



Rewarding Learning

Centre Number

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Candidate Number

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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.

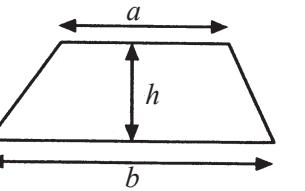
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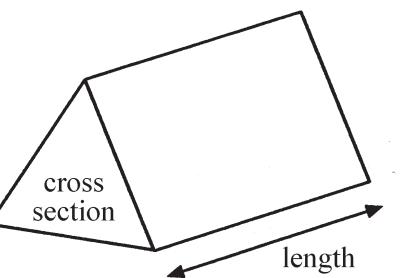
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Formula Sheet

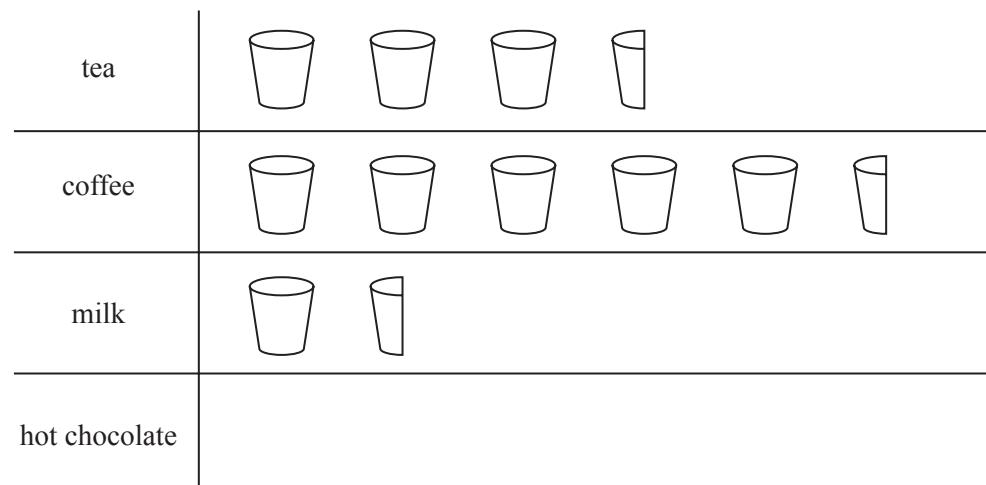
Area of trapezium = $\frac{1}{2}(a+b)h$



Volume of prism = area of cross section \times length



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



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]

Total Question 1

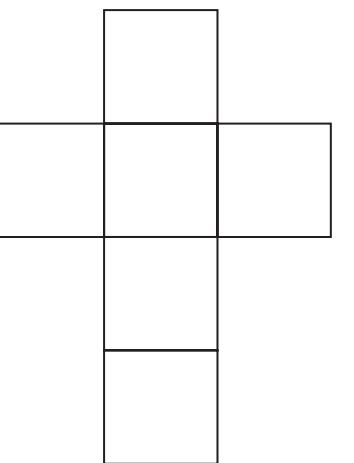
[Turn over]



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

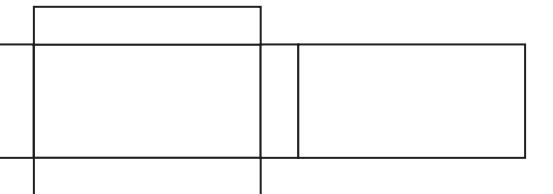
Write down the names of the 3D shapes.

