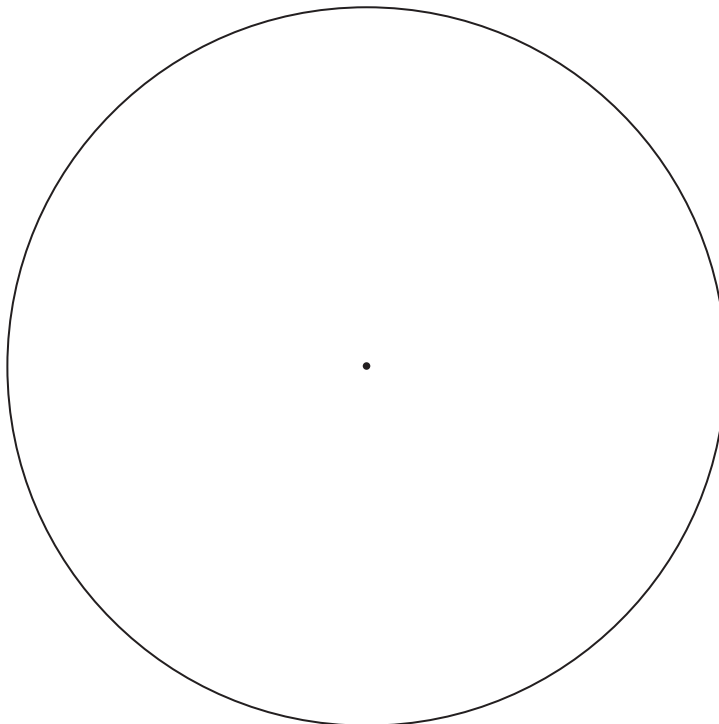
- 1 (a) Show how to work out  $\frac{7}{12} - \frac{1}{2}$  if you do not have a calculator.

[2]

- (b) The following table gives the numbers of the pets owned by a group of primary school children.

Pet	Dog	Cat	Rabbit	Guinea Pig
Number of children	55	35	20	10
Angle				

Draw a pie chart to illustrate this data.



[4]

Examiner Only

Marks Remark

Total Question 1

--	--

[Turn over





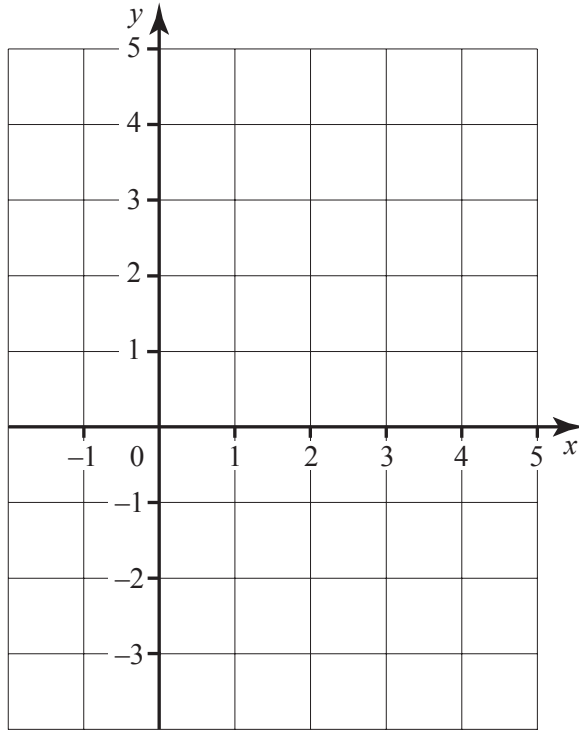




5 Complete the table below and hence draw the graph of  $y = 2x - 3$

$x$	0	1	2	3	4
$y$	-3		1		5

[1]



[2]

