Centre Number

Candidate Number

cea

Rewarding Learning

General Certificate of Secondary Education
2012

Mathematics

Unit T1
(With calculator)
Foundation Tier

[GMT11]

GMT11

WEDNESDAY 6 JUNE 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.
Complete in blue or black ink only. **Do not write in pencil or with a gel pen.**
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 **questions 11, 21 and 22**.
You should have a calculator, ruler, compasses and a protractor.
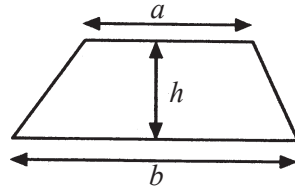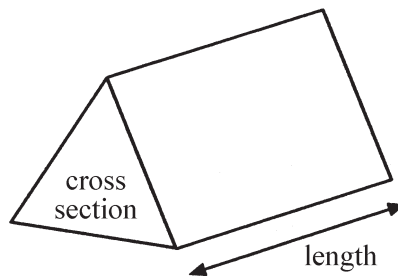The Formula Sheet is overleaf.

7418
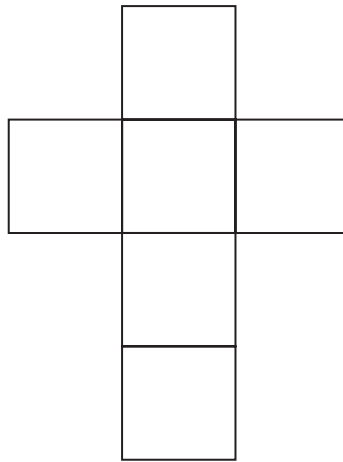
Formula Sheet

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

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

1 The pictogram shows the number of drinks sold in a small cafe one Saturday.

tea				
coffee					
milk		
hot chocolate	

Key: = 10 cups

(a) How many cups of tea were sold?

Answer _____ [1]

(b) In total there were 150 drinks sold.

(i) Calculate the number of cups of hot chocolate sold.

Answer _____ [1]

(ii) Complete the pictogram to show the number of cups of hot chocolate sold. [1]

[Turn over

7418

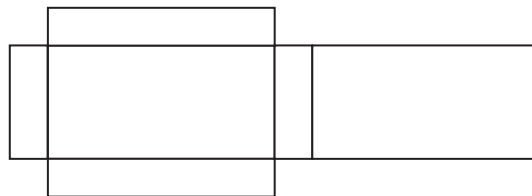**2** **(a)** The following are nets of 3D shapes.

Write down the names of the 3D shapes.

(i)

Answer _____ [1]

(ii)

Answer _____ [1]

(b) When the net in part **(a)(ii)** is folded to make a 3D shape, how many vertices will it have?

Answer _____ [1]

Total Question 2

7418

3 **(a)** Write down the largest number which can be made with the digits

$$4 \qquad 9 \qquad 6 \qquad 1$$

Answer _____ [1]

(b) Write

(i) 5389 to the nearest hundred,

Answer _____ [1]

(ii) 36% as a decimal,

Answer _____ [1]

(iii) 28.49 to the nearest whole number,

Answer _____ [1]

(iv) 0.47 as a fraction.

Answer _____ [1]

(c) Which of the following are multiples of 16? Circle your answers.

8	62	3	32	4	16

[2]

(d) Jill's age is the smallest number which has 2, 3 and 5 as factors. What age is Jill?

Answer _____ [1]

[Turn over

4 **(a)** Twenty children were asked how many pets they had.

Number of pets	Frequency
0	3
1	8
2	5
3	3
4	1

(i) Draw a bar chart for this data. [3]

(ii) What number of pets is the mode?

Answer _____ [1]

(b) Forty basketball players wrote down how many points they had scored all season.

8	10	42	54	86	95	61	16	10	22
28	52	73	41	22	82	64	62	32	77
28	70	52	48	54	18	22	66	56	51
44	38	39	19	71	81	70	82	70	90

Complete the frequency table below.

Number of points	Tally (if required)	Frequency
0–20		
21–40		
41–60		
61–80		
81–100		

[2]

5 **(a)** How many golf balls, costing £2.99 each, can Michael buy for £20?

