

General Certificate of Secondary Education 2014

### **Mathematics**

Unit T1

(With calculator)

**Foundation Tier** 





[GMT11]

TUESDAY 27 MAY, 9.15am-10.45am

\*GMT11\*

#### 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. 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 with a gel pen.

Answer all twenty-eight 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 23 and 24.

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

The Formula Sheet is on page 2.

# **Formula Sheet**

Research

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Research

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Parties

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Parties

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Research

Research

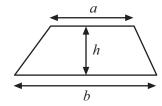
Research

Research

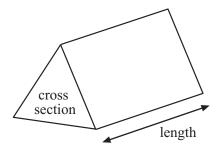
Research

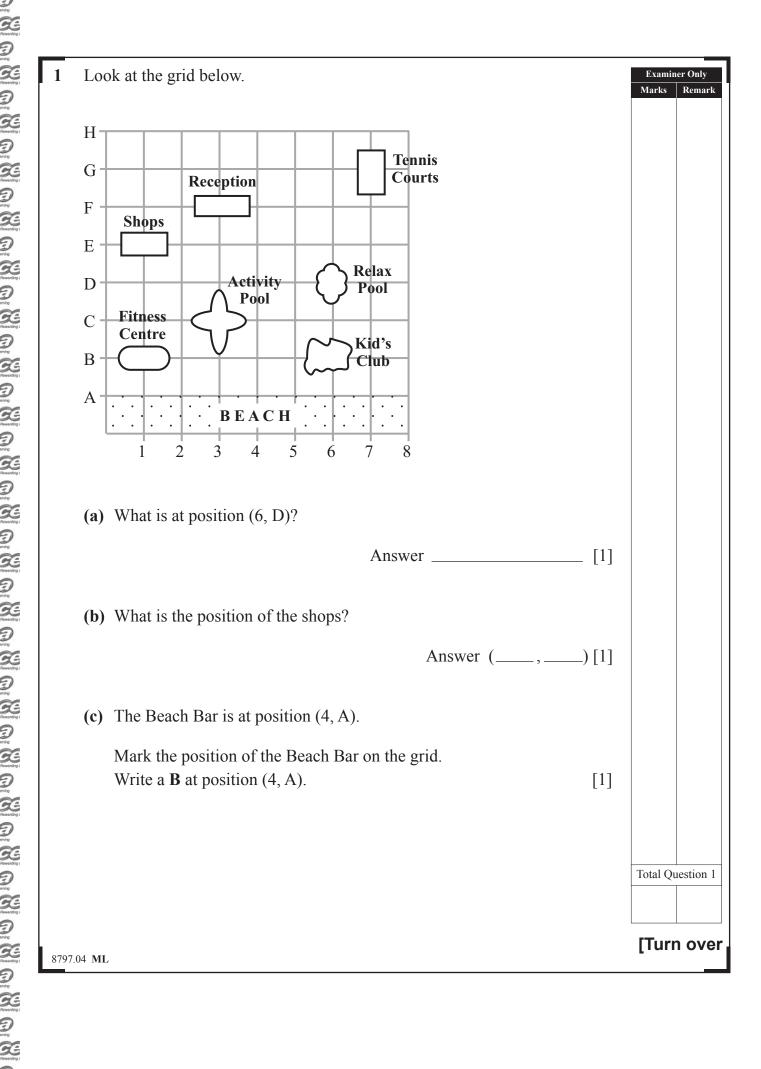
Research

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



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





Look at the table below. It shows some numbers of each type of medal won 2 **Examiner Only** Marks Remark by three countries in the 2012 Olympics. **Country** Gold **Silver Bronze Total** USA 46 104 27 23 China 38 17 38 Japan (a) How many medals did China win in total? Answer \_\_\_\_\_ [1] **(b)** The USA won an equal number of Silver medals and Bronze medals. How many Silver medals did the USA win? Answer \_\_\_\_\_ [2] (c) Japan won twice as many Silver medals as Gold medals. How many Gold medals did Japan win?

