



Rewarding Learning

General Certificate of Secondary Education  
2016

Centre Number

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Candidate Number

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# Mathematics

Unit T1  
(With calculator)  
Foundation Tier



**MV18**

[GMT11]

**THURSDAY 26 MAY, 9.15am–10.45am**

## 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-five** 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 at the end of each question 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

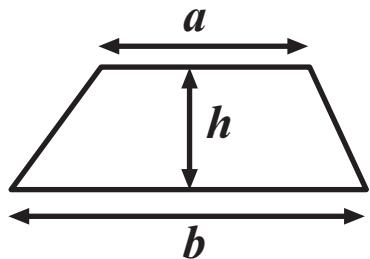
**Questions 3 and 14.**

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

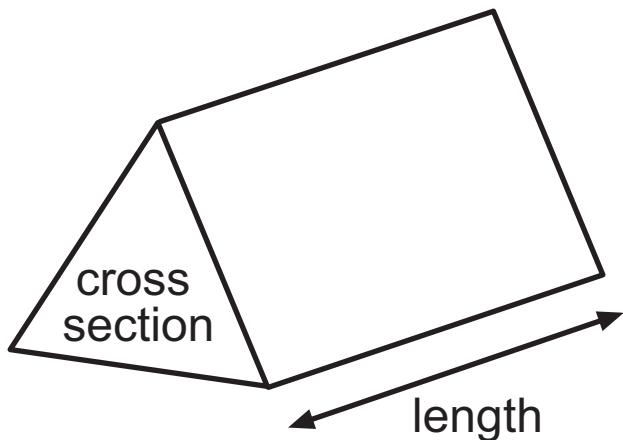
The Formula Sheet is on page 3.

# Formula Sheet

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



$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$



1 (a) What does the digit 7 in the number 387641 represent?  
[1 mark]

Answer \_\_\_\_\_

(b) Calculate without using a calculator.

Show your working.

(i)  $785 - 392$  [1 mark]

Answer \_\_\_\_\_

(ii)  $5.36 + 2.95$  [1 mark]

Answer \_\_\_\_\_

**(c)** Add 3.67 and  $\frac{3}{10}$  [1 mark]

Answer \_\_\_\_\_

**(d)** Write down the largest number from

0.09      0.8      0.10 [1 mark]

Answer \_\_\_\_\_

**(e)** Calculate 20% of £45 [1 mark]

Answer £ \_\_\_\_\_

**2** Place a tick in the correct box.

TRUE FALSE

**(a)** 4 is a factor of 2   [1 mark]

**(b)** 6 is the denominator in  
the fraction  $\frac{5}{6}$    [1 mark]

**(c)** 16 is the square root of 4   [1 mark]

**Quality of written communication will be assessed in this question.**

**3 Cans of juice cost 25p each to produce.**

There are 6 cans in a pack.

12 packs are sold at £3.60 each.

What is the profit? [3 marks]

Answer £ \_\_\_\_\_

4 For each sequence below, write the next number in the box.

(a) 2, 7, 12, 17,  [1 mark]

(b) 1, 3, 4, 7, 11,  [1 mark]

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**(Questions continue overleaf)**

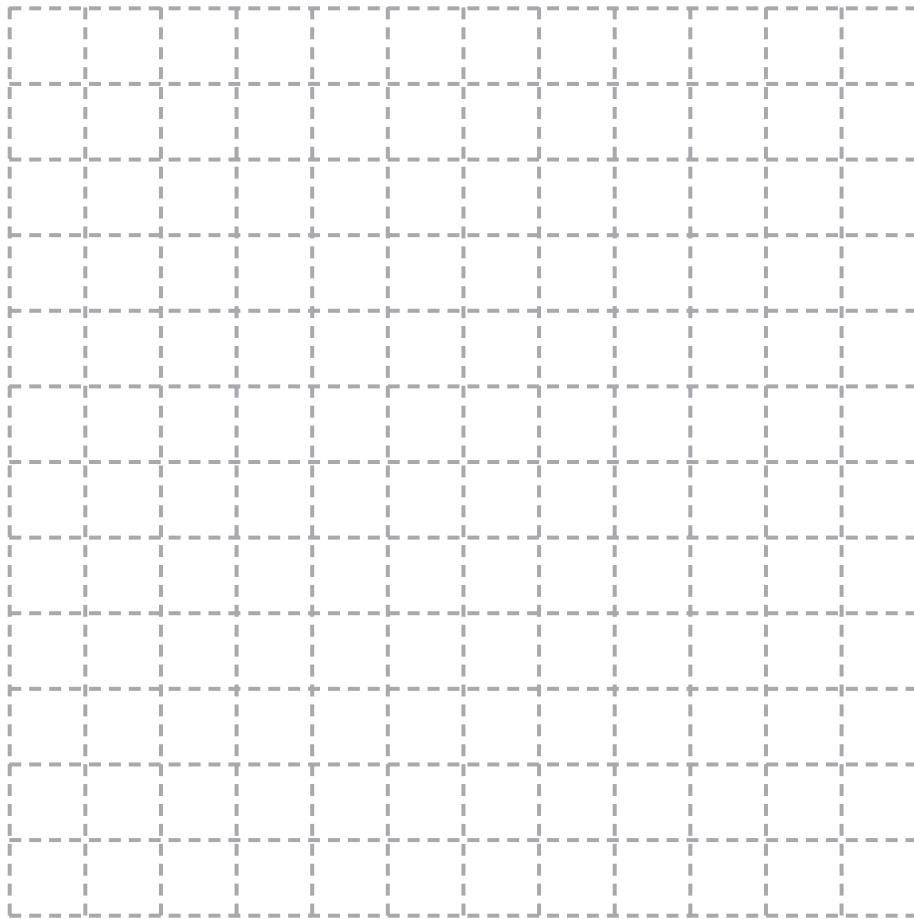
5 Some boys were asked which sport they play. The results are in the table below.

Sport	Frequency
Tennis	3
Basketball	6
Rugby	7
Football	8
Golf	2
Hockey	4

(a) Which is the most popular sport? [1 mark]

Answer \_\_\_\_\_

**(b)** Draw a clearly labelled bar chart on the grid below.  
[3 marks]



**(c)** Thirty-two boys were asked. When one of the boys saw the table he said that two of the boys must have been absent.

Give a reason why this statement may **not** be true.  
[1 mark]

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**6** For these numbers

3    11    9    10    14    2    5    3    3    7    8    10    2

**(a)** find the mode,    [1 mark]

Answer \_\_\_\_\_

**(b)** find the median.    [2 marks]

Answer \_\_\_\_\_

7 The distance chart below shows distances in km between five towns A, B, C, D, E.

A				
18	B			
35	26	C		
29	14	10	D	
50	36	19	11	E

(a) Which town is closest to B? [1 mark]

Answer \_\_\_\_\_

(b) Which two towns are the furthest apart? [1 mark]

Answer \_\_\_\_\_ and \_\_\_\_\_

(c) One day Mark left one town and travelled to a second town and then on to a third.

His total journey was 43 km. Which towns did he visit and in which order?

(Give one possible answer) [2 marks]

Answer starting town \_\_\_\_\_ to \_\_\_\_\_ and then on to \_\_\_\_\_

8 Below is a list of steps for drawing a quadrilateral.

- Step 1. The base AB is horizontal and is 8 cm long.
- Step 2. BC is at right angles to AB and is 4.7 cm long.
- Step 3. Angle BAD is  $54^\circ$
- Step 4. DC is parallel to AB.

(a) Follow the steps to draw and label an accurate diagram of the quadrilateral.