Answer ＿＿＿＿＿＿＿＿ [2]

(b) His friend John buys 4 of these golf balls. How much change does he get from £20?

Answer £＿＿＿＿＿＿＿ [2]

Total Question 5

7418

6 **(a)** Find the next two terms in this sequence and explain the rule you used:
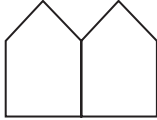
2,   10,   50,   250,   _____,   _____ .

Rule _____ [2]
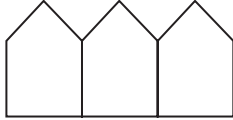
(b) Aine uses matches to make pentagons.
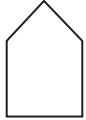
Shape 1   Shape 2   Shape 3   Shape 4

(i) Draw the fourth shape in this pattern.   [1]

(ii) Complete the table below.

Shape	1	2	3	4	5
Number of matches	5	9	13	—	—

[1]

[Turn over

7 **(a)** Which metric unit is the most suitable to measure

(i) the distance from Belfast to Dublin,
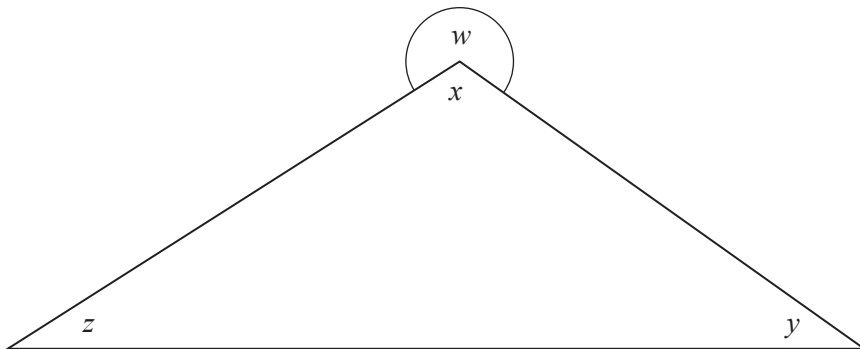
Answer _____ [1]

(ii) the weight of an onion,

Answer _____ [1]

(iii) the capacity of a large carton of milk?

Answer _____ [1]

(b)

From the diagram above write down the letter of an angle which is

(i) acute,

Answer _____ [1]

(ii) obtuse.

Answer _____ [1]

Total Question 7

7418

8

15   17   10   18   49   12   38   120   125

From the numbers above write down

(a) a square number,

Answer _____ [1]

(b) the factors of 60,

Answer _____ [2]

(c) a cube number,

Answer _____ [1]

(d) a prime number.

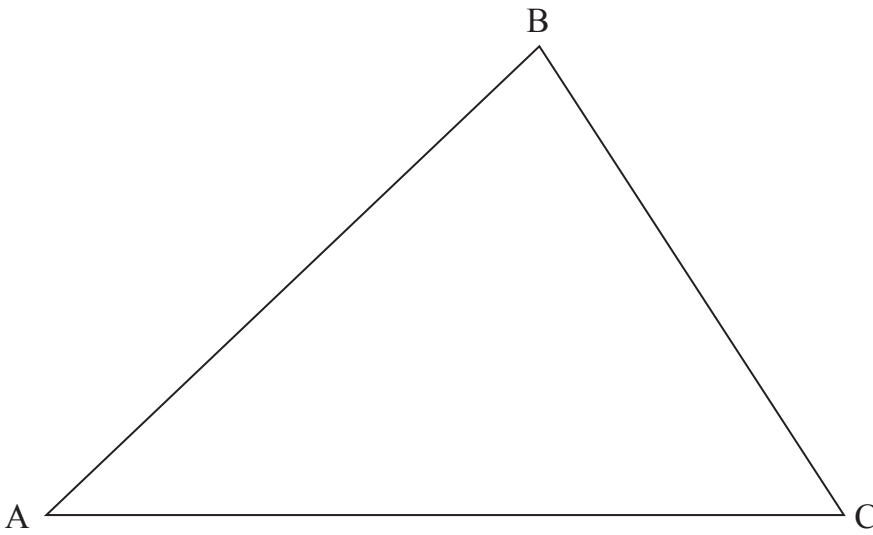Answer _____ [1]

Total Question 8

[Turn over

7418

9 **(a)** Mark the mid-point of the line VW with an X.