Examiner Only	
Marks	Remark

Total Question 5	

[Turn over



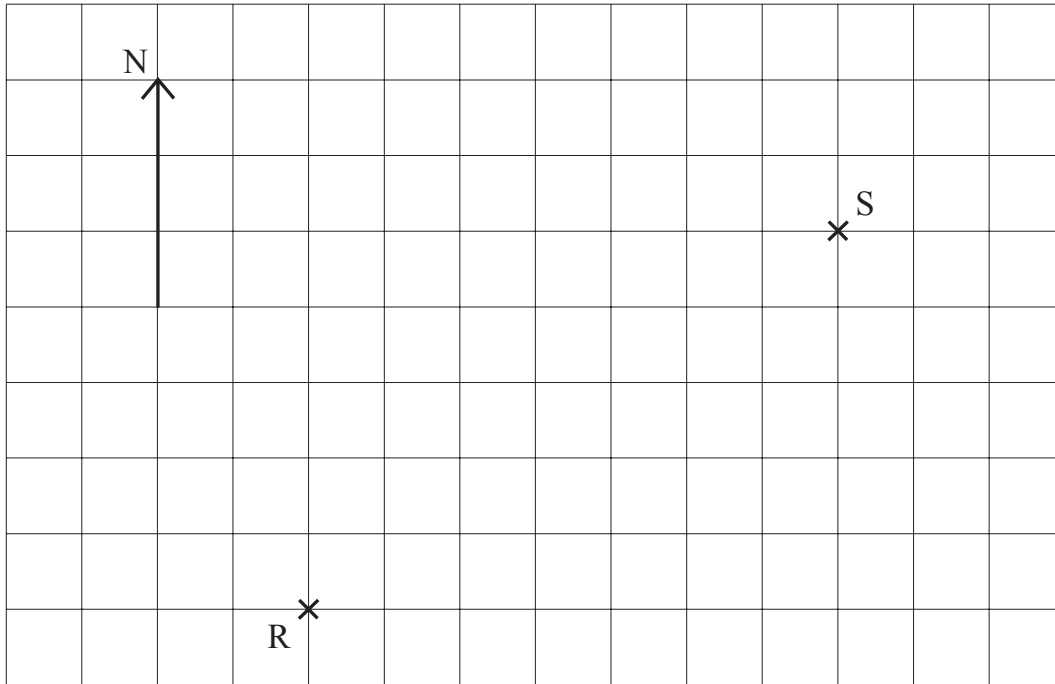








9 Two lighthouses are at the points R and S on the diagram.



(a) What is the bearing of S from R?

Answer \_\_\_\_\_° [1]

(b) What is the bearing of R from S?

Answer \_\_\_\_\_° [1]

(c) The scale of the drawing is 1 cm to 4 km.

What is the actual distance between the two lighthouses?

Answer \_\_\_\_\_ km [3]

Examiner Only	
Marks	Remark
Total Question 9	

[Turn over



Quality of written communication will be assessed in this question.

10 Jacob wants to investigate the hypothesis

**“Children watch more television than adults.”**

He surveys 8 boys in his class and 8 teachers in his school.

Give **two** reasons why his sample is unsuitable.

Reason 1 \_\_\_\_\_ [1]

Reason 2 \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark
Total Question 10	



11 Liz buys  $x$  markers at 90p each and 3 books at £1.20 each. The total cost is £13.50

Write down an equation and solve it to find  $x$ .

Equation \_\_\_\_\_

Answer  $x =$  \_\_\_\_\_ [4]

Examiner Only

Marks Remark

Total Question 11

[Turn over

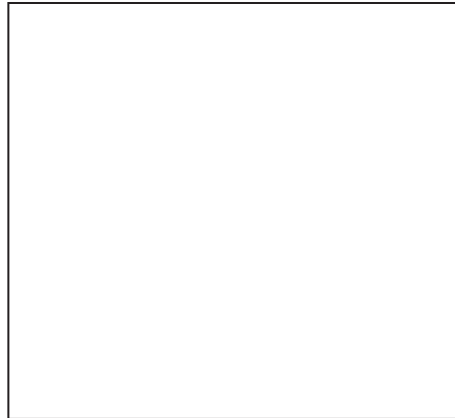




13 (a) Calculate the circumference of a circular garden with radius 5.4 m.

Answer \_\_\_\_\_ m [2]

(b) The area of the rectangle below is  $33 \text{ cm}^2$ .



Change  $33 \text{ cm}^2$  into  $\text{mm}^2$ .

Answer \_\_\_\_\_  $\text{mm}^2$  [2]

Examiner Only

Marks Remark

Marks	Remark



(c) Find the area of a triangle with base 9 cm and perpendicular height 6 cm.

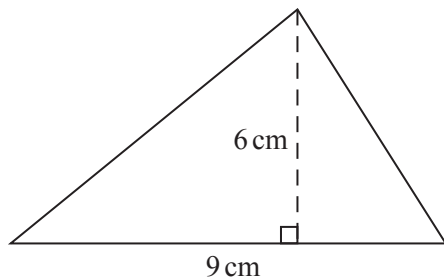


Diagram not  
drawn accurately

Answer \_\_\_\_\_ [3]

Examiner Only	
Marks	Remark
Total Question 13	









16 Write down the  $n$ th term of the following sequences:

(a) 6, 12, 18, 24, .....