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

Total Question 2

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3	Look at the sentences below.  The sentences are about the four winning numbers in a lottery.		Examin Marks	er Only Remark						
	The 1st number is the square root of 576									
	The 2nd number is a multiple of 8 between 30 and 39									
	The 3rd number is the cube of 3									
	The 4th number is the largest prime number less than 40									
	What are the 4 winning numbers?									
	Answer 1st 2nd 3rd 4th	[4]	Total Qu	nestion 3						
4	Year 10 pupils are going on a trip.									
	Their teacher hires 3 buses. Each bus has 52 passenger seats.									
	(a) How many passenger seats are there in total?									
	Answer	[1]								
	9 teachers and 135 pupils are going on the trip.									
	<b>(b)</b> How many empty seats are there in total?									
	Answer	[2]								
	(c) How many teachers and how many pupils should go on each bus for safety reasons?									
	Complete the following sentence.		Total Qu	uestion 4						
	I would put teachers and pupils on each bus.	[2]								
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5	(a)	Look at the sequence below. What is the next term?	Examiner Only  Marks Remark
		1, 6, 11, 16	
		Answer[1]	
	(b)	These patterns of squares are the first 3 in a sequence.	
	` /		
		Pattern 1 Pattern 2 Pattern 3 Pattern 4	
		(i) Draw pattern 4 in the sequence. [1]	
		(ii) Count the number of squares in each pattern and write them in the sentence below.	
		What is this sequence of numbers called?	
		The numbers are, and	
		and they are called numbers. [2]	
			Total Question 5

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6	140 drinks were sold in a café. The first four rows of a pictogram of the drink sales are shown below.								
		Drink Sales							
	Coffee	000000							
	Tea	000							
	Cola	00000000							
	Orange	0000							
	Hot Chocolate								
	(a) 45 colas were	sold.							
	Complete the	key: O = drinks [1]							
	(b) How many co	offees were sold?							
		Answer [1]							
	(c) How many m	ore colas than teas were sold?							
		Answer [1]							
	(d) Complete the	row of the pictogram for hot chocolate.							
			T. 10 ci c						
		[2]	Total Question 6						
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Jake recorded the colours of cars passing his house using a tally chart. **Examiner Only** Marks Remark **Tally Frequency** Colour Red 1111 8 White 3 1 Black 5 9 Silver 4 Blue (a) On the grid below, draw a bar chart to show this information. [3] **(b)** Which is the most popular colour of car?

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

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						Total Question
		Answer .			[1]	
Here are some trian	igles on a grid.					
		i i i i				
A			B			
C						
		D				
		/				
	F			G		
E						
(a) Which triangle	is isosceles?					
			Answ	ver	[1]	
<b>(b)</b> Write down the	e special name for tria	ngle E.				
	Answer				[1]	
Two of the triangle	s are congruent.					Total Question
(c) Write down the	e letters of the two tria	angles wh	ich are	congruent	Į.	
97.04 <b>M</b> L	Answer _		_ and		[1]	[Turn ov

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9 Look at the L-shape on the centimetre grid below. Examiner Only Marks Remark (a) What is the perimeter of the L-shape? Answer \_\_\_\_\_ cm [2] 8797.04 ML

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Total Questic  Cans of Cola are sold in packs of 6.  There are 135 children at a party.	Hov	v many pack	s of Cola a	are neede	d to give	each ch	nild one	can of Cola?			
										Total Qu	iestic
									[1]		

11	(a) Write in order or	f size, smallest first	Examiner Only  Marks Remark
	$\frac{1}{5}$ , 0.26, 19%		
		Answer , , [2]	
	<b>(b)</b> Write 0.157 as a	fraction.	
		Answer [1]	
			Total Question 11
12		en bought and how much they cost.	
	Item	Cost	
	A calculator	£6.80	
	A ruler	£5.45	
	A pack of 3 pens  A file block	£3.20	
	71 IIIC BIOCK	25.20	
	Ben pays for the item	ns with a £20 note.	
	Calculate the change	that Ben should receive.	
			Total Question 12
			Total Question 12
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Remarks

13	Sam owns 30 acres of land.	Examin Marks	er Only Remark
	15 acres are grass.		
	12 acres are woodland.		
	The rest is marsh.		
	(a) Write, in its simplest form, the fraction of Sam's land that is woodland.		
	Answer [1]		
	<b>(b)</b> What percentage of Sam's land is marsh?		
	Answer % [2]		
		Total Que	estion 13
14	Sixteen students had the following number of coins in their pockets.		
	9, 3, 5, 8, 2, 7, 4, 8, 7, 3, 8, 6, 5, 9, 8, 5		
	(a) What is the mode of the number of coins?		
	Answer [1]		
	<b>(b)</b> What is the range of the number of coins?		
	Answer [1]		
	(c) What is the median number of coins?	Total Que	estion 14
8797.	Answer [2]	[Turr	over

