Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2017

Mathematics

Unit T1
(With calculator)
Foundation Tier

ML

[GMT11]
THURSDAY 25 MAY, 9.15am–10.45am

TIME

1 hour 30 minutes, plus your additional time allowance.

INSTRUCTIONS TO CANDIDATES

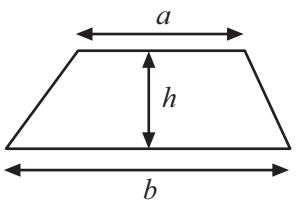
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Complete in black ink only.
Answer **all twenty-eight** questions.
All working should be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

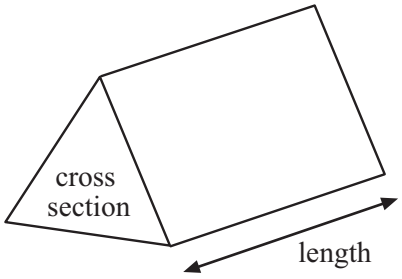
The total mark for this paper is 100.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in Question **17**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 2.

Formula Sheet

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



Volume of prism = area of cross section × length



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(Questions start overleaf)

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

Dan 

Jim 

Marti 

Mike 

Sue

(a) Dan got 40 votes. Complete the key below.

 is equal to _____ votes [1]

(b) How many votes did Jim get?

Answer _____ [1]

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

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 above, 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]

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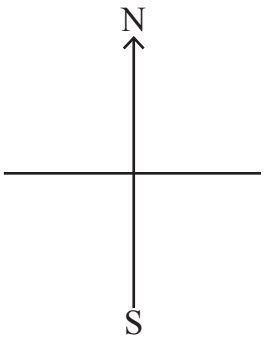
3 Draw a line to join each of the things below to the metric unit used to measure it.

Distance from Armagh to Omagh	millilitre
	millimetre
	centimetre
Weight of a plum	metre
	litre
	gram
Volume of a spoonful of medicine	kilogram
	kilometre

[3]

4



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

(b) Jane is facing North and turns 180°

What direction is she facing now?

Answer _____ [1]

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

Answer _____ ° [1]

(d) John is facing North East. He turns 90°

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

Anna bought 3 single choc bars and a pack of 7 choc bars.

Donna bought 2 single choc bars and two packs of 4 choc bars.

Work out what each person paid.

Who paid more?

How much **more** did they pay?

Answer _____ paid _____ more [5]

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

[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.

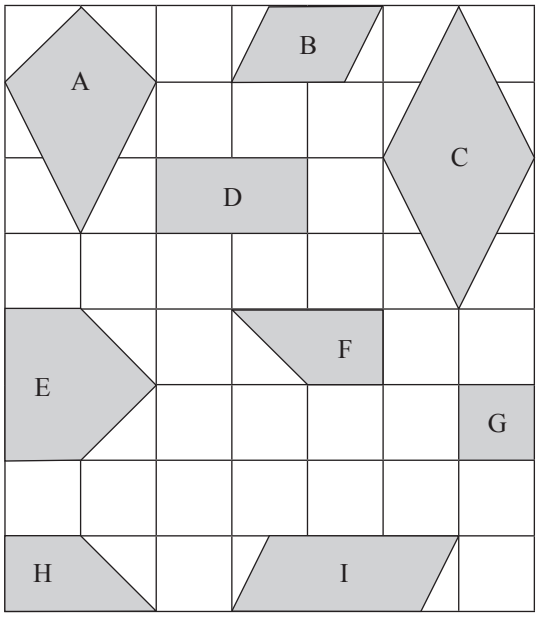
Answer _____ [1]

Write 0.7 as

(b) a percentage.

Answer _____ % [1]

8 This is a grid of 1 cm squares.



(a) Write down the name of the following shapes.