V _____ W [1]

(b)

In the triangle ABC measure

(i) the length of AC,

Answer _____ cm [1]

(ii) the size of angle BAC.

Answer _____ ° [1]

Total Question 9

7418

(a) Write down the co-ordinates of the points P and Q.

P (_____, _____), Q (_____, _____) [2]

(b) Plot the point R (0, 2) on the diagram.   [1]

Total Question 10

[Turn over

7418

Quality of written communication will be assessed in this question.

11 The scores for a class of 12 pupils in a music test were recorded

17   37   28   17   17   24   17   26   17   37   35   34

(a) Calculate the mean score.

Answer _____ [3]

(b) Find the median score.

Answer _____ [2]

(c) Which of the three averages "mean, mode or median" would be unsuitable to use as the class average? Explain your answer.

_____ because _____

_____

_____ [2]

Total Question 11

7418

12 (a) Pete thinks of two numbers. The **sum** of the numbers is 8. The **product** of the numbers is 15. What are Pete's two numbers?

Answer _____ and _____ [2]

(b) The table shows temperatures at 8 am and 8 pm in different parts of the world.

	Temperature at 8 am in °C	Temperature at 8 pm in °C
Dubai	18	14
London	8	−2
Alaska	−6	−13
Sydney	26	20

(i) What is the difference between the highest and lowest temperatures recorded?

Answer _____ °C [2]

(ii) How much colder is it in Alaska at 8 am than in London at 8 pm?
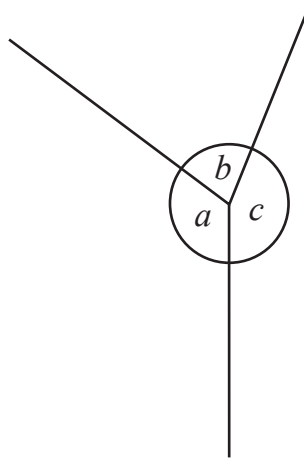
Answer _____ °C [2]

Total Question 12

[Turn over

7418

13 (a) Find the area of the quadrilateral drawn on the 1 cm grid below.

Answer _____ [2]

(b) Find the volume of a shoebox measuring 30 cm by 20 cm by 10 cm.

Answer _____ cm^3 [2]

Total Question 13

7418

14 (a) In the first round of a long jump competition Jane jumps 4 metres.

In the second round she jumps 5% longer.

How many more centimetres does she jump in the second round?

Answer _____ cm [2]

(b) Calculate, giving your answers in decimal form

(i) $28 + \dfrac{15}{40}$

Answer _____ [1]

(ii) $(28 + 15) \div 40$

Answer _____ [1]

(c) Bill says $\dfrac{28+15}{40}$ is the same as **(b)(i)**

Ben says it is the same as **(b)(ii)**

Who is right?

Answer _____ [1]

Total Question 14

[Turn over

15 (a) What is the sum of the three angles *a*, *b*, *c* drawn below?

Answer _____ ° [1]

(b) Calculate the size of angle *x* in the diagram below.

35° *x* 44°
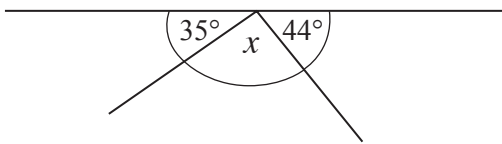
Diagram not drawn accurately

Answer *x* = _____ ° [2]

Total Question 15

16 (a) Solve the following equations

(i) $4x = 28$

Answer $x =$ _____ [1]

(ii) $x - 3 = 17$

Answer $x =$ _____ [1]

(iii) $3x + 11 = 17$

Answer $x =$ _____ [2]

(b) Simplify $\quad 3b - 2g + 4b + 7g$

Answer _____ [2]

Total Question 16

[Turn over

7418

17

Ages of 24 people taking a car driving test

```
1 | 5 7 7 8 8 8 9
2 | 0 0 0 0 1 2 3 5 7 7
3 | 2 2 4 6 6
4 | 1 2
```

Key: 3 | 2 = age 32

(a) One age has been recorded inaccurately. Put an **X** through the inaccurate age and give a reason for your answer.

