



General Certificate of Secondary Education  
2017

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

# Mathematics

Unit T1  
(With calculator)  
Foundation Tier



[GMT11]

\*GMT11\*

**THURSDAY 25 MAY, 9.15am–10.45am**

## 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 boxed area on each page, on blank pages or tracing paper.**

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

Answer **all twenty-eight** questions.

All working should be clearly shown in the spaces provided. 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 Question 17.

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

The Formula Sheet is on page 2.

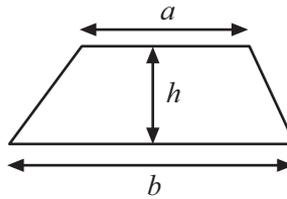
10600



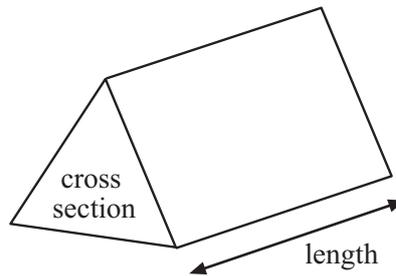
\*28GMT1101\*

# Formula Sheet

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



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





**BLANK PAGE**  
**DO NOT WRITE ON THIS PAGE**  
**(Questions start overleaf)**

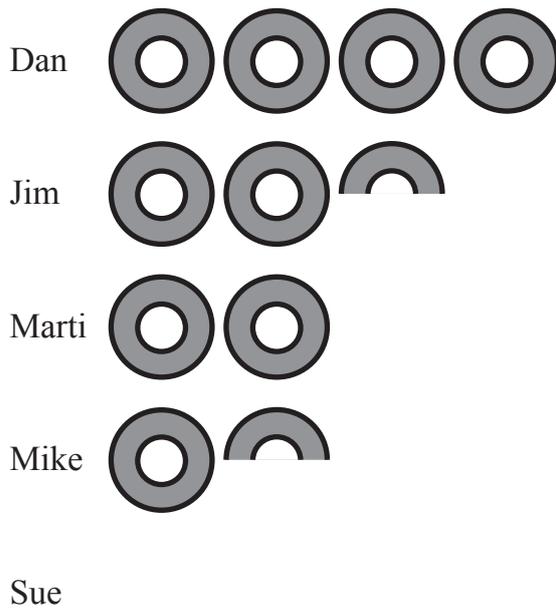
**[Turn over**

10600



\*28GMT1103\*

1 The pictogram shows the number of votes for some singers in a Talent Show.



(a) Dan received 40 votes. Complete the key.

 represents \_\_\_\_\_ votes [1]

(b) How many votes did Jim receive?

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

(c) How many more votes than Mike did Marti receive?

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

(d) The total number of votes was 155

Complete the row for Sue.

[2]



2

4 6 8 9 11 14 15 17 20

From the list of numbers, write down

(a) a multiple of 7, Answer \_\_\_\_\_ [1]

(b) a factor of 81, Answer \_\_\_\_\_ [1]

(c) two prime numbers, Answer \_\_\_\_\_ and \_\_\_\_\_ [1]

(d) two numbers whose product is 54,  
Answer \_\_\_\_\_ and \_\_\_\_\_ [1]

(e) two numbers whose difference is a square number.  
Answer \_\_\_\_\_ and \_\_\_\_\_ [2]

3 Draw a line to join each item to the metric unit used to measure it.

Distance from Armagh to Omagh

millilitre  
millimetre  
centimetre

Weight of a plum

metre  
litre  
gram

Volume of a spoonful of medicine

kilogram  
kilometre

[3]

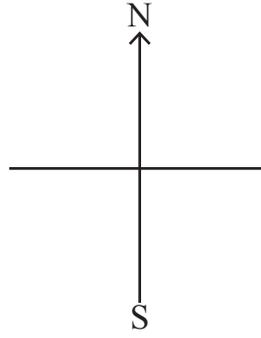
[Turn over]

10600



\*28GMT1105\*

4



(a) Mark the compass points E and W on the diagram above. [1]

(b) Ally is facing North and turns  $180^\circ$

What direction is she now facing?

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

(c) Ellie is facing West. She wants to face South West. Through what angle should she turn?

Answer \_\_\_\_\_  $^\circ$  [1]

(d) Olly is facing North East. He turns  $90^\circ$

What are the two directions he could be facing?