(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]

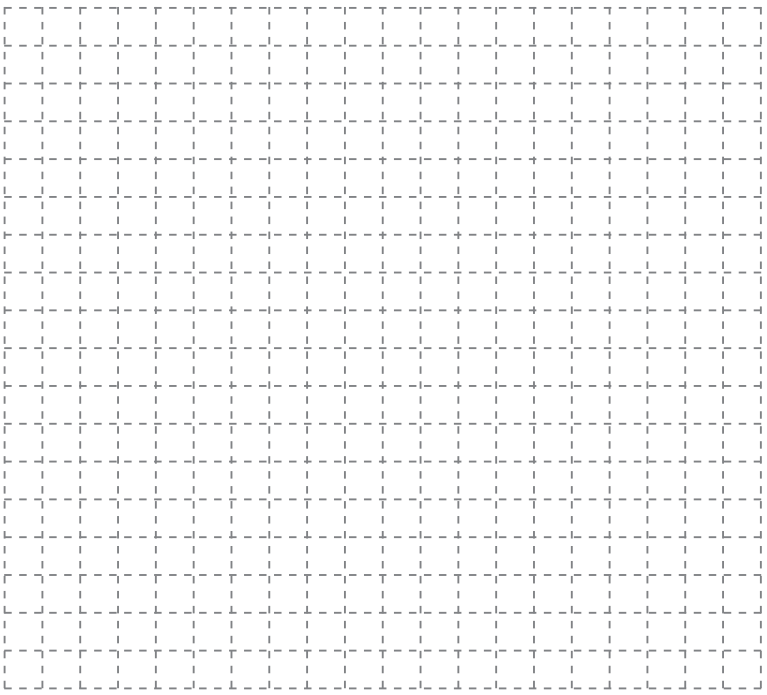
(c) What is the area of shape A?

Answer _____ [2]

9 Ann wrote down 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]



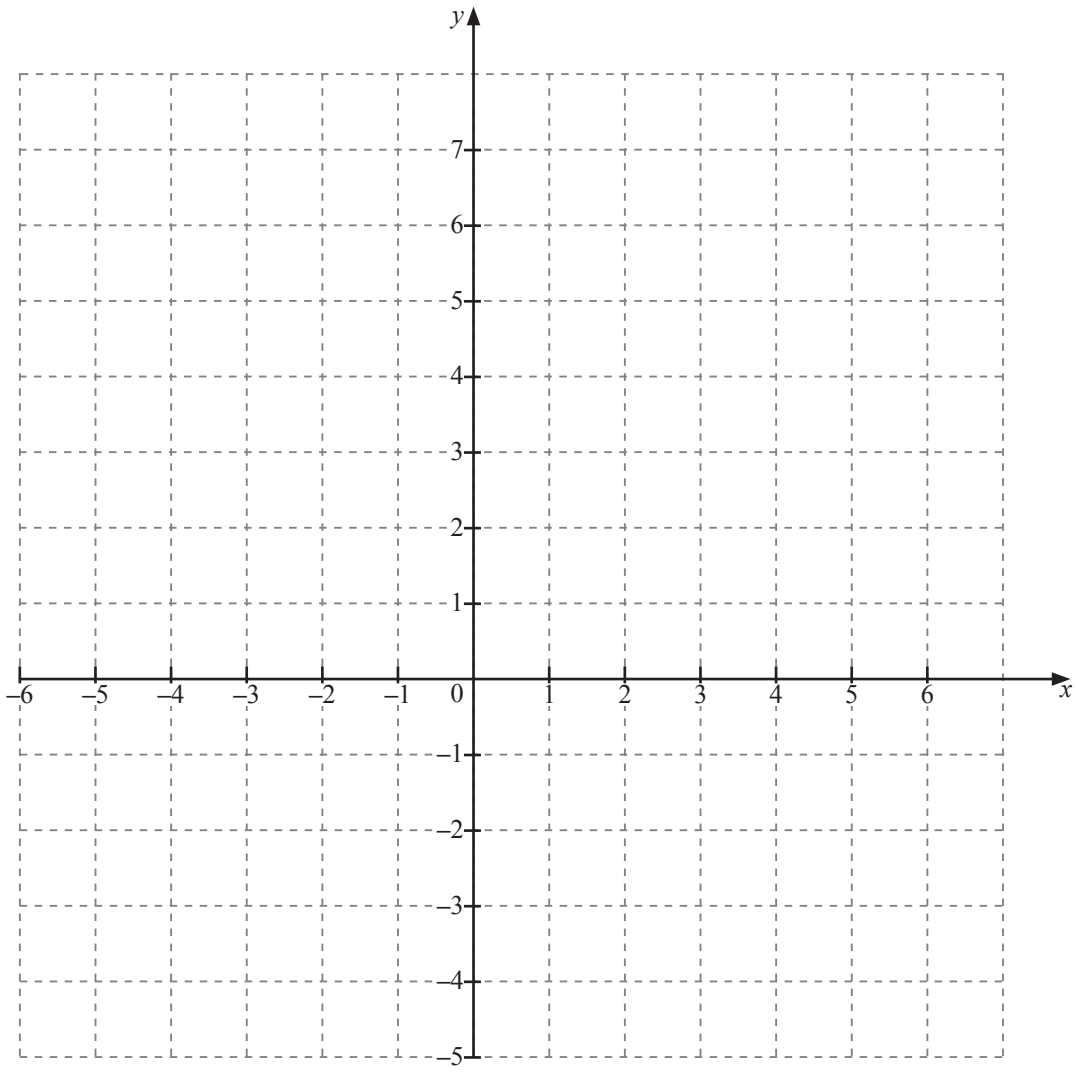
(b) What was the most popular colour?

