cea

Rewarding Learning

Mathematics

Unit T1
(With calculator)
Foundation Tier

ML

[GMT11]

FRIDAY 10 JANUARY, 9.15am–10.45am

| Candidate Number |

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 blue or black ink only.
Answer **all twenty-nine** 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.
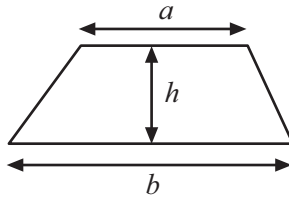Quality of written communication will be assessed in **questions 7 and 21**.
You should have a calculator, ruler, compasses and a protractor.
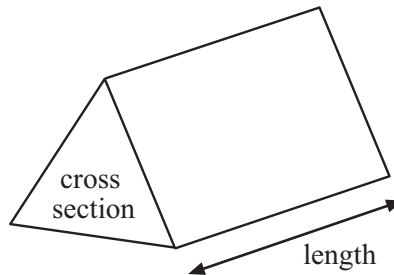The Formula Sheet is on page 2.

8690.03 **ML**

Formula Sheet

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

Volume of prism = area of cross section × length

1 **(a)** Write 100 million in figures.

<div align="right">

Answer _____ [1]

</div>

(b) Write down the number forty three thousand and twenty six in figures.

<div align="right">

Answer _____ [1]

</div>

(c) Write down the value of the 4 in the number 34 568

<div align="right">

Answer _____ [1]

</div>

(d) Write 60% as a decimal.

<div align="right">

Answer _____ [1]

</div>

[Turn over

2 **(a)** From the list of numbers below

     56   23   80   40   21   70   25   99   67

(i) choose two numbers with a sum of 90

Answer _____ and _____ [1]

(ii) choose two numbers with a difference of 55

Answer _____ and _____ [1]

(iii) what is the largest number that can be made by multiplying any two of the numbers in the list?

Answer _____ [1]

(b) Show how to work out   450 – 168   **without using a calculator**.

Total Question 2

[2]

3 The frequency table and the pictogram show some information about the number of letters received in an office during one week.

Monday	
Tuesday	25
Wednesday	20
Thursday	
Friday	15

Monday	✉ ✉ ✉ ✉ ✉
Tuesday	
Wednesday	✉ ✉
Thursday	
Friday	✉ ✉

(a) Complete the frequency table for Monday. [2]

(b) Complete the pictogram for Tuesday. [1]

(c) In total 145 letters are received in the week.
Complete both the frequency table and the pictogram for Thursday. [2]

(d) Which day shows the mode? Why do you think the mode is on this day?

_____ because _____

_____ [2]

Total Question 3

[Turn over

4 (a) Draw a circle with radius 5 cm.

•

[1]

(b) Draw a radius in your circle and label it PQ. [1]

(c) Mark a point X on the circumference of your circle. [1]

8690.03 **ML**

6

5 Which **metric** unit is best to measure

(a) the distance from Coleraine to Dungannon,

Answer _____ [1]

(b) the weight of a potato,

Answer _____ [1]

(c) the capacity of a large can of engine oil?

Answer _____ [1]

Total Question 5

6 Here is a sequence of shapes made using sticks.
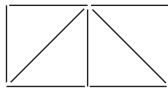
Shape 1   Shape 2   Shape 3   Shape 4
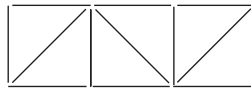
(a) Draw Shape 4 of the sequence.

[1]

(b) Fill in the table below for the sequence of shapes.

Shape Number	1	2	3	4	5
Number of sticks	5	9	13		

[1]

(c) Look at the numbers in the 'Number of sticks' row. Write down the pattern.

Answer _____ [1]

(d) Explain why you could not have a shape in the sequence using 100 sticks.

Answer _____ [1]

Total Question 6

[Turn over

8690.03 **ML**

7 Boxes of Tasty Tea come in three sizes

size A   60 bags for £1.80

size B   80 bags for £2.24

size C   150 bags for £4.80

Find out which size is the best buy.
Show each step of your working out.