Answer \_\_\_\_\_ [1]

(b) 3, 8, 13, 18, .....

Answer \_\_\_\_\_ [2]

Examiner Only

Marks Remark

Total Question 16

[Turn over

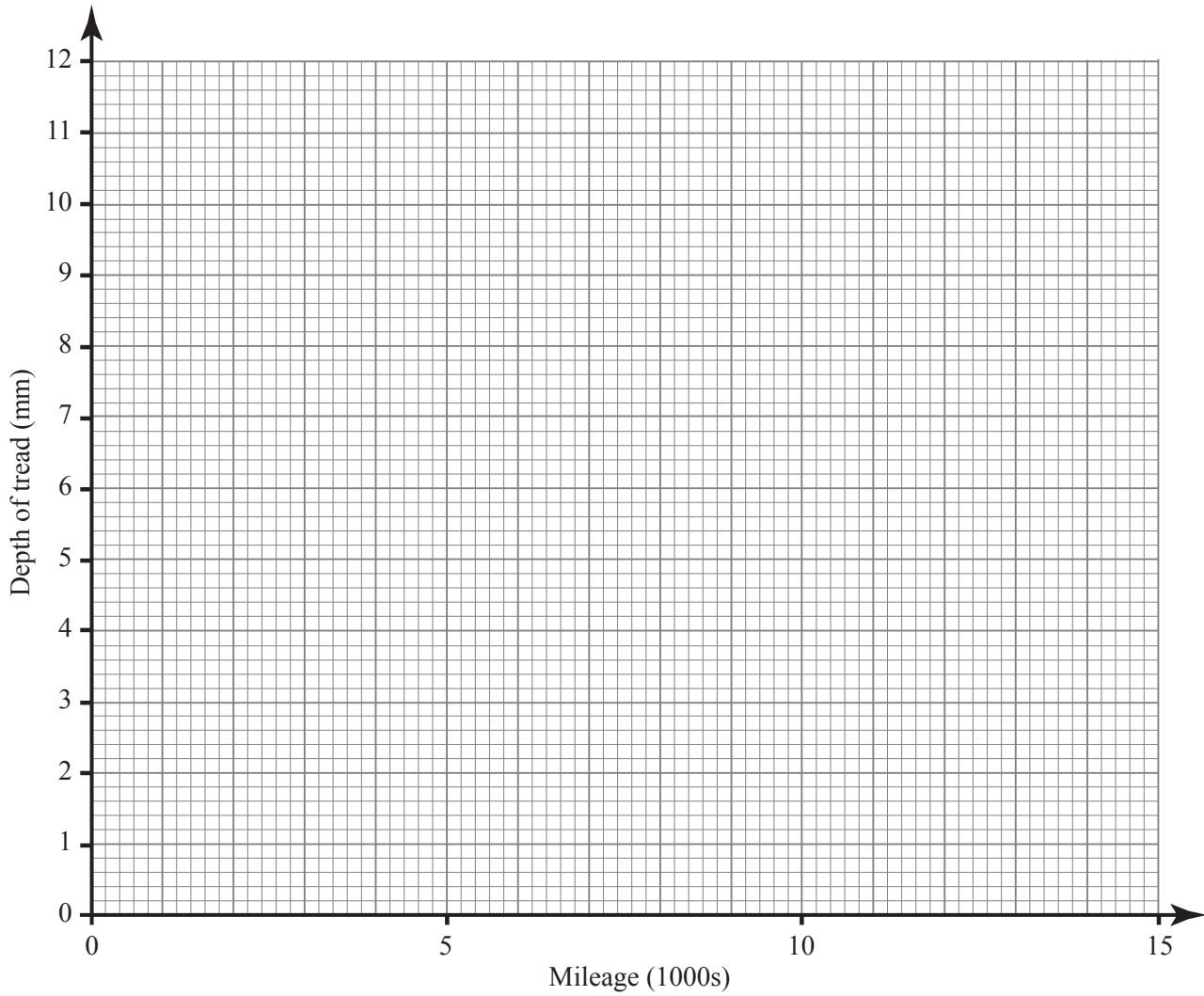




18 The mileage on seven cars (in 1000s of miles) and the depth of tread on the tyres (in mm) were recorded. The table shows the results.