Answer _____ [1]

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

Answer _____ [1]

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 he travelled to town E.

The total distance was 46 miles.

Name the other town, showing your work.

Answer _____ [2]

14 The midnight temperatures in these four cities were

Oslo	Copenhagen	Paris	Lisbon
–11 °C	–2 °C	3 °C	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. It costs £285.
How much would he need to save each week for the next eight weeks to pay for the bike in full?

Show your work.

Answer £ _____ [4]

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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?

Show your work.

Answer £ _____ [2]

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

Show your work.

Answer £ _____ [3]

Quality of written communication will be assessed in this question.

17 Find the cost of 26 mobile phones at £97 each.
Do not use a calculator.

Show your working clearly.

Answer £ _____ [3]

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

Answer _____ [2]

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

Answer _____ [1]

19 Look at the diagram below.
Four equilateral triangles and a square are joined together.

Calculate the size of angle g.

Show your work.

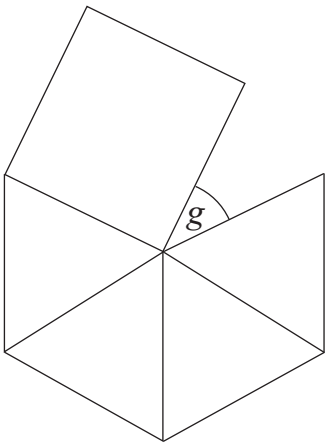


diagram not
drawn accurately

Answer $g =$ _____ ° [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?
How much cheaper is this taxi firm?

Show your working clearly.

Answer _____

£ _____ [3]

21 Write $\frac{5}{8}$, 0.7 and 65% in order of size. Start with the smallest.

Show your working.

Answer _____, _____, _____ [3]

---

22 Solve

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

Answer x = _____ [1]

(b) $2x + 5 = 12$

Answer x = _____ [2]

23 Without using a calculator, show how to work out

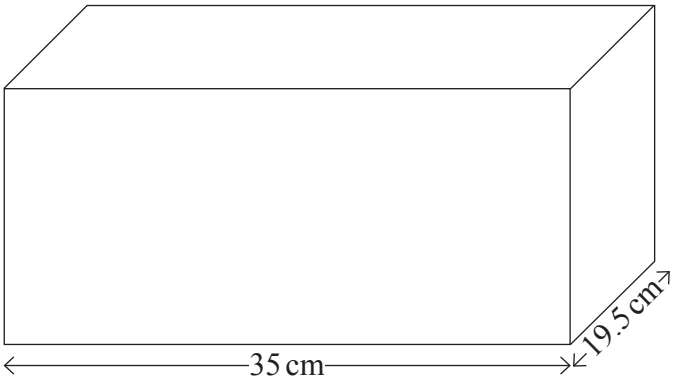
$$\frac{7}{12} - \frac{1}{4}$$

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 cm^3



Work out the height of the shoebox.

