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General Certificate of Secondary Education 2017

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.



Formula Sheet

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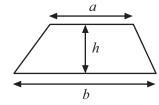
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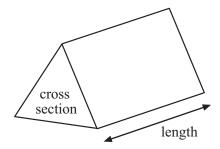
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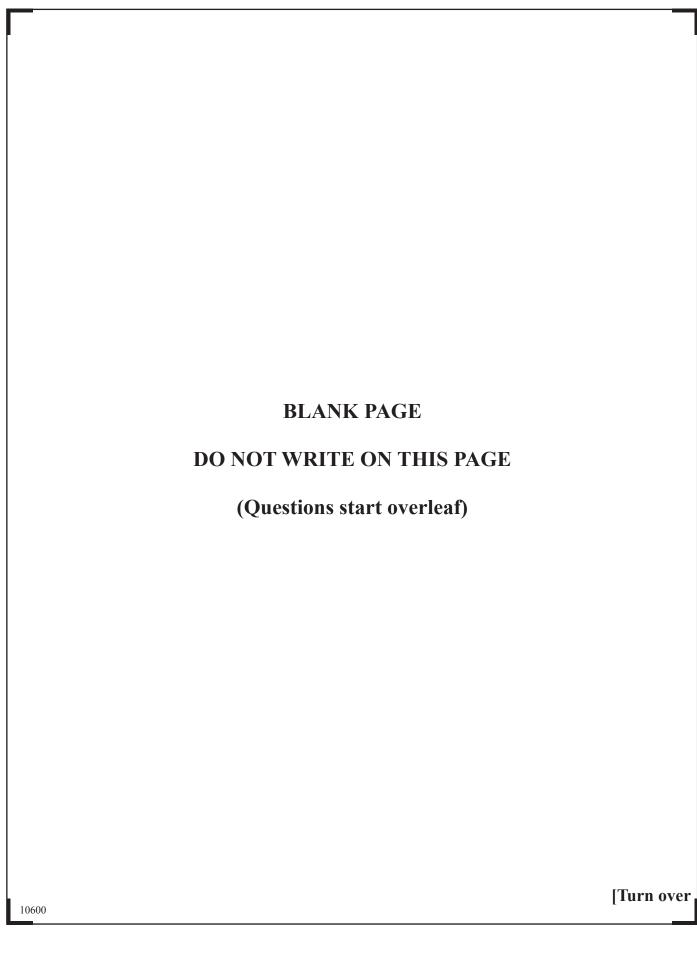
Area of trapezium = $\frac{1}{2}(a+b)h$



Volume of prism = area of cross section \times length







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1	The pictogram shows the number of votes for some sing	gers in a Talent Show.
	Dan OOO	
	Jim O	
	Marti O	
	Mike O	
	Sue	
	(a) Dan received 40 votes. Complete the key.	
	represe	ents 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	
10600	Complete the row for Sue.	[2]
		-

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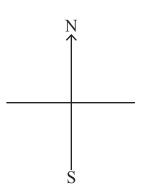


2		4	6	8	9	11	14	15	17	20		
	From the list of	numbe	rs, w	rite d	lown							
	(a) a multiple o	of 7,								Answ	er	[1]
	(b) a factor of 8	81,								Answ	er	[1]
	(c) two prime n	umber	s,				Aı	nswer		ar	nd	[1]
	(d) two number	s whos	se pro	duct	is 54	1,						
							Aı	nswer _.		ar	nd	[1]
	(e) two number	rs whos	se dif	feren	ce is	a squa	are nur	nber.				
							Aı	nswer _.		ar	nd	[2]
3	Draw a line to jo	oin eacl	h iten	n to t	he m	netric ı	ınit use	ed to n	neasui	re it.		
	Distance from A										millilitre millimetre centimetre	
	Weight of a plur	n									metre litre	
	Volume of a spo	onful c	of me	dicin	e						gram kilogram kilometre	[3]
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(a) Mark the compass points E and W on the diagram above.

[1]

(b) Ally is facing North and turns 180°

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 ____ ° [1]

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

What are the two directions he could be facing?