15 The pie chart shows how Jessica spent 6 hours doing sports one day. **Examiner Only** Marks Remark Running Discus High Jump Long Jump Javelin (a) How much time was spent on the javelin? Answer \_\_\_\_\_ [1] **(b)** Calculate the time spent running. Answer \_\_\_\_\_ [1] Total Question 15 8797.04 ML

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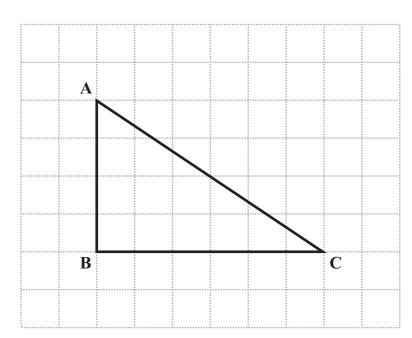
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17 (a) Look at the triangle ABC drawn on the centimetre grid below. Work out the area.



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

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Total Question 17

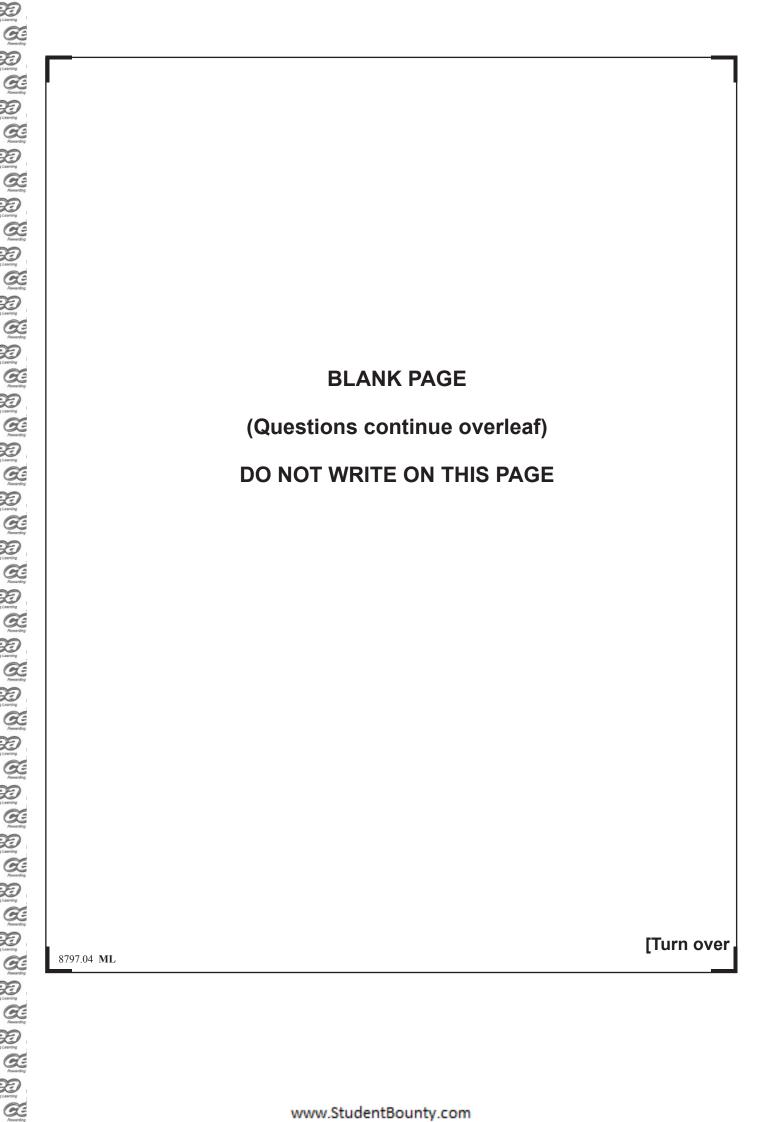
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Marks Remark

**(b)** Measure the size of angle C in the triangle above.

Answer \_\_\_\_\_ ° [1]



18 The diagram below shows a cuboid. **Examiner Only** Marks Remark 3 cm 4 cm 6 cm (a) Work out the volume of the cuboid. Answer \_\_\_\_\_ cm<sup>3</sup> [2]