Answer   size _____ [4]

Total Question 7

---

8 Tiles cost £7.48 each. How many tiles can be bought for £100?

Total Question 8

Answer _____ [2]

8690.03 **ML**

9 Nine students each completed an experiment.
The time taken (in minutes) by each student is shown below.

32   17   30   18   21   22   30   24   29

(a) What is the median time?

Answer _____ minutes [2]

(b) Calculate the range of the times.

Answer _____ minutes [1]

10 Look at the distance chart below. It shows some distances in miles between a number of places.

Hull

60	Leeds			
47	72	Lincoln		
97	44		Manchester	
66		47	39	Sheffield
	24		71	57	York

Jane travels from Hull to Lincoln, then from Lincoln to Manchester and finally from Manchester to York.
The total distance she travels is 203 miles.
What is the distance from Lincoln to Manchester?
Fill in this distance in the chart.   [2]

[Turn over

11 (a)

P   Q

                                                    R
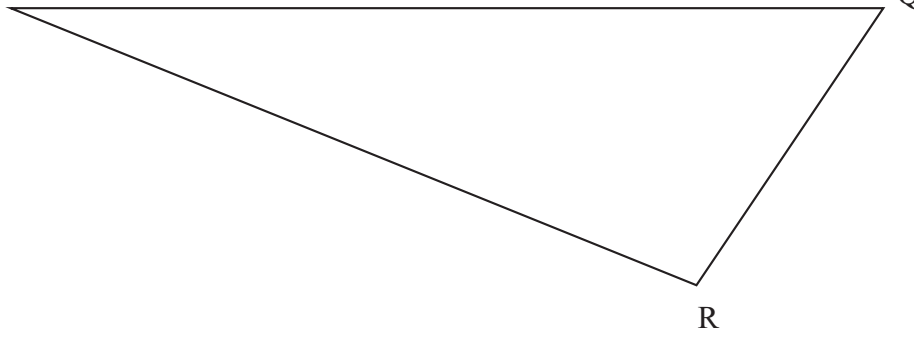
In the triangle PQR measure

(i) the length of PQ,

Answer _____ cm [1]

(ii) the size of angle PRQ.

Answer _____ ° [1]

(b)
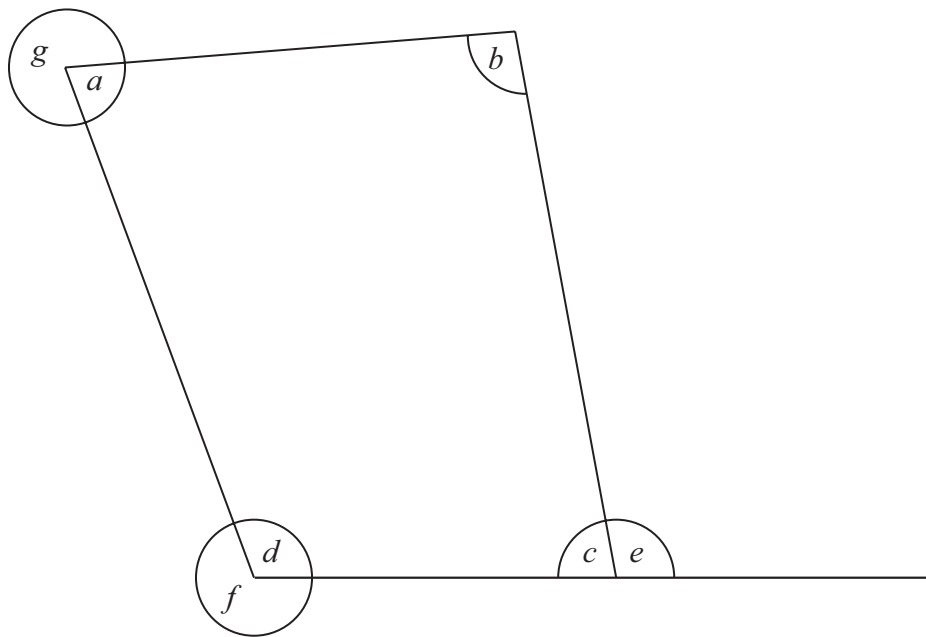
From the diagram above write down the letter of an angle that is

(i) acute,

Answer _____ [1]

(ii) obtuse,

Answer _____ [1]

(iii) reflex.