(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



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

4 9 6 1

Answer _____ [1]

Examiner Only

Marks

Remark

(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]

Total Question 3

[Turn over]

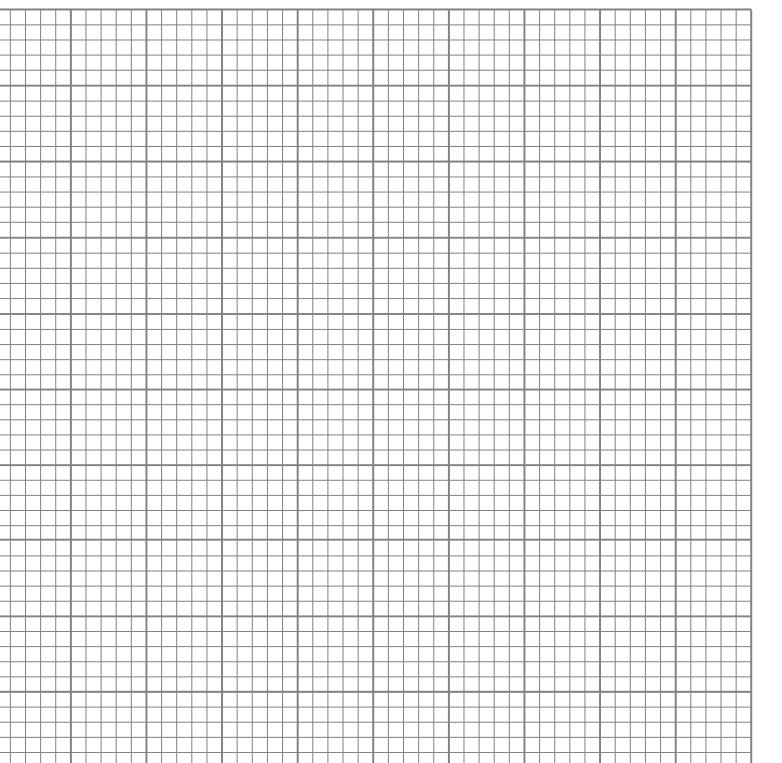


4 (a) Twenty children were asked how many pets they had.

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]

Total Question 4

[Turn over]



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

Examiner Only

Marks

Remark

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



6 (a) Find the next two terms in this sequence and explain the rule you used:

2, 10, 50, 250, _____, _____.

Rule _____ [2]

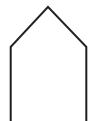
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Marks

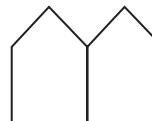
Remark

(b) Aine uses matches to make pentagons.

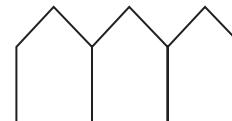
Shape 1



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]

Total Question 6



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

(i) the distance from Belfast to Dublin,

Answer _____ [1]

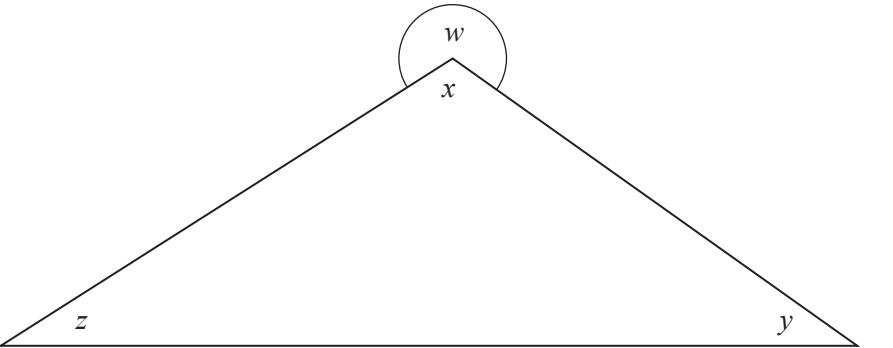
(ii) the weight of an onion,

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



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]

Examiner Only

Marks

Remark

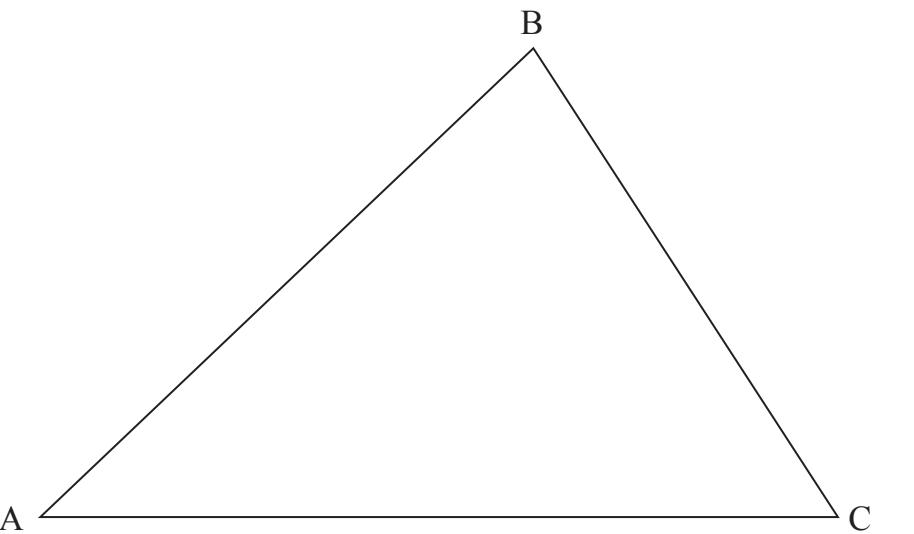
Total Question 8



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]

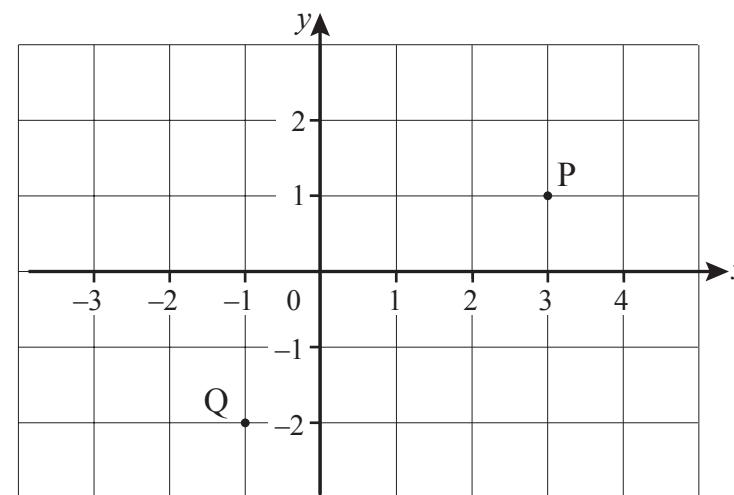
(ii) the size of angle BAC.

Answer _____ ° [1]

Total Question 9



10



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

$$P (\underline{\quad}, \underline{\quad}), Q (\underline{\quad}, \underline{\quad}) \quad [2]$$

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

[1]

Examiner Only	
Marks	Remark
	Total Question 10



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



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?

Examiner Only	
Marks	Remark

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]

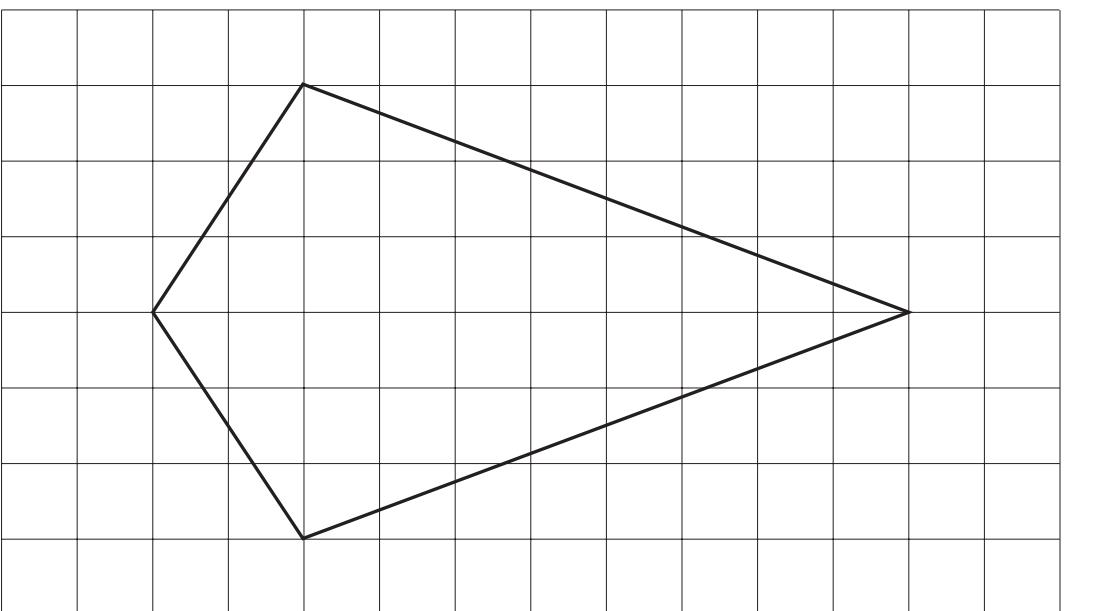
Total Question 12

[Turn over]



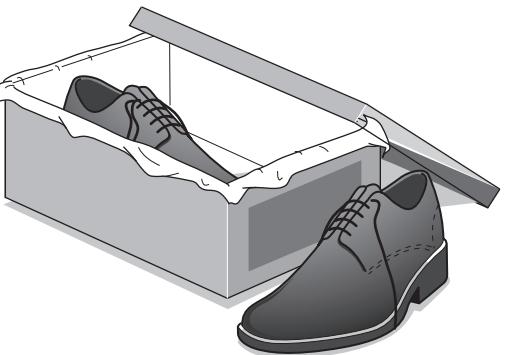
13 (a) Find the area of the quadrilateral drawn on the 1 cm grid below.

Examiner Only	
Marks	Remark
	total Question 13



Answer _____ [2]

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



Answer _____ cm³ [2]

Final Question 13



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?

Examiner Only

Marks

Remark

Answer _____ cm [2]

(b) Calculate, giving your answers in decimal form

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

Answer _____ [1]

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

Answer _____ [1]

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

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

Who is right?

Answer _____ [1]

Total Question 14

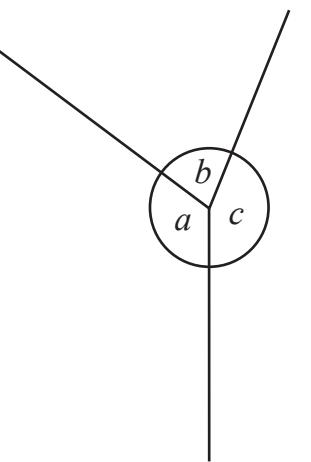


15 (a) What is the sum of the three angles a , b , c drawn below?

Examiner Only

Marks

Remark



Answer _____ $^{\circ}$ [1]

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

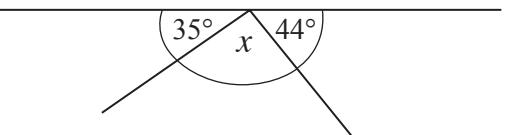


Diagram not drawn
accurately

Answer $x =$ _____ $^{\circ}$ [2]

Total Question 15



16 (a) Solve the following equations

(i) $4x = 28$

Answer $x = \underline{\hspace{2cm}}$ [1]

(ii) $x - 3 = 17$

Answer $x = \underline{\hspace{2cm}}$ [1]

(iii) $3x + 11 = 17$

Answer $x = \underline{\hspace{2cm}}$ [2]

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

Answer $\underline{\hspace{2cm}}$ [2]

Examiner Only	
Marks	Remark

Total Question 16



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
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]

Examiner Only	
Marks	Remark
Total Question 17	



18 Write in the missing numbers.

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

(b) $\boxed{\quad} - 3^3 = 11$ [1]

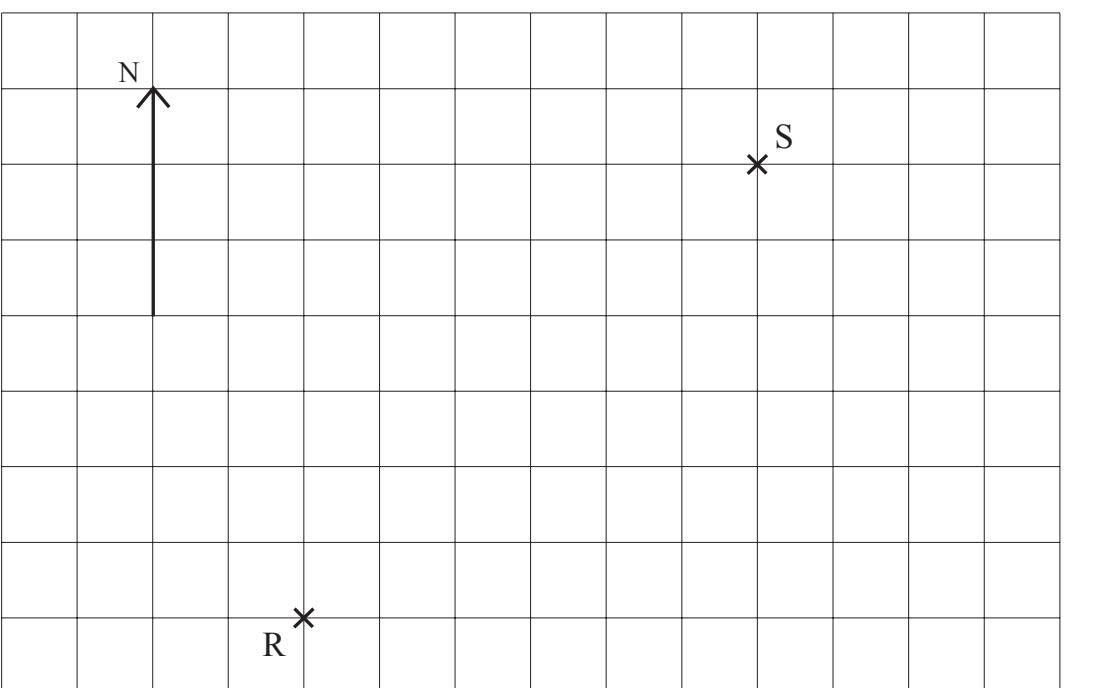
(c) $\frac{3}{0.5^2} = \boxed{\quad}$ [1]

Examiner Only	
Marks	Remark

Total Question 18



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



(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]

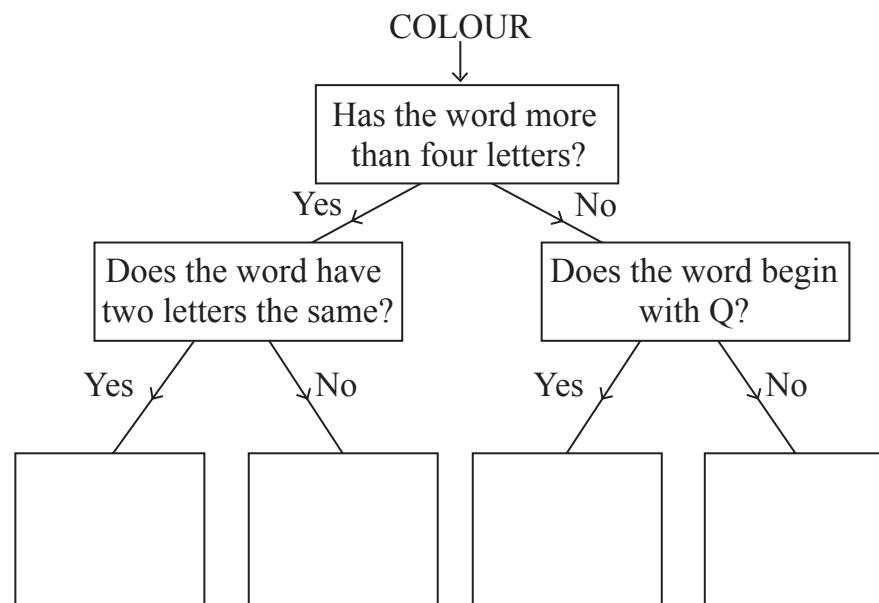
Total Question 19



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

Examiner Only	
Marks	Remark

PINK GREEN YELLOW WHITE



[2]

Total Question 20



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]

Total Question 21



Quality of written communication will be assessed in this question.

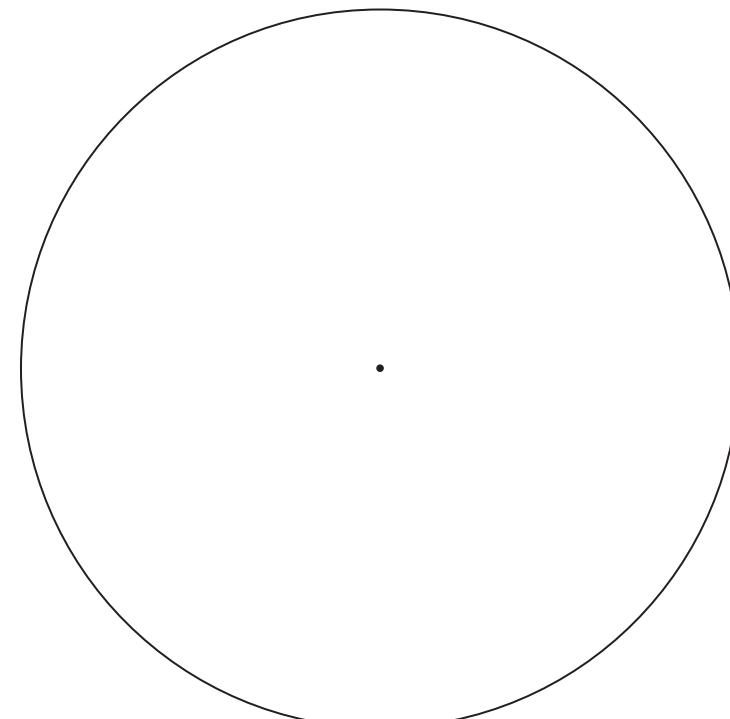
22 (a) Show how to work out $\frac{7}{12} - \frac{1}{2}$ if you do not have a calculator.

[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



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

A _____ B

[2]

Total Question 23



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

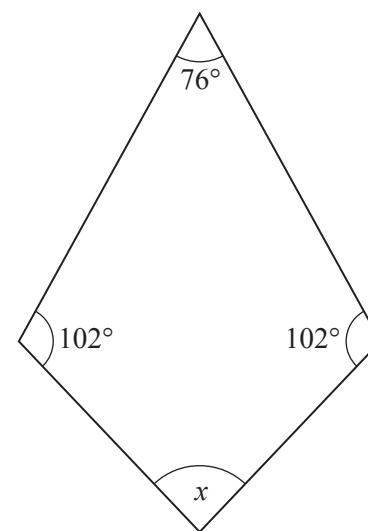


Diagram not
drawn accurately

Answer $x = \underline{\hspace{2cm}}$ ° [2]

Examiner Only	
Marks	Remark
	Total Question 24

THIS IS THE END OF THE QUESTION PAPER



For Examiner's use only	
Question Number	Marks
1	
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Total Marks	
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Examiner Number

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