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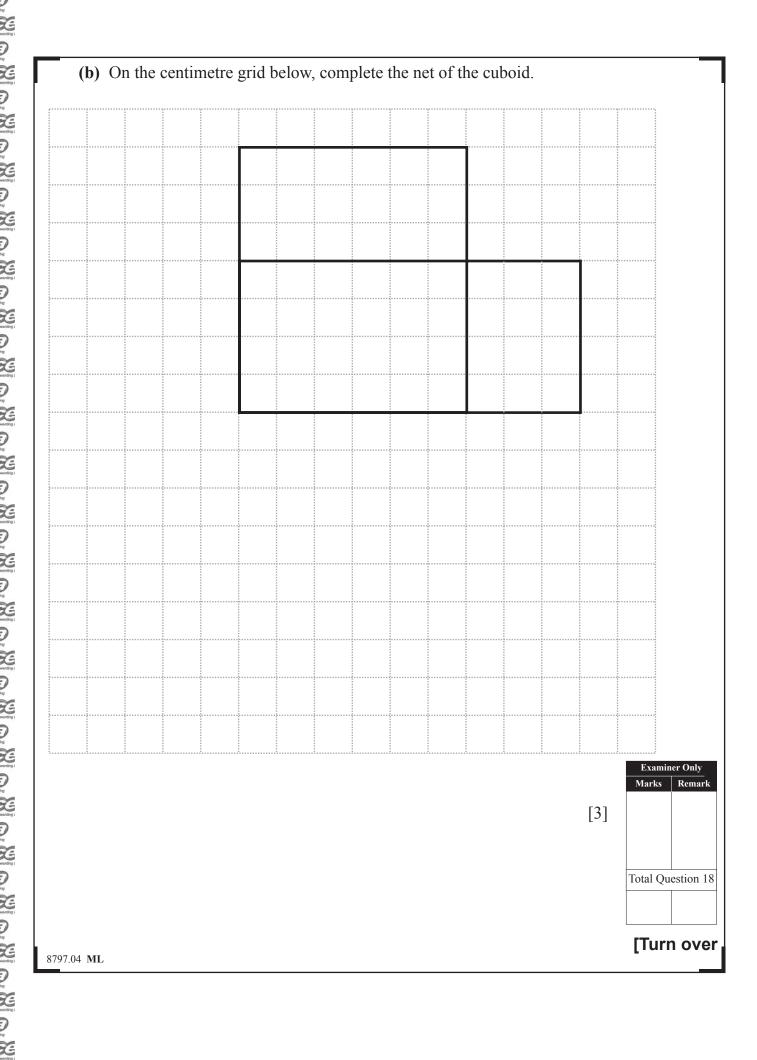
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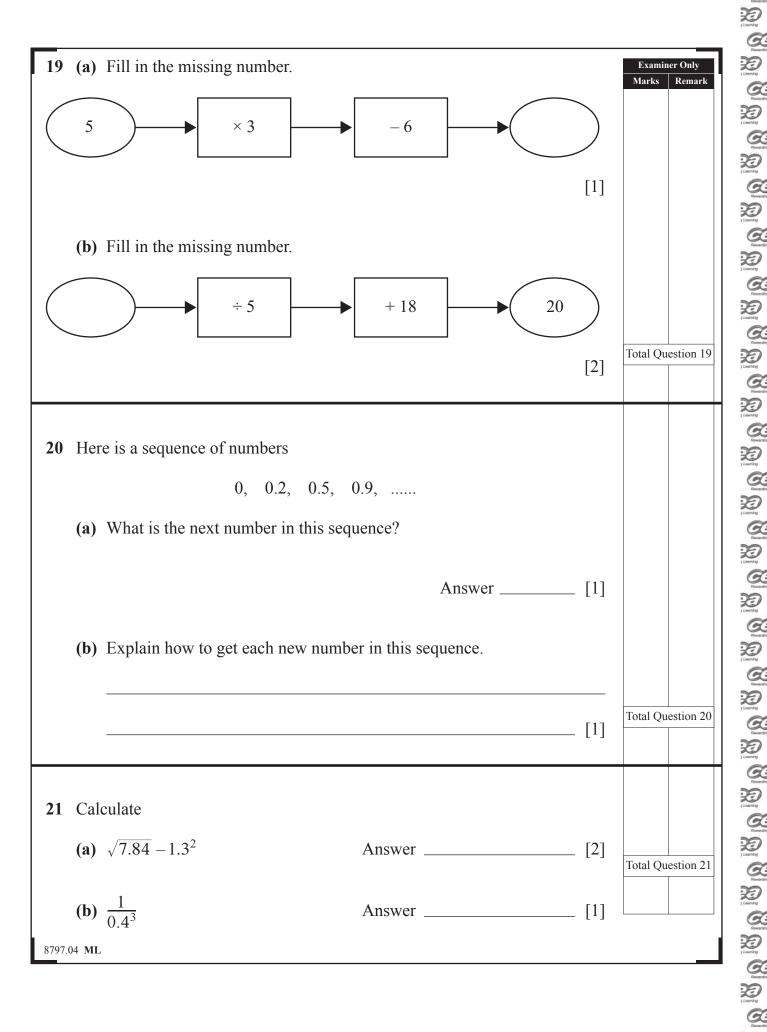
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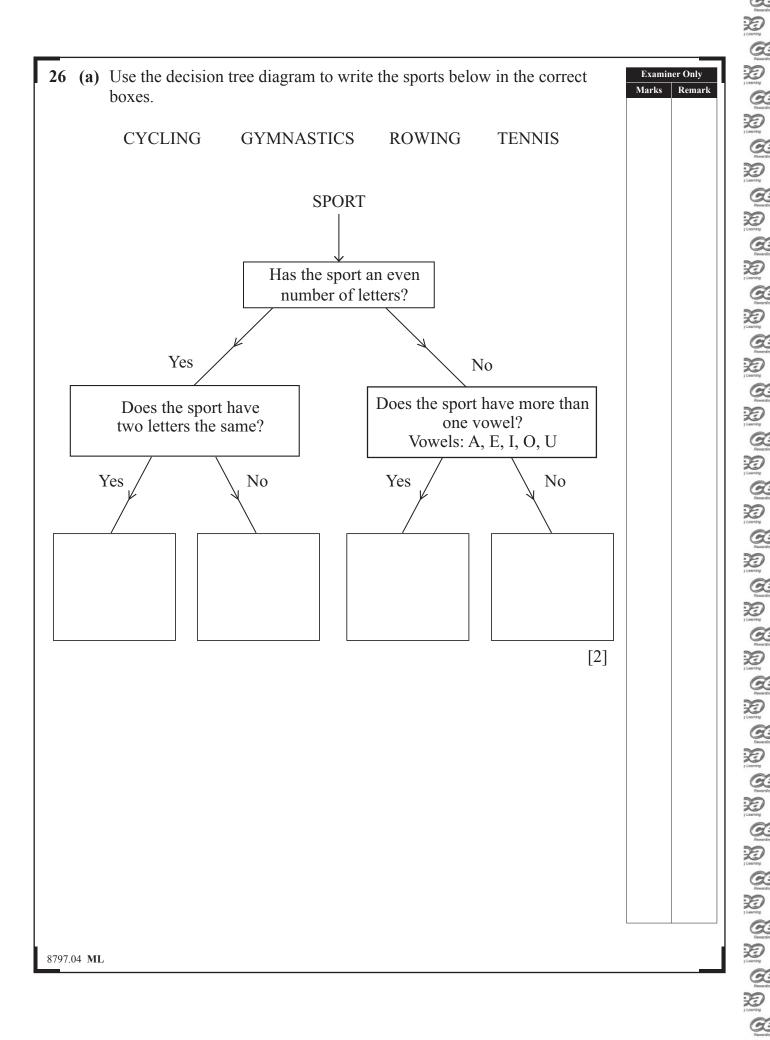
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22	There were 304 000 flights from 10 UK airports. 74% of these flights were on time.	Examir Marks	ner Only Remark
	How many flights were on time?		
	Answer [2]	Total Qu	estion 22