Answer _____ [1]

The sketch above shows a large garden ABC that is in the shape of a right-angled triangle. The side CB = 160 m and the side AC = 110 m. Using a scale of 1 cm = 20 m, construct a scale drawing to represent the garden.

[2]

Total Question 12

13 (a) Write down the value of 9^2

Answer —————— [1]

(b) Calculate the value of $\sqrt{2.56}$

Answer —————— [1]

(c) Calculate the value of 3.2^2

Answer —————— [1]

Total Question 13

14 (a) Put these decimals in order of size starting with the smallest

0.7   0.52   0.413

Answer ————— , ————— , ————— [1]

(b) On the number line shown below

$$-3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$$

(i) estimate the decimal marked by the letter X

Answer —————— [1]

(ii) draw an arrow to show the position of the decimal 3.14   [1]

Total Question 14

[Turn over

8690.03 **ML**

13

15 John travelled to Edinburgh and hired a car at the airport.

The charge for hiring the car was £39.50 for each day. John also had to pay the cost of refilling the tank with petrol when he left the car back at the airport.

How much did John pay in total for hiring the car for 6 days and refilling with petrol that cost £46.78?

Answer £ _____ [2]

8690.03 **ML**

14

16 120 people were asked about their favourite food.
The pie chart shows the results.
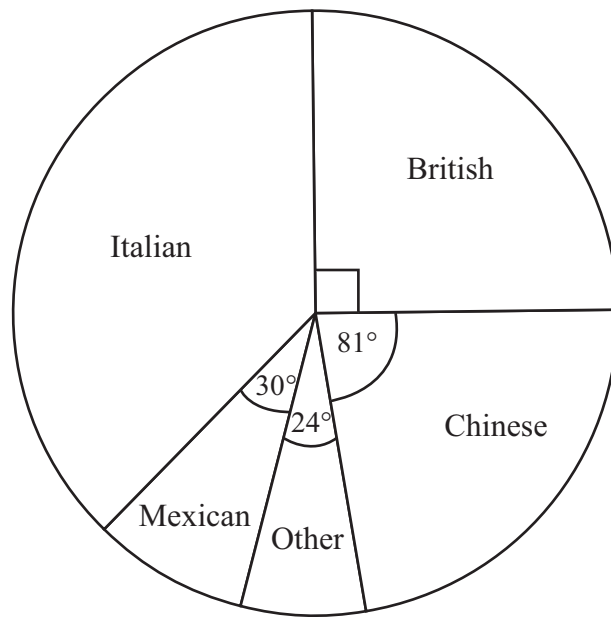
(a) What **fraction** of people like Mexican food best?

Answer _____ [1]

(b) Calculate the number of people who like Italian food best.

Answer _____ [3]

17

(a) Write down the coordinates of the point P that is marked on the grid above.

Answer P (_____ , _____) [1]

(b) On the grid above, plot and label the points A (−5, 4) and B (3, −2). [2]

Total Question 17

18 Solve the following equations

(a) $x - 3 = 15$

Answer $x =$ _____ [1]

(b) $4y = 36$

Answer $y =$ _____ [1]

Total Question 18

19

3cm

3cm

3cm

(a) Draw a net of this cube on the 1 cm grid below.　　　　[2]

(b) Find the volume of this cube.

Total Question 19

Answer _____ [3]

[Turn over

8690.03 **ML**

17

20 (a) Write the fraction $\frac{36}{48}$ in its lowest terms.

Answer _____ [1]

(b) Calculate 3% of £900

Answer £ _____ [2]

8690.03 **ML**

18

Examiner Only	
Marks	Remark

21 (a) Work out the value of $2^2 \times 3^3$ showing each step of your working out.