Answer _____ cm [2]

(b) Another shoebox has sides measuring 30 cm by 20 cm by 10 cm.

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

Answer _____ cm by _____ cm by _____ cm [2]

25 Write down the next two terms in the sequence

23, 21, 17, 11, _____ , _____ [2]

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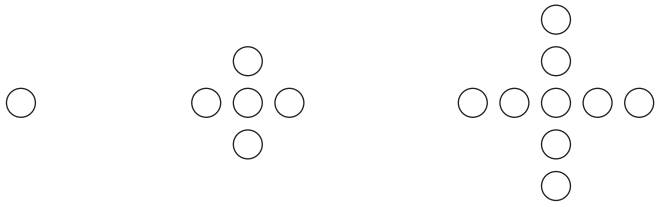
26 Here is a sequence of patterns made with circles.



pattern 1 pattern 2 pattern 3

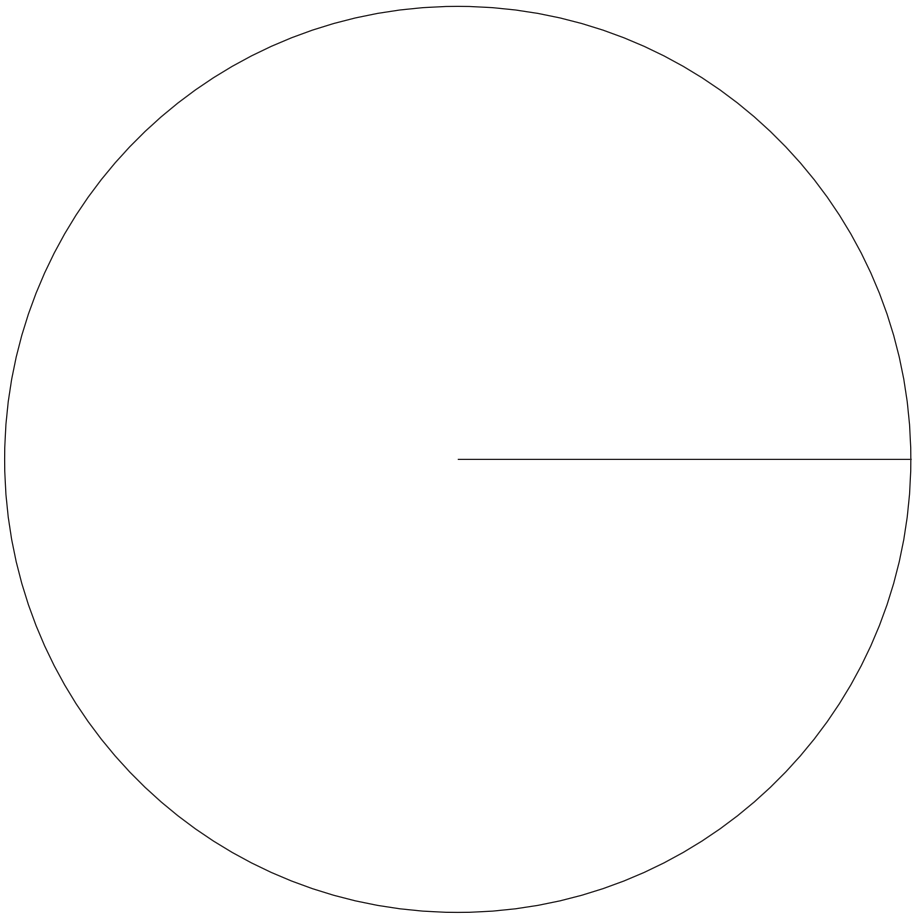
How many circles are needed for pattern 5?

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]

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]

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