Mileage (1000s)	3	8	12.5	9	6	15	4.5
Depth of tread (mm)	9.4	7.7	10.6	7.4	8.4	4.9	8.7

(a) Draw a scatter graph for this data.



[2]

Examiner Only	
Marks	Remark

[Turn over





- 19 (a) P is the point (1, 4). Q is the point (7, -2). Find the co-ordinates of the midpoint of PQ.

Answer (\_\_\_\_\_, \_\_\_\_\_) [2]

- (b) Calculate the size of the interior angle of a regular nonagon (nine-sided polygon).

Answer \_\_\_\_\_° [2]

- (c) Calculate the area of a semi-circle with diameter 6 cm.

Answer \_\_\_\_\_ cm<sup>2</sup> [2]

Examiner Only

Marks Remark

Total Question 19

[Turn over



20 The table shows the ages of people visiting the town library one Saturday morning.

Age	Frequency
$0 < A \leq 10$	7
$10 < A \leq 20$	4
$20 < A \leq 30$	5
$30 < A \leq 40$	4
$40 < A \leq 50$	18
$50 < A \leq 60$	20
$60 < A \leq 70$	22

(a) Write down the class interval which contains the median age.

Answer \_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

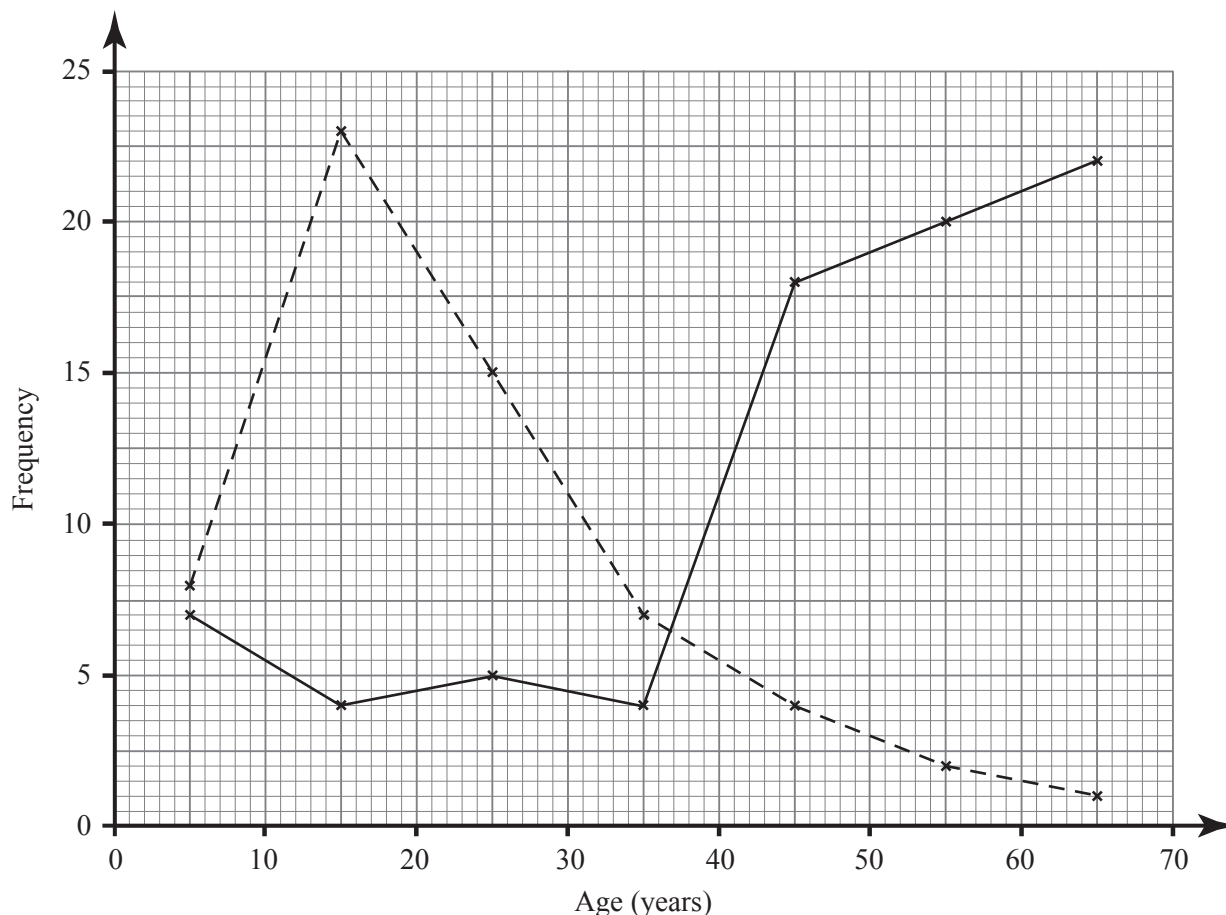




(b) The frequency polygon below (solid line) illustrates the data recorded at the library.