Oı	nality of written communication will be assessed in this question.		
23			
	Each shrub cost £3.15 The total cost was £31.65		
	How many shrubs did she buy?		
	Answer [3]	Total Qu	estion 23
		[Turr	n over
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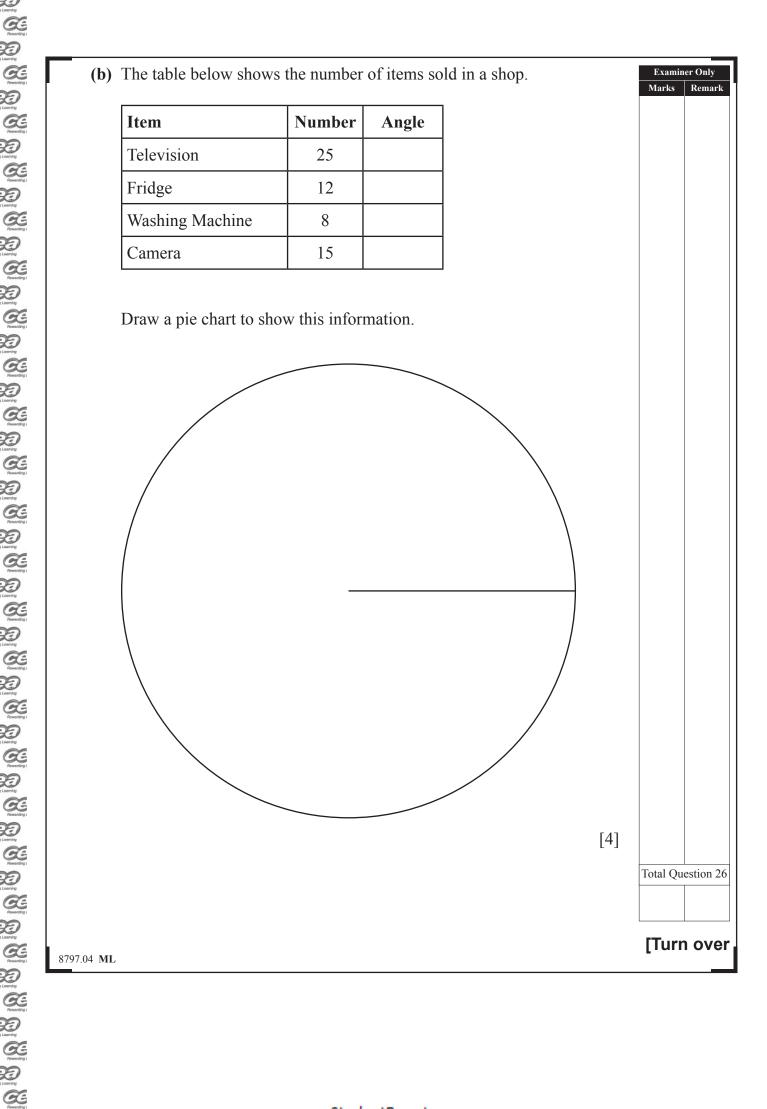
Quality of written communication will be assessed in this question.		Examiner Only  Marks Remark
<b>24</b> Explain how $6^2 \div \sqrt[3]{64} = 3^2$		
	[2]	
	[2]	
		Total Question 24
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25	The st	em a	nd lea	af dia	ıgram	shov	vs the	e weights of some schoolbags.	Examir Marks	ner Only Remark