Answer ______, ____[1]



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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



6	(a) Draw a circle of diameter 10 cm, centre O below.	
	$^{\circ}_{x}$	
	O	
		[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]
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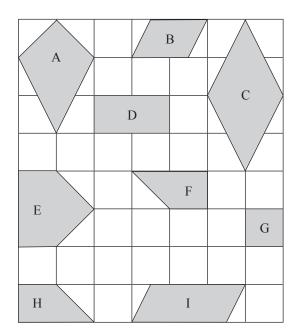
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		Answer	%[1]
	(b) a percentage.		
		Answer	[1]
	(a) a fraction,		
7	Write 0.7 as		

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8 This is a grid of 1 cm squares.



(a) Write down the name of shape

(i) A

Answer [1]

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(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]

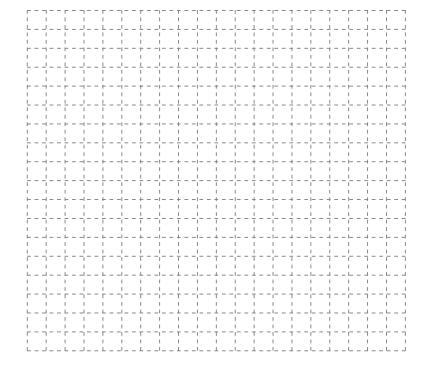


9 Tracey recorded the colours of T-shirts sold during the week.

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]

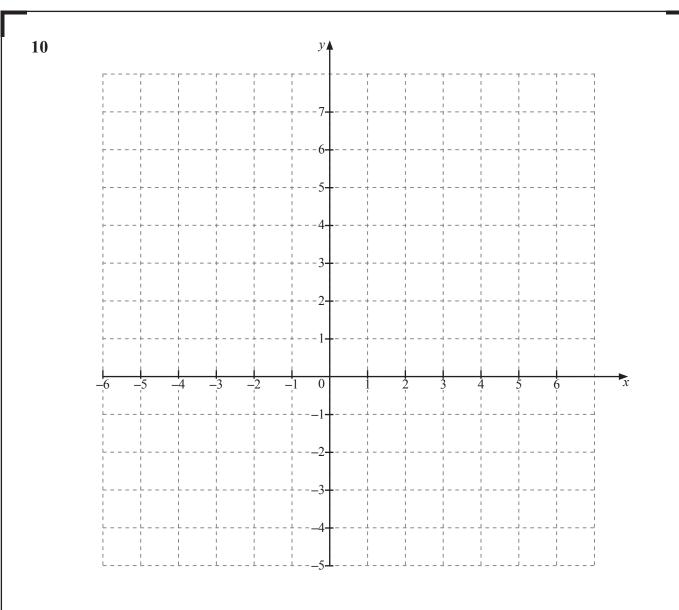
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Plot and label the points A (3, -4) and B (-4, -1). [2]



11	Peter earns £14000 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
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12 The ages (in years) of 12 players in a	team are
---	----------

(a) Find the mean of the ages.

Answer _____ [2]

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(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	В				
15	17	C			
34	15	30	D		
32	34	19	47	Е	
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

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	Oslo -11°C	Copenhagen -2°C	Paris 3°C	Lisbon 8°C
(a)	What was the di	ifference in temperature	between Oslo and Cope	nhagen?
			Answer	°C [1]
(b)	What was the di	ifference in temperature	between Copenhagen ar	nd Lisbon?
			Answer	°C [1]
(c)	The temperature	e in Stockholm was 3°C	colder than Oslo.	
	What was the te	mperature in Stockholm	?	
			Answer	°C [1]

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15	He Hov	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?			ie	
					Answer £	_[4]
16			COACH HIRE (da	ay trip)		
			50 seater coach 40 seater coach	£200 £180		
	(a)	What is the lowest cost day trip?	t to hire coaches for	a group	of 198 passengers for the	
					Answer £	_[2]
	(b)	What is the lowest cost day trip?	t to hire coaches for	a group	of 378 passengers for the	
					Answer £	_[3]
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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]

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

Calculate the size of angle *g*.

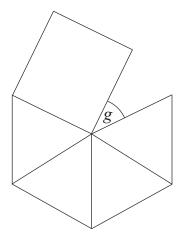


diagram not drawn accurately

Answer
$$g =$$
 \circ [3]

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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]

20

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

Show your working.