Reason _____ [1]

(b) The test centre manager says, "The range of ages of those who sat the test was 28". Use this information to make the stem and leaf diagram correct. [1]

Total Question 17

18 Write in the missing numbers.

(a) $\sqrt{2.25}$ $+$ [   ] $= 4$ [1]

(b) [   ] $-$ 3^3 $= 11$ [1]

(c) $\dfrac{3}{0.5^2}$ $=$ [   ]   [1]

[Turn over

19 Two lighthouses are at the points R and S on the diagram.

N

× S

R ×
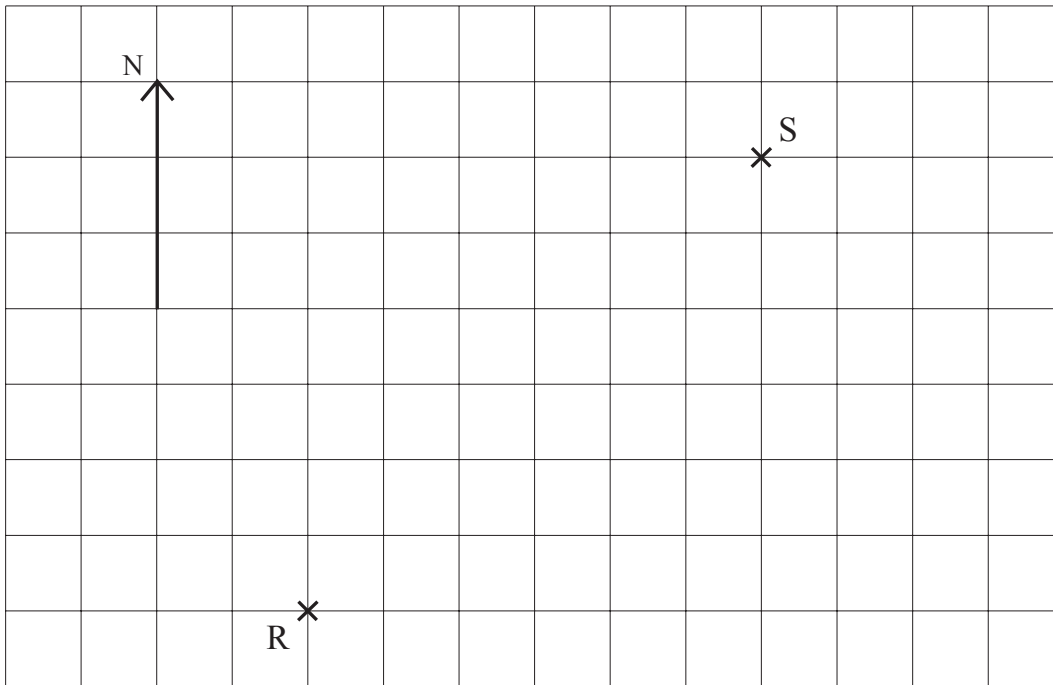
(a) What is the compass direction of S from R?

Answer _____ [1]

(b) The scale of the drawing is 1 cm to 4 km.