Answer _____ [2]

(b) Which of the following fractions is nearest in value to $\frac{1}{4}$?

$$\frac{2}{10} \qquad \frac{3}{20} \qquad \frac{7}{30} \qquad \frac{11}{40}$$

Show each step of your working out.

Answer _____ [2]

Total Question 21

[Turn over

22 (a) From the numbers in the list below

    24   56   81   40   25   66   59   90   27

(i) write down a square number,

Answer _____ [1]

(ii) write down a cube number.

Answer _____ [1]

(b) A grandmother's age on her next birthday will be both a square number and a cube number at the same time.

What age is the grandmother now?

Answer _____ [2]

Total Question 22

---

23 Anne bought pink and blue ribbon for her Nursery School.

She bought 3.2 metres of pink ribbon and 2.6 metres of blue ribbon and paid the shopkeeper £8.89

The pink ribbon cost £1.60 per metre.

How much did the blue ribbon cost per metre?

Show each step of your working out.

Total Question 23

Answer £ _____ [4]

24

Year	2008	2009	2010	2011	2012
Rainfall (cm)	60.5	62.5	62.0	61.0	

The mean rainfall over these 5 years was 62 cm. What was the rainfall in 2012?

Answer ⎯⎯⎯⎯⎯ cm [3]

25 Look at the table below. It shows the number of pairs of shoes of different colours sold in a shop in one day.

Colour	Black	Brown	Blue	Other
Number	35	20	18	17
Angle				

Fill in the pie chart to show the number of pairs of shoes of each colour. Label the pie chart clearly.

[4]

[Turn over

8690.03 **ML**
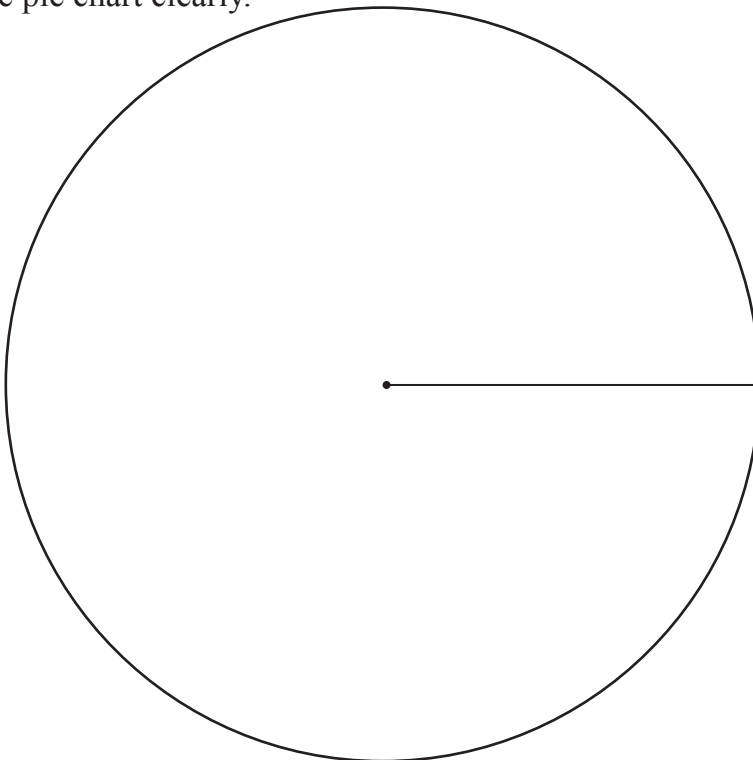
26 Look at the two graphs below. They show the same information but they look different.

