

Student Bounty.com

General Certificate of Secondary Education January 2012

Mathematics



Unit T1 (With calculator) Foundation Tier

[GMT11]

WEDNESDAY 11 JANUARY 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. Answer all twenty-four 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 question 20. You should have a calculator, ruler, compasses and a protractor.

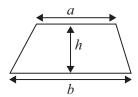
The Formula Sheet is overleaf.

	For Examiner's use only		
Question Number	Marks		
1			
2			
3			
4			
5			
5 6			
7			
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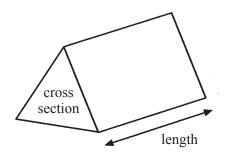
Total	
Marks	

Formula Sheet

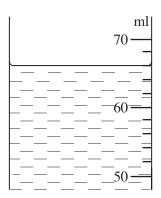
Area of trapezium = $\frac{1}{2}(a+b)h$



Volume of prism = area of cross section \times length

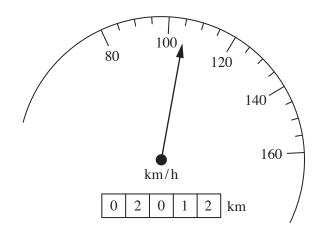


1 (a) Write down the volume of water in this measuring cylinder.



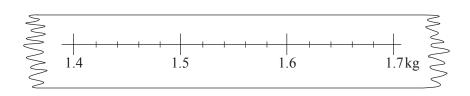
Answer _____ ml [1]

(b) Write down the speed shown by the arrow.



Answer _____ km/h [1]

(c) Draw an arrow to show the mass of a block of wood of 1.53 kg.



[1]

2 Here is a pictogram showing the number of members who played at the local tennis club last week.

Examiner Only		
Marks	Remark	

Monday	$\oplus \oplus \oplus$	represents 4 members
Tuesday	$\oplus \oplus \oplus \oplus$	
Wednesday	$\oplus \oplus \Box$	
Thursday	$\oplus \oplus \oplus$	
Friday	$\oplus \oplus \oplus \oplus$	
Saturday		

(a) V	Write down	the number	of members	who played	on Wednesday
-------	------------	------------	------------	------------	--------------

Answer _____ [1]

Answer _____ and ____ [1]

(c) How many members in total played on Thursday and Friday if no member played on both days?

Answer _____ [1]

(d) On Saturday 21 members played at the club.

Show this on the pictogram.

[1]

3	(a)	Write 0.4 as a percentage.		Examiner Only Marks Remark
			Answer% [1]	
	(b)	Write 0.35 as a fraction.		
		Give your answer in its simplest form.		
			Answer [2]	
	(c)	Write 5% as a decimal.		
			Answer [1]	
4	Wri	ite down the next term of the sequence		
		25, 19, 13, 7,		
			Answer [1]	

5 Tim Jackson visited a shop called "Music Mania."

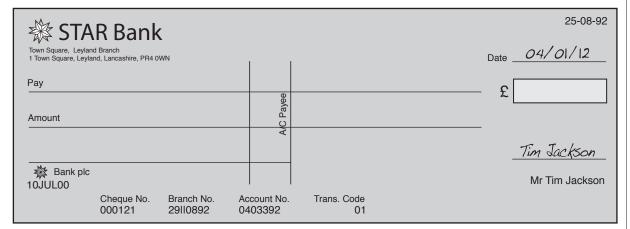
He bought 3 CDs at £7.99 each and 2 DVDs at £8.50 each.

(a) Calculate his total bill.

Answer	£	ĺ	[2]	
	~			ı

(b) Tim paid by cheque.

Complete the cheque below.



[2]

Examiner Only

6 Thirteen students had the following number of books in their bags.

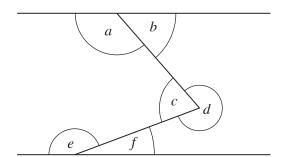
3, 8, 4, 3, 6, 5, 9, 3, 7, 4, 3, 5, 6

(a) What is the median number of books?

Answer _____ books [2]

(b) What is the mode of the number of books?

Answer _____ books [1]



Examiner Only			
Marks	Remark		
Marks	Remark		

From the diagram, write down a letter for an angle which is

(i) acute,

Answer _____ [1]

(ii) obtuse,

Answer _____ [1]

(iii) reflex.

- Answer _____ [1]
- **(b) (i)** Using the point marked "C" as the centre, draw a circle with a radius of 3.5 cm.

 $^{\text{C}}$

- [1]
- (ii) Draw a diameter on this circle. [1]
- (iii) Draw any chord parallel to your diameter. [1]

Some "U" shapes drawn below are made with matches. 8

Shape 1 Shape 2

Shape 3

Shape 4

(a) Draw Shape 4.

[1]

Examiner Only

Shape Number	1	2	3	4	5
Number of Matches	5	8	11		

(b) Complete the table for Shapes 4 and 5.

[1]

(c) What pattern do you notice in the "Number of Matches" row?

Answer _____ [1]

(d) Find the number of matches in Shape 10.

Answer [2]

9 Michael did an investigation into the colours of cars on the road.

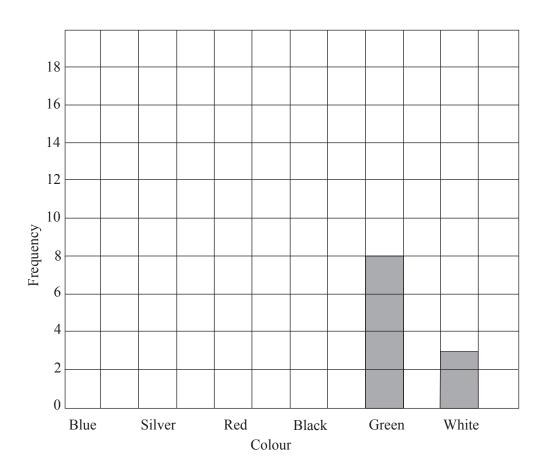
He recorded the data in a frequency table and drew a bar chart.

Below is part of Michael's frequency table.

Colour	Tally	Frequency
Blue	ШШП	
Silver	JHT JHT JHT III	
Red	JHT 1111	
Black	Ш	

(a) Complete the frequency column in Michael's table.

Part of Michael's bar chart is shown below.



(b) Complete the bar chart for the colours Blue, Silver, Red and Black. [1]

Examiner Only

[1]

4	5	6
8	9	10
12	14	17
21	25	35

Examiner Only			
Marks	Remark		

From the numbers in the grid, write down:

(a) the multiples of 3,

Answer _____ [2]

(b) the factors of 48,

Answer _____ [2]

(c) the prime numbers.

Answer _____ [2]

11



JEANS $-\frac{1}{3}$ OFF TAG PRICE



SHIRTS – 15% OFF TAG PRICE

Jim buys jeans and a shirt in the sale.

The price tag on the jeans is £54.

The price tag on the shirt is £28.

What is the total cost of his items in the sale?

Answer £ _____ [4]

12	(a)	There are	10	students	on	a	school	bus
14 1	(4)	I HOLO al C	10	Students	OH	и	3011001	ous.

Examin	er Only
Marks	Remark

Their ages in years are 12, 15, 13, 17, 10, 14, 16, 15, 16, 11

What is the mean age of the 10 students?

Answer _____ years [3]

(b)

Ayr

90	Carlisle		Mile	eages		
73	96	Edinburgh				
132	196	144	Fort William			
33	96	44	160	Glasgow		
94	136	45	105	61	Perth	
51	101	124	184	84	144	Stranraer

(i) John travels from Carlisle to Perth. What distance does he travel?

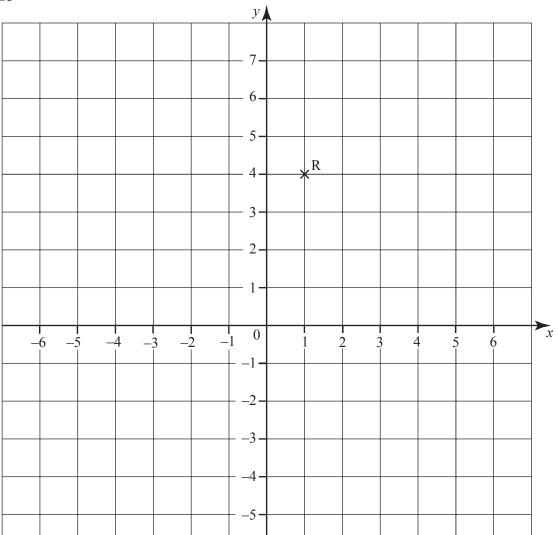
Answer _____ miles [1]

(ii) Mark travels from Carlisle to Glasgow and then on to Perth.

How many more miles does Mark travel than John?

Answer _____ miles [2]

13



Examiner Only				
Marks	Remark			

(a) Write down the co-ordinates of the point R.

Answer (_____, ____) [1]

- (b) Plot and label the points S(-5, 2) and T(-1, -2). [2]
- (c) Join R, S and T to form a triangle.

What type of triangle is RST?

Answer _____ [1]

Shoe size	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	
Number of pupils	1	0	5	4	4	2	1	0	1	0	
(a) Write down the modal shoe size.											
					Ar	iswer				[1]	
(b) Work out the ran	ge of	these	pupil	s' sho	e size	es.					
	C		1 1							_ [1]	
5 420 pupils travel by bus to a school football match.											
Each bus can carry 48 pupils.											
(a) What is the least number of buses needed?											
					Ar	ıswer				[2]	
(h) How many punil	c ore (on the	loct 1	bua?							
(b) How many pupils are on the last bus? (Assume all the other buses are full.)											
`											1
`											

16 The table shows the minimum and maximum daily temperatures in six cities in January.

Examiner Only				
Marks	Remark			

City	Minimum (°C)	Maximum (°C)
Paris	-1	12
London	-2	9
Barcelona	3	16
Moscow	-15	-1
Athens	0	15
Glasgow	-5	4

(a) Which city recorded the lowest minimum temperature?

Answer _____ [1]

(b) What is the difference in °C between Glasgow's minimum and maximum temperatures?

Answer _____°C [1]

(c) Which two cities had the same difference between their minimum and maximum temperatures?

Answer _____ and ____ [1]

17 (a) (i)

David plays on a slide which has a ladder of vertical height 1.5 m and a sloped length of 3 m.

Using a scale of $1 \text{ m} = 3 \text{ cm}$,
construct, as a right-angled
triangle, a scale drawing to
represent the slide.

Examiner Only			
Marks	Remark		

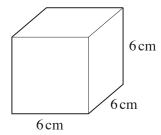
[2]

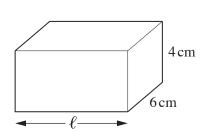
(ii) Measure the angle the sloped length makes with the ground.

Answer _____°[1]

(b) The volumes of this cube and this cuboid are the same.

What is the missing length marked ℓ on the cuboid?





Answer _____ [3]

18 (a) Calculate

(i) the cube of 4.5,

Answer [1]

(ii) the square root of 3.24,

Answer _____ [1]

(iii) $\frac{1}{2.5^2}$

Give your answer as a decimal.

Answer _____ [2]

(b) Which of the following fractions is nearest in size to $\frac{3}{5}$? Show your working.

 $\frac{7}{10}$ $\frac{11}{20}$ $\frac{17}{30}$ $\frac{1}{2}$

Answer _____ [2]

19 (a) Calculate the size of angle a.

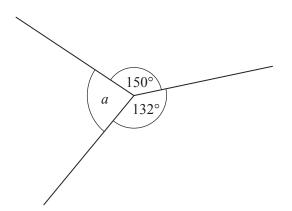
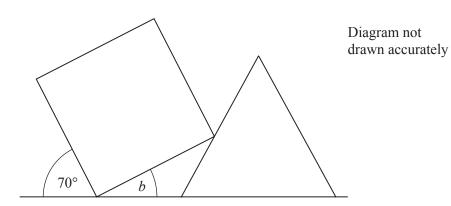


Diagram not drawn accurately

Answer a = \circ [2]

(b) A square just touches a triangle as shown.



Calculate the size of angle b.

Answer
$$b = ____^{\circ} [2]$$

(c) Calculate the size of angle c.

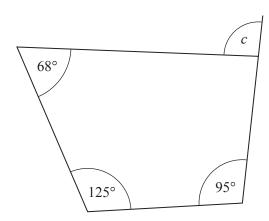


Diagram not drawn accurately

Answer $c = ___ \circ [3]$

Quality of written communication will be assessed in this question.

Examiner Only				
Marks	Remark			

Show your working.

20	(a)	Each student in Year 10 studies one language (French, Spanish of	r
		German).	

There are 135 students in Year 10.

Two-fifths study French, one-third study Spanish and the rest study German.

How many students study German?

Answer	 [4]
Allswei	 [4

(b) Below is a portion of Miss Johnston's bank statement for September.

Account Summary
Opening Balance £1224.08
Monthly Overdraft Limit £500.00

Miss Johnston

1st September–30th September

Account details

1 10 0 0 0,110	CF C CCC112			
DATE	PAYMENT DETAILS	OUT	IN	BALANCE
02 Sept	Balance forward			1224.08
04 Sept	Southford BS	1013.27		
11 Sept	Travelwide Ins.	134.28		76.53
23 Sept	Carcomp. Finance	253.68		
27 Sept	Cheque Lodge.		52.00	

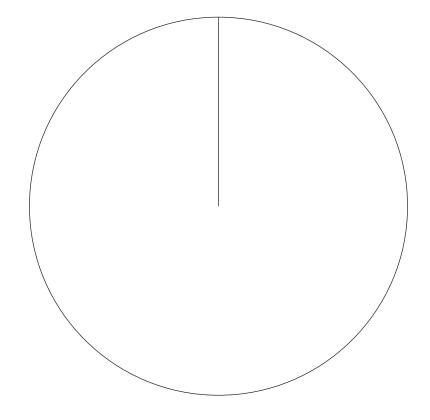
- (i) Complete all the blank spaces on the statement.
- [3]
- (ii) How much more could Miss Johnston have spent in September, without exceeding her overdraft limit?

Answer £		[1]
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The table below shows the results.

Type of Holiday	Frequency	Degrees
Bed & Breakfast	20	
Hotel half-board	22	
Self-catering	6	
Camping	12	

Complete an accurate pie chart below to show this information.



[4]

Haveringham to	Haveringham to Amberleyton MONDAY TO SATURDAY										
		SO	SX								
Haveringham	d	0520	0520	0550	0750	0850	0932	0950	1032		
Norterton	d			0600	0800	0900		1000			
Hamlington	d	0550	0550	0605	0805	0905	0942	1005	1042		
Bristead	d			0612	0812	0912		1012			
North Petersville	a	0605	0605	0618	0818	0918	0957	1018	1057		
	d	0610	0610	0623	0823	0923	1002	1023	1102		
Oxerton	d			0629	0829	0929		1029			
Crosstley	d			0636	0836	0936		1036			
Manningham	a	0622	0622	0641	0641	0941	1014	1041	1114		
	d		0625	0644	0844	0944	1017	1044	1117		
East Tuttingley	d		•••	0648	0848	0948	1021	1048	1121		
Amberleyton	a	•••	0638	0658	0858	0958	1031	1053	1131		

General Notes:

SO Saturdays only. SX Not Saturdays, a Arrival time, d Departure time

(a) How many minutes does the 0932 train from Haveringham take to reach Manningham?

Answer	minutes	[1]
1 1115 W C1	IIIIIutos	1 1

(b) What is the earliest train you could take from Hamlington on a Saturday to get to Amberleyton without changing trains?

Answer		[1]
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23 Solve the equations

4	(a)	9 <i>x</i>	_ 4	5 =	58
l	(a)	ノス		<i>)</i> —	20

Examiner Only							
Marks	Remark						

Answer x = [2]

(b)
$$\frac{x}{8} = 3$$

Answer $x = ___[1]$

24 A group of students take class tests in both English and Mathematics.

Each test is marked out of 50.

The stem and leaf diagrams below show the distribution of marks for both tests.

	English									Mat	hema	atics		
0							0	9						
1	2	5	6	9			1	0	1	2	6	7		
2	3	6	7	7	8		2	1	3	4	5	7	8	8
3	0	2	4	5	5		3	2	5	7	9			
4	1	2	2	3	6		4	1	4	8				
5	0						5							

Key: 2 | 5 means 25

(a) Which subject has the bigger range of marks and by how much?

Answer _____ has the bigger range by _____ [2]

(b) Which subject has the bigger median mark and by how much?

Answer _____ has the bigger median mark by ____ [2]





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