	2	l 5	6	7	9			$\text{Key 2} \mid 5 = 2.5 \text{ kg}$		
	3	1	3	7	8	8	9			
	4	2	3	5	7 6	9				
	5	3	4	5	6	8				
	6	2	4	6						
	Write (a) th									
								Answer kg [1]		
	<b>(b)</b> th	ie me	dian.							
								Answer kg [1]		
									Total Qu	estion 25
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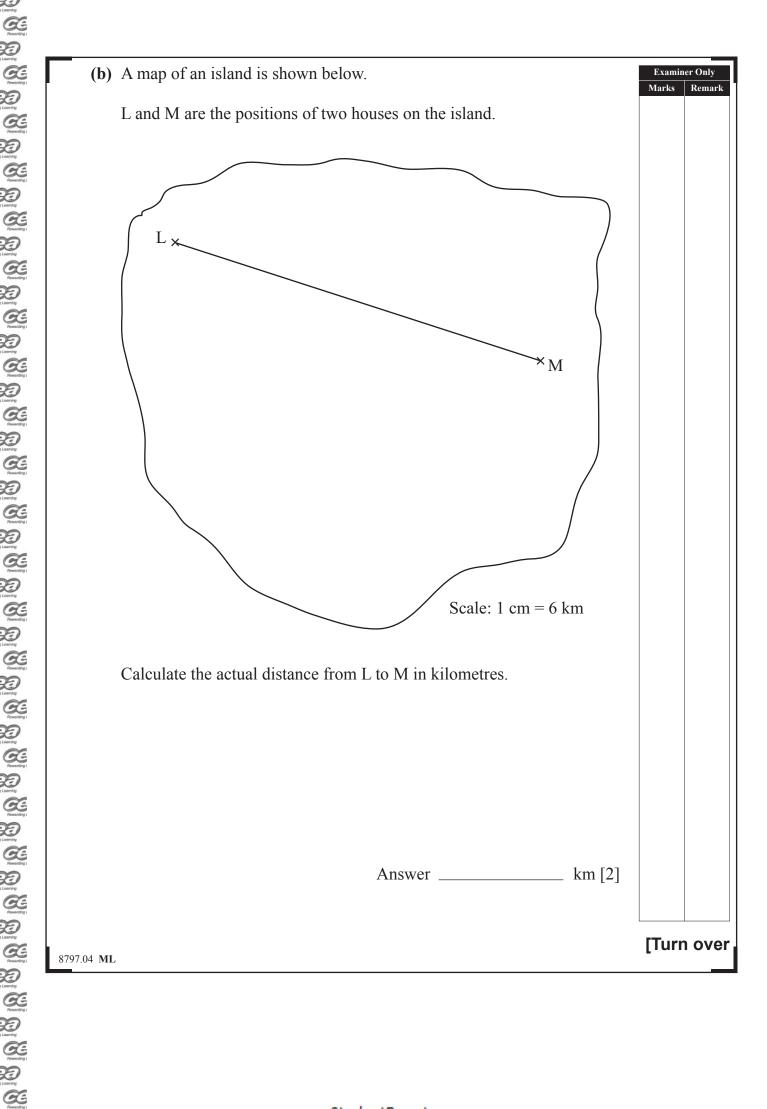
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(c) A sheet of A4 paper is a rectangle 297 mm long and 210 mm wide.