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



5

## CHOC BARS

Single	45p each
Pack of 4	£1.50
Pack of 7	£2.50

Ciara bought 3 single bars and a pack of 7

Donna bought 2 single bars and two packs of 4

Work out what each person paid.

Who has paid more for 10 bars and how much more?

Answer \_\_\_\_\_ paid \_\_\_\_\_ more [5]

[Turn over

10600



\*28GMT1107\*

6 (a) Draw a circle of diameter 10 cm, centre O below.

O<sup>x</sup>

[1]

(b) Mark a point P on the circumference of the circle.

[1]

(c) Draw a chord PQ of length 8 cm.

[1]

(d) Mark the middle of the chord PQ and label it M.

[1]



7 Write 0.7 as

(a) a fraction,

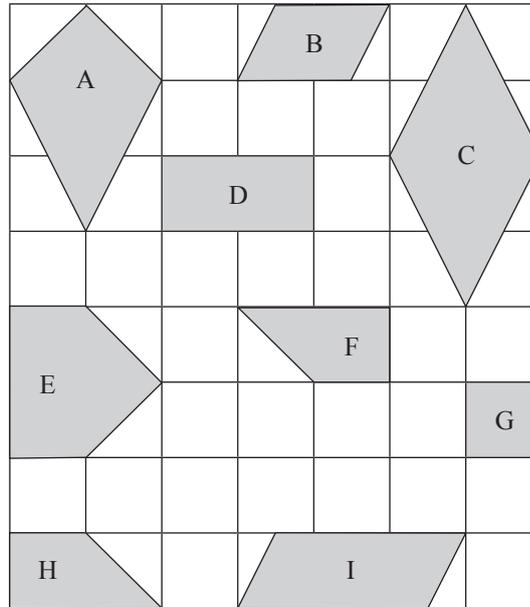
Answer \_\_\_\_\_ [1]

(b) a percentage.

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



8 This is a grid of 1 cm squares.



(a) Write down the name of shape

(i) A Answer \_\_\_\_\_ [1]

(ii) B Answer \_\_\_\_\_ [1]

(iii) C Answer \_\_\_\_\_ [1]

(iv) D Answer \_\_\_\_\_ [1]

(b) Which two of the shapes are congruent?

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

(c) What is the area of shape A?

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

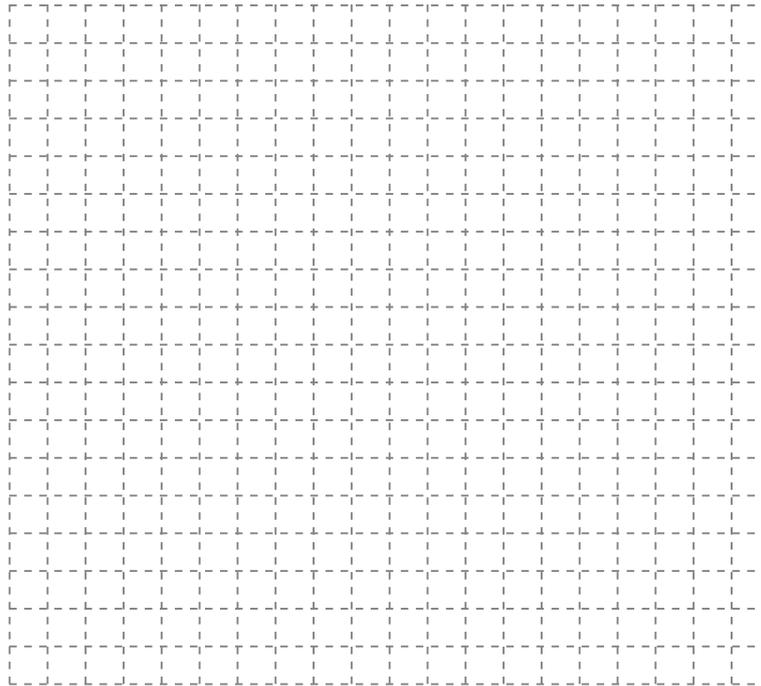


9 Tracey recorded the colours of T-shirts sold during the week.

Colour	Number sold
White	9
Red	6
Green	6
Black	12
Yellow	4

(a) Draw a bar chart on the grid to show this information.

[3]



(b) What was the most popular colour?