A second frequency polygon (broken line) illustrates the ages of people visiting a different place in the same town on the Saturday morning.

By considering the polygons suggest what the second place might be.  
Give a reason for your answer.



Answer \_\_\_\_\_ because \_\_\_\_\_

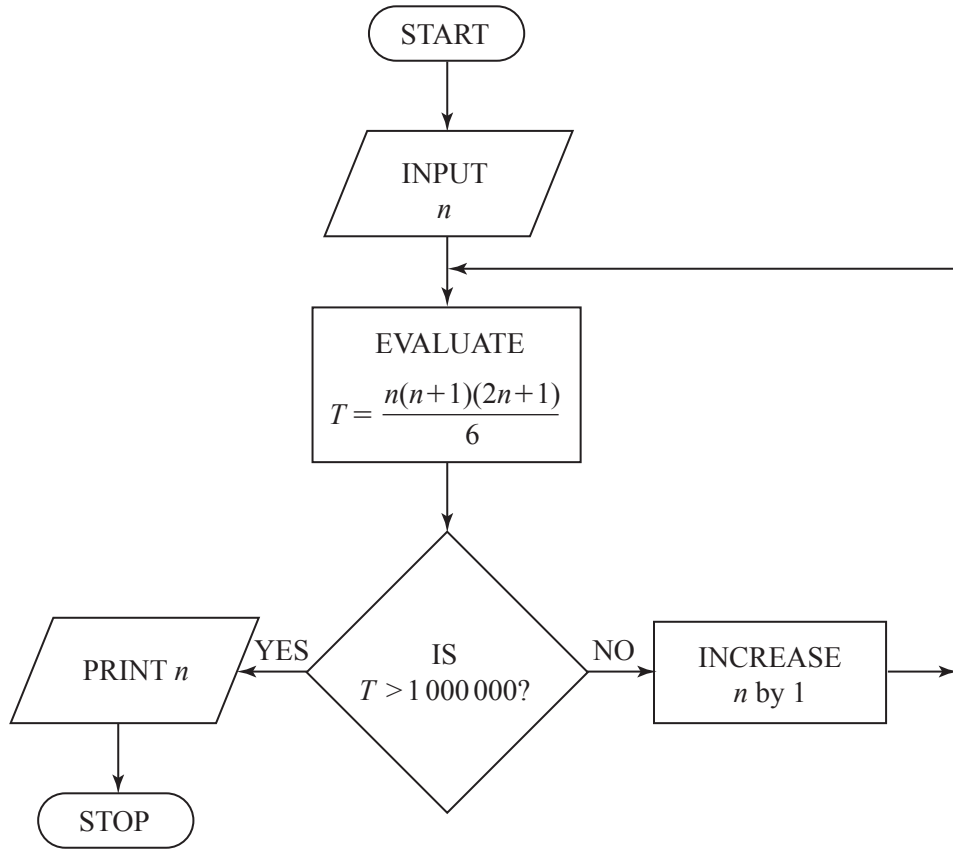
\_\_\_\_\_ [2]

Examiner Only	
Marks	Remark
Total Question 20	

[Turn over



21 The sum,  $T$ , of the first  $n$  squares, i.e.  $1^2 + 2^2 + 3^2 + \dots + n^2$ , is known to be  $\frac{n(n+1)(2n+1)}{6}$ . The flow diagram can be used to find the least value of  $n$  for which  $T$  is greater than 1 000 000.



Examiner Only	
Marks	Remark









**DO NOT WRITE ON THIS PAGE**



**DO NOT WRITE ON THIS PAGE**





**DO NOT WRITE ON THIS PAGE**



**DO NOT WRITE ON THIS PAGE**

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
QWC	

<b>Total Marks</b>	
--------------------	--

Examiner Number

Permission to reproduce all copyright material has been applied for.  
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.