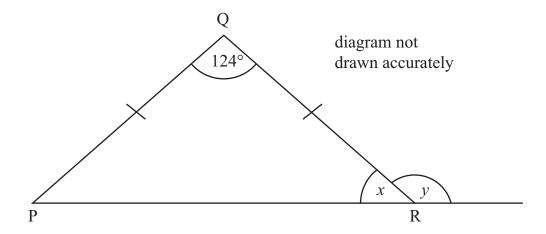
Calculate the area of a sheet of A4 paper.

Give your answer in square centimetres.

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

(d) PQR is an isosceles triangle.

$$PQ = QR$$
.



Calculate the angles x and y.

Answer 
$$x = \underline{\hspace{1cm}}$$

Total Qu	estion 27	

Reversion

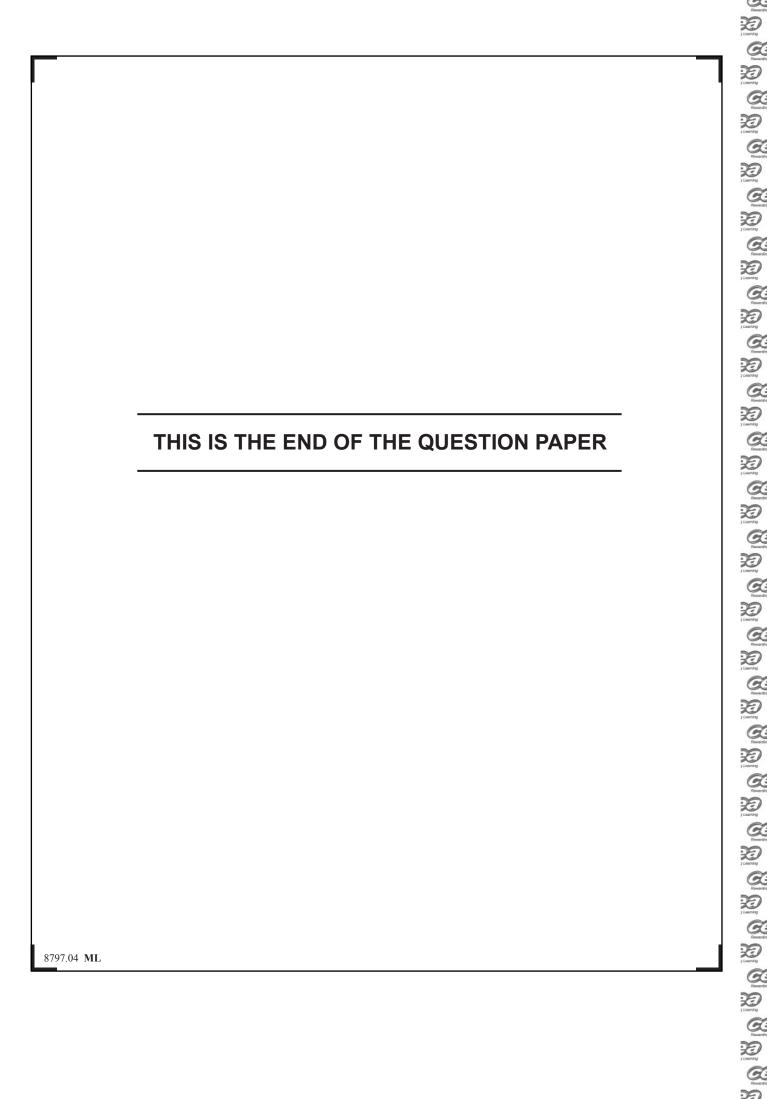