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

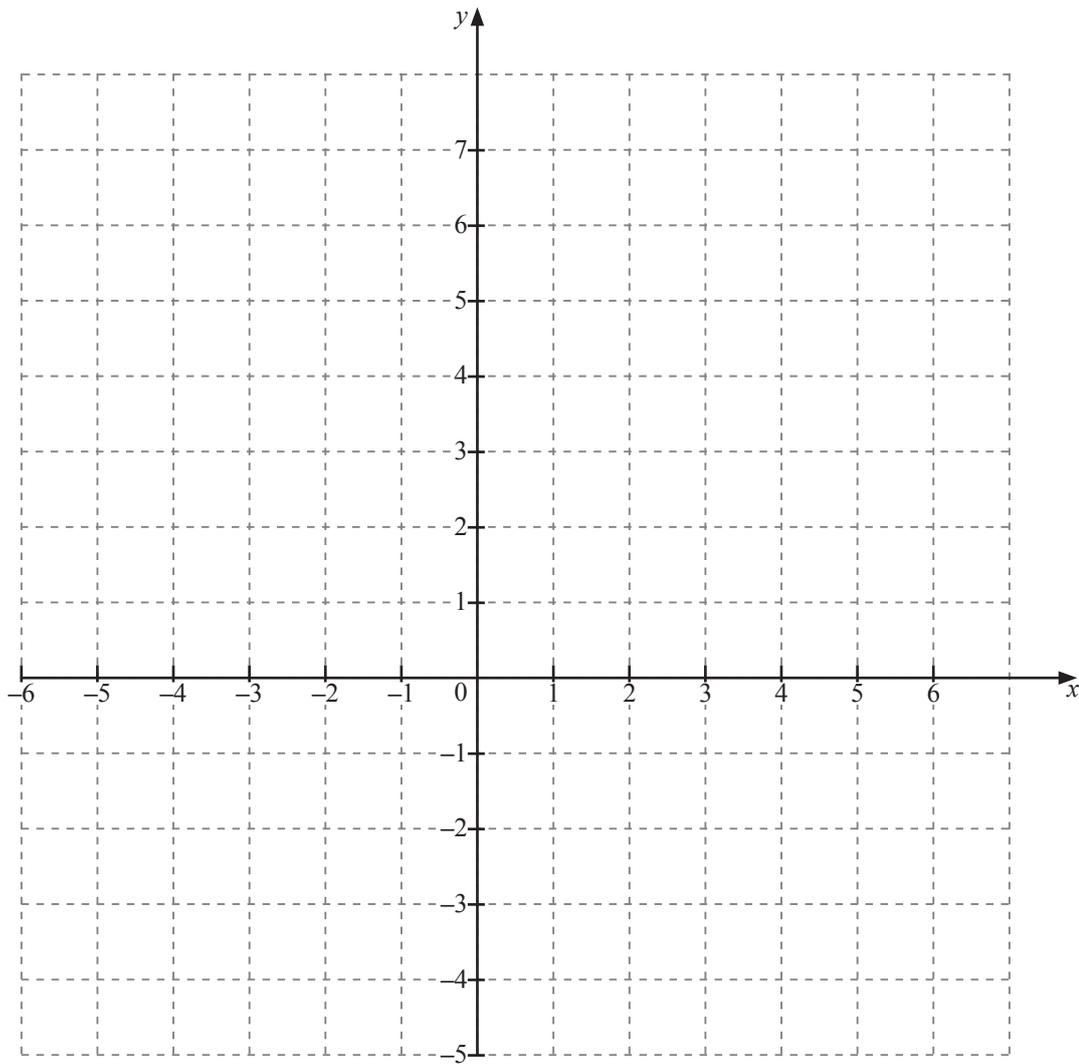
(c) What was the total number of T-shirts sold?

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

[Turn over



10



Plot and label the points A (3, -4) and B (-4, -1).

[2]



11 Peter earns £14 000 per year.

He gets an increase of 3%.

(a) How much money is this increase per year?

Answer £ \_\_\_\_\_ [2]

(b) How much money is this increase per month?

Answer £ \_\_\_\_\_ [1]



12 The ages (in years) of 12 players in a team are

15	16	17	16	17	17
18	15	14	15	17	18

(a) Find the mean of the ages.

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

(b) Find the median of the ages.

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

(c) Find the range of the ages.

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



13

Distances between towns (miles)

A					
20	B				
15	17	C			
34	15	30	D		
32	34	19	47	E	
7	16	12	31	30	F

- (a) What is the distance from town B to town E?

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

- (b) John travelled from town B to another town, then on to town E.