Answer ______, _____[3]

22 Solve

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(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]

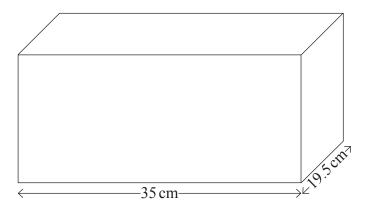
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24 (a) A shoebox has length 35 cm and breadth 19.5 cm.

Its volume is 8463 cm³



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 [2]

[Turn over

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

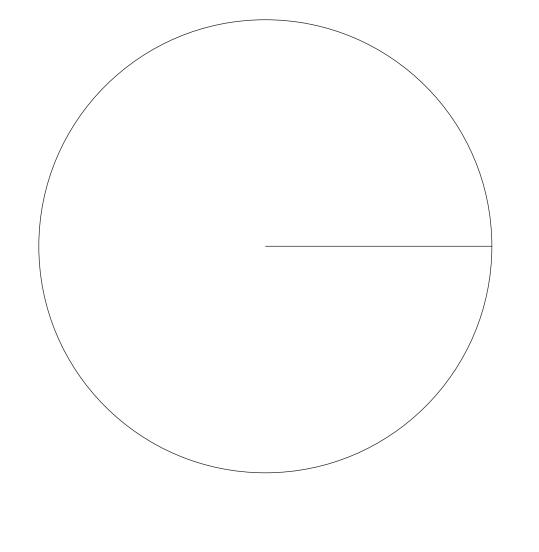
Orange	30	
Lemonade	27	
Cola	42	
Water	21	

Draw a pie chart to show this.

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[4]



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

Key 1 | 7 = 17 years

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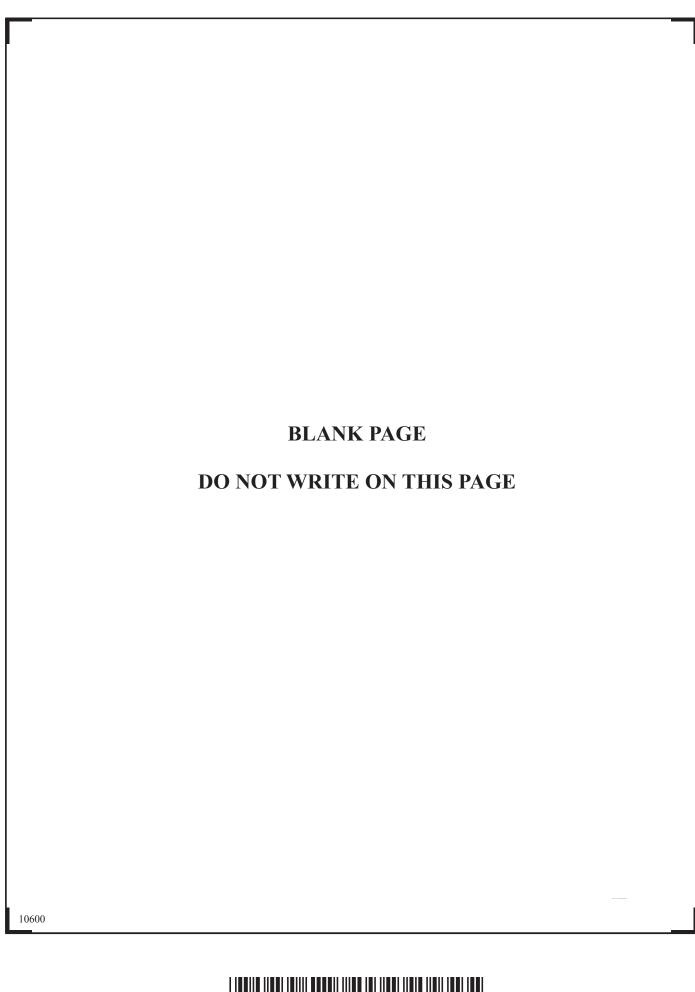
A quarter of these people were above a certain age.

What was that age?

Answer [2]

THIS IS THE END OF THE QUESTION PAPER





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Question Number	Marks	
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