Graph A

holiday sales

Graph B

holiday sales
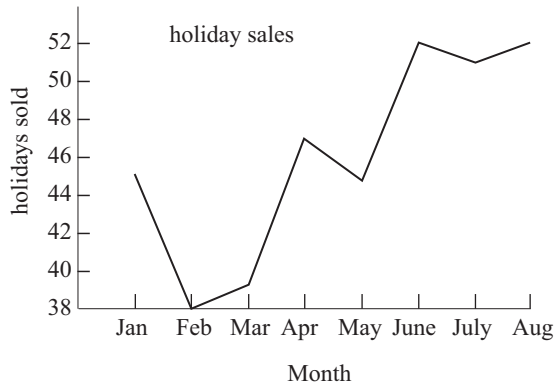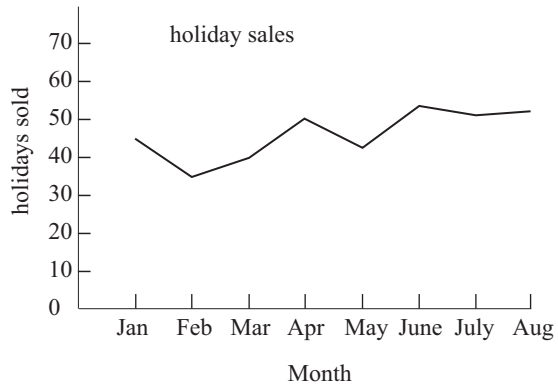
(a) Which graph appears to show the biggest increase in sales?

Answer Graph _____ [1]

(b) Why does this graph make you think this?

Answer _____ [1]

Total Question 26

8690.03 **ML**

22

27 Calculate the size of angle x in the diagram below.

85°

85°
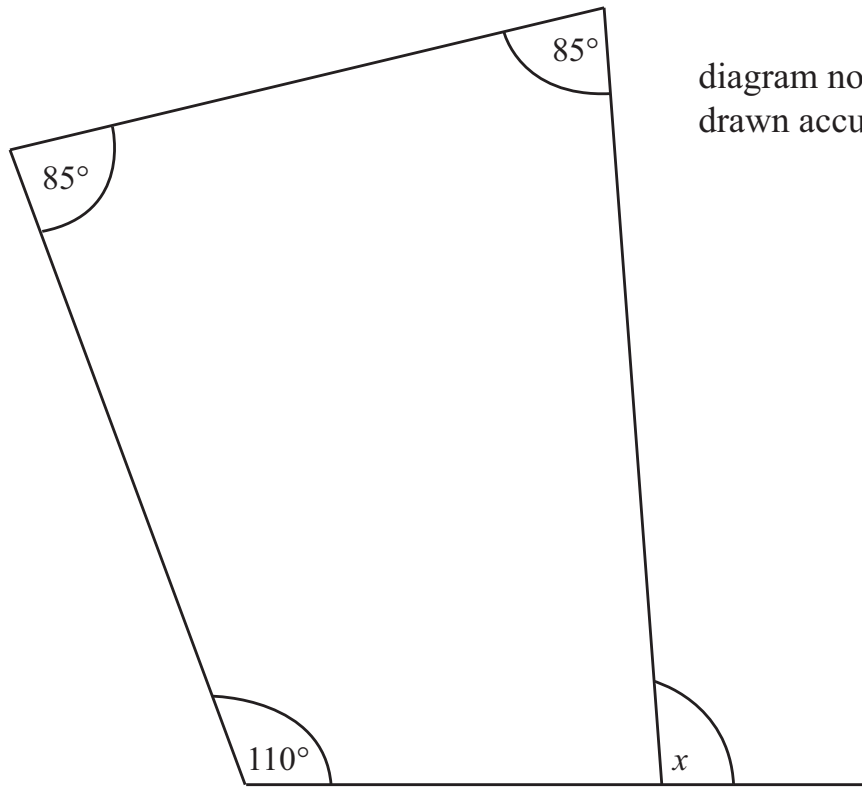
diagram not
drawn accurately

110°

x

Answer $x =$ _____° [3]