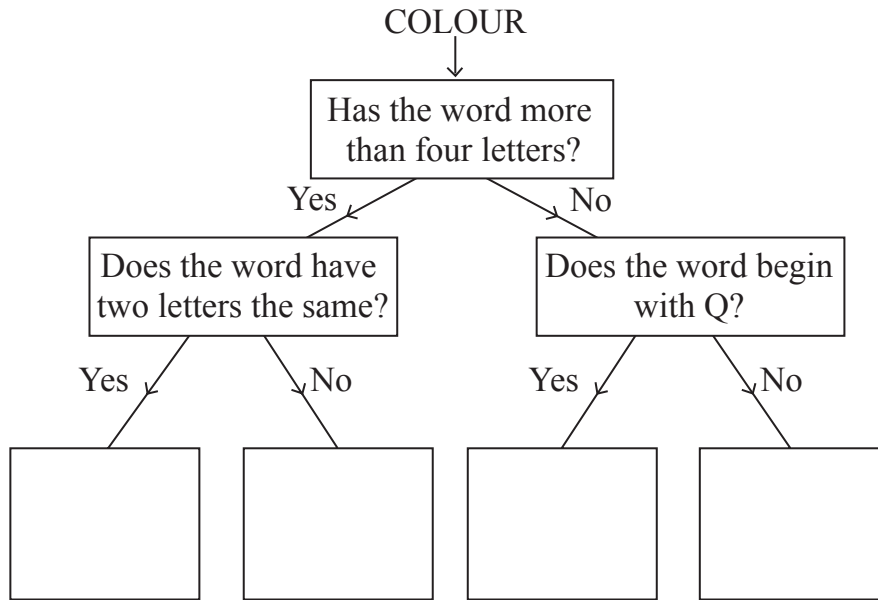What is the actual distance between the two lighthouses?

Answer _____ km [3]

7418

20 Use the decision tree to write the colours in the correct boxes.

PINK   GREEN   YELLOW   WHITE

COLOUR

Has the word more than four letters?

Yes   No

Does the word have two letters the same?

Does the word begin with Q?

Yes   No

Yes   No

[2]

Total Question 20

[Turn over

7418

Quality of written communication will be assessed in this question.

21 Bill bought 36 memory sticks at £4.20 each.

He sold 28 of them for £4.50 each and the other 8 for £3 each.

Did he make a profit or loss, and by how much?

Show your working.

Answer _____ by £ _____ [4]

7418

22 **(a)** Show how to work out $\dfrac{7}{12} - \dfrac{1}{2}$ if you do not have a calculator.

[2]

(b) The following table gives the numbers of the pets owned by a group of primary school children.

Pet	Dog	Cat	Rabbit	Guinea Pig
Number of children	55	35	20	10
Angle				

Draw a pie chart to illustrate this data.

[4]

Total Question 22

[Turn over

7418
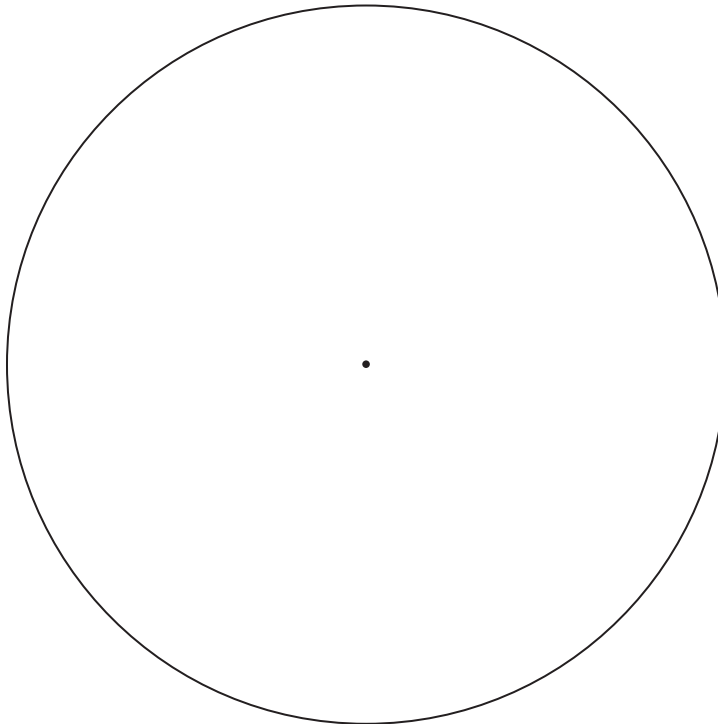
23 Draw accurately and label a triangle ABC with AB = 7 cm, angle A = 60° and angle B = 70°. Start with the line AB below.

A ——————————————————— B [2]

Total Question 23

7418

24 Calculate the size of angle x in the kite below.

76°

Diagram not
drawn accurately

102°   102°

x

Answer $x =$ _____ ° [2]

THIS IS THE END OF THE QUESTION PAPER

7418

DO NOT WRITE ON THIS PAGE

7418