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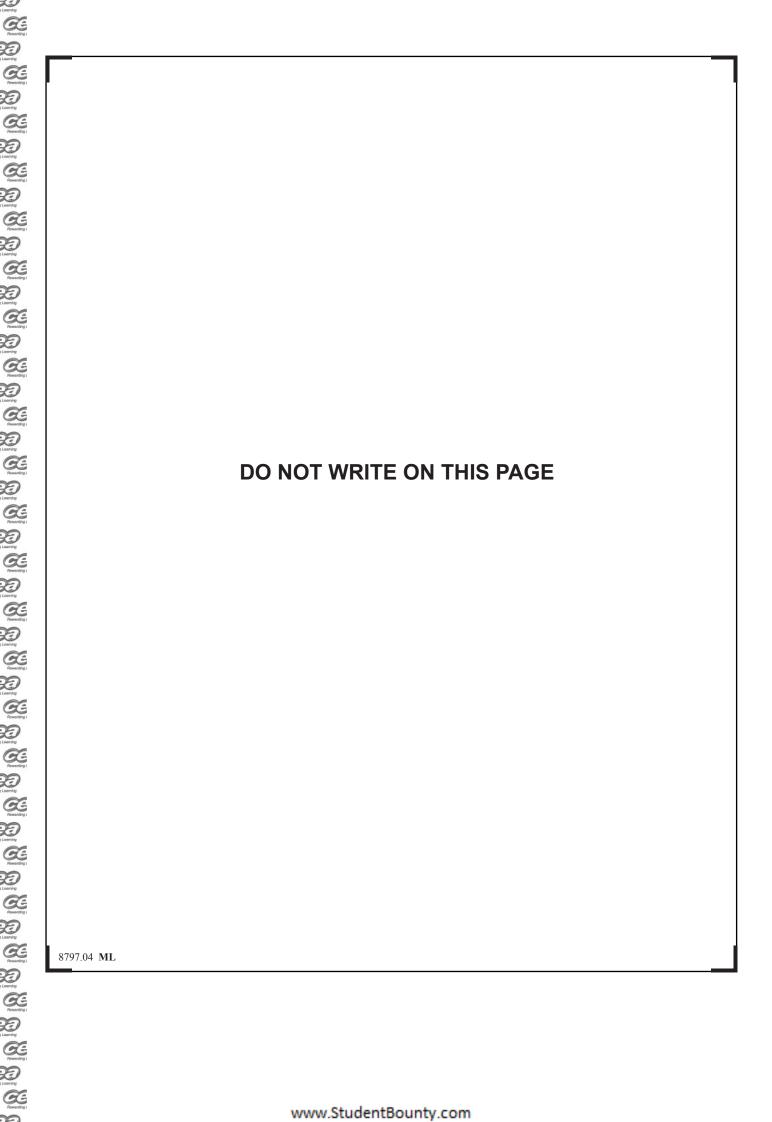
Marks Remark

28	(a)	Solve			Examiner Only Marks Remai	
		(i) $\frac{y}{4} = 12$				
			Answer <i>y</i> =	[1]		
		(ii) $2d-4=5$				
			Answer <i>d</i> =	[2]		
	(b)	12f = 20 Write down the value of $3f$				
			Answer	[1]		

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Total Question 28





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