The total distance was 46 miles.

Name the other town, showing your work.

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

[Turn over

10600



\*28GMT1115\*

14 The midnight temperatures in four cities were

Oslo  
-11°C

Copenhagen  
-2°C

Paris  
3°C

Lisbon  
8°C

(a) What was the difference in temperature between Oslo and Copenhagen?

Answer \_\_\_\_\_ °C [1]

(b) What was the difference in temperature between Copenhagen and Lisbon?

Answer \_\_\_\_\_ °C [1]

(c) The temperature in Stockholm was 3°C colder than Oslo.

What was the temperature in Stockholm?

Answer \_\_\_\_\_ °C [1]



- 15 Harry has saved £15 each week for seven weeks.  
He wants to buy a bike costing £285  
How much would he need to save each week for the next eight weeks to pay for the bike in full?

Answer £ \_\_\_\_\_ [4]

16 COACH HIRE (day trip)

50 seater coach	£200
40 seater coach	£180

- (a) What is the lowest cost to hire coaches for a group of 198 passengers for the day trip?

Answer £ \_\_\_\_\_ [2]

- (b) What is the lowest cost to hire coaches for a group of 378 passengers for the day trip?

Answer £ \_\_\_\_\_ [3]

[Turn over



Quality of written communication will be assessed in this question.

17 Without using a calculator, find the cost of 26 mobile phones at £97 each.

Show your working clearly.

Answer £ \_\_\_\_\_ [3]

18 (a) Calculate  $\frac{4}{0.8^2}$

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

(b) Calculate  $1.4^2 + \sqrt{2.89}$

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



19 Four equilateral triangles and a square are joined together as shown in the diagram.

Calculate the size of angle  $g$ .

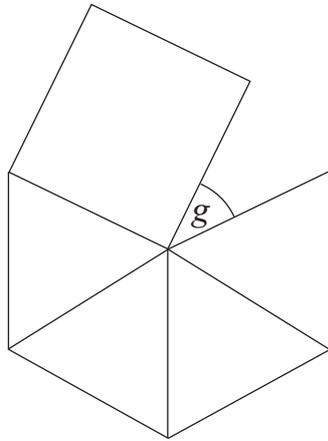


diagram not  
drawn accurately

Answer  $g =$  \_\_\_\_\_  $^{\circ}$  [3]



- 20 Karen needs a taxi to make a journey of 7.6 miles. She can use TOM'S TAXI or TAXI FOR U.

**TOM'S TAXI**

**First mile (or part) £2.50**

**Each extra mile (or part) £1**

**TAXI FOR U**

**First mile (or part) £2.80**

**Each extra mile (or part) 80p**

Which taxi firm should she use and how much cheaper is it?

Show your working clearly.

Answer \_\_\_\_\_

£ \_\_\_\_\_ [3]



21 Write  $\frac{5}{8}$ , 0.7 and 65% in ascending order of size.

Show your working.

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

22 Solve

(a)  $\frac{x}{5} = 10$

Answer  $x =$  \_\_\_\_\_ [1]

(b)  $2x + 5 = 12$

Answer  $x =$  \_\_\_\_\_ [2]

[Turn over



23 Without using a calculator, show how to work out

$$\frac{7}{12} - \frac{1}{4}$$

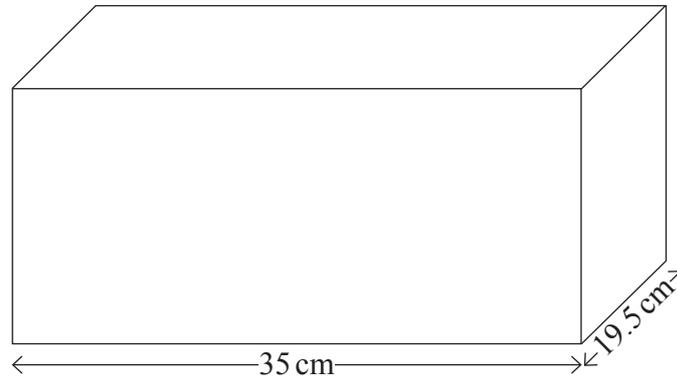
Write your answer in its simplest form.

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



24 (a) A shoebox has length 35 cm and breadth 19.5 cm.

Its volume is  $8463 \text{ cm}^3$



Work out the height of the shoebox.

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

(b) A different shoebox has dimensions 30 cm by 20 cm by 10 cm.

Find the dimensions of a large cuboid box which will hold exactly 8 of these shoeboxes.

Answer \_\_\_\_\_ cm by \_\_\_\_\_ cm by \_\_\_\_\_ cm [2]

[Turn over



25 Write down the next two terms in the sequence

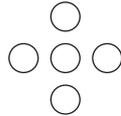
23, 21, 17, 11, \_\_\_\_\_, \_\_\_\_\_

[2]

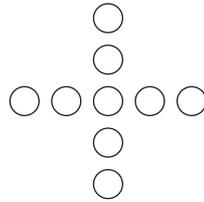
26 Here is a sequence of patterns made with circles.



pattern 1



pattern 2



pattern 3

How many circles are needed for pattern 5?

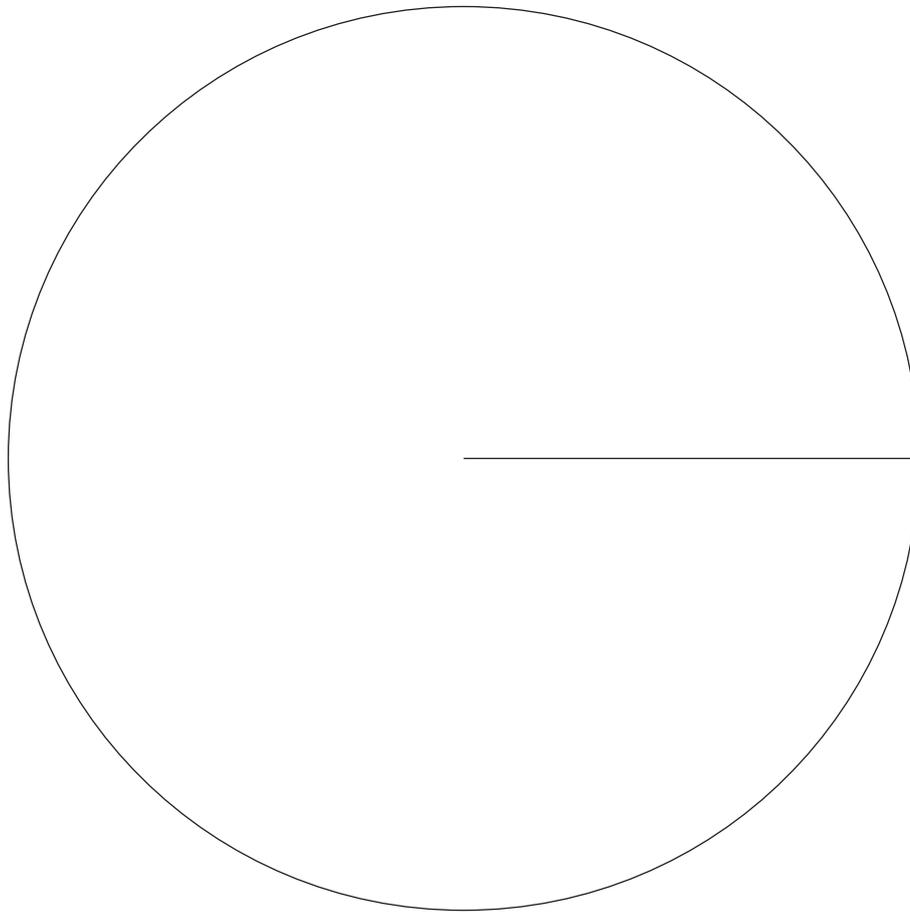
Answer \_\_\_\_\_ because the rule is \_\_\_\_\_ [2]



27 The number of drinks sold one day is shown below.

Orange	30	
Lemonade	27	
Cola	42	
Water	21	

Draw a pie chart to show this.



[4]

[Turn over



28 The stem and leaf diagram shows the ages of people who took their driving test one day.

1		7 7 7 8 8 8 8 9 9 9
2		0 1 5 5 6 6 6 7 8
3		6 7 7 7 8 9 9
4		2 7 7 9
5		1 2

Key 1 | 7 = 17 years

A quarter of these people were above a certain age.

What was that age?

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

---

**THIS IS THE END OF THE QUESTION PAPER**

---





**BLANK PAGE**  
**DO NOT WRITE ON THIS PAGE**

10600



\*28GMT1127\*

**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	
23	
24	
25	
26	
27	
28	

<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.

10600/6



\*28GMT1128\*