[Turn over

8690.03 **ML**

23

Dublin Connolly					*1000*				*1300*				*1600*			
Newry 🄻					*1112*				*1412*				*1712*			
Poyntzpass					|				|				|			
Scarva					|				|				|			
Portadown	0845	0945	1045	*1134*	1145	1245	1345	*1434*	1445	1545	1645	*1734*	1745	1845		
Lurgan	0851	0951	1051	*1144*	1151	1251	1351	|	1451	1551	1651	|	1751	1851		
Moira	0857	0957	1057	|	1157	1257	1357	|	1457	1557	1657	|	1757	1857		
Lisburn	0910	1010	1110	*1203*	1210	1310	1410	|	1510	1610	1710	|	1810	1910		
Hilden	0912	1012	1112	|	1212	1312	1412	|	1512	1612	1712	|	1812	1912		
Lambeg	0914	1014	1114	|	1214	1314	1414	|	1514	1614	1714	|	1814	1914		
Derriaghy	0916	1016	1116	|	1216	1316	1416	|	1516	1616	1716	|	1816	1916		
Dunmurry	0919	1019	1119	|	1219	1319	1419	|	1519	1619	1719	|	1819	1919		
Finaghy	0922	1022	1122	|	1222	1322	1422	|	1522	1622	1722	|	1822	1922		
Balmoral	0924	1024	1124	|	1224	1324	1424	|	1524	1624	1724	|	1824	1924		
Adelaide	0926	1026	1126	|	1226	1326	1426	|	1526	1626	1726	|	1826	1926		
Great Victoria Street	0930	1030	1130	|	1230	1330	1430	|	1530	1630	1730	|	1830	1930		
Great Victoria Street	0834	0934	1034	1134	|	1234	1334	1434	|	1534	1634	1734	|	1834	1934	
City Hospital	0837	0937	1037	1137	|	1237	1337	1437	|	1537	1637	1737	|	1837	1937	
Botanic	0839	0939	1039	1139	|	1239	1339	1439	|	1539	1639	1739	|	1839	1939	
Belfast Central 🄼	0842	0942	1042	1142	*1216*	1242	1342	1442	*1507*	1542	1642	1742	*1807*	1842	1942	
Belfast Central	0845	0945	1045	1145		1245	1345	1445		1545	1645	1745		1845		1945
Titanic Qtr (Bridge End)	0848	0948	1048	1148		1248	1348	1448		1548	1648	1748		1848		1948
Sydenham ✈	0851	0951	1051	1151		1251	1351	1451		1551	1651	1751		1851		1948
Holywood	0855	0955	1055	1155		1255	1355	1455		1555	1655	1755		1855		1955
Marino	0857	0957	1057	1157		1257	1357	1457		1557	1657	1757		1857		1957
Cultra	0859	0959	1059	1159		1259	1359	1459		1559	1659	1759		1859		1959
Seahill	0902	1002	1102	1202		1302	1402	1502		1602	1702	1802		1902		2002
Helen's Bay	0905	1005	1105	1205		1305	1405	1505		1605	1705	1805		1905		2005
Carnalea	0909	1009	1109	1209		1309	1409	1509		1609	1709	1809		1909		2009
Bangor West	0911	1011	1111	1211		1311	1411	1511		1611	1711	1811		1911		2011
Bangor	0916	1016	1116	1216		1316	1416	1516		1616	1716	1816		1916		2016

© Adapted from Translink Timetable (www.translink.co.uk). With kind permission

Look at the timetable above.

(a) Sarah takes the 1134 train from Portadown to Belfast Central.
How long should the journey take?

Answer _____ minutes [1]

8690.03 **ML**

(b) James is in Portadown. He has to be in Holywood by 5 pm. What is the latest train he could take from Portadown?

Answer ⎯⎯⎯⎯⎯⎯ [1]

(c) Joshua made a journey that lasted exactly 2 hours 7 minutes.
He did not start his journey in Portadown.
What is the earliest time his journey could have started?

Answer ⎯⎯⎯⎯⎯⎯ [1]

Total Question 28

[Turn over

8690.03 **ML**

25

29 (a) Simplify

$$5x + 2y - 3x - 5y$$

Answer ————————— [2]

(b) Solve

$$7x - 3 = 18$$

Answer $x =$ ———— [2]

THIS IS THE END OF THE QUESTION PAPER

DO NOT WRITE ON THIS PAGE

DO NOT WRITE ON THIS PAGE

8690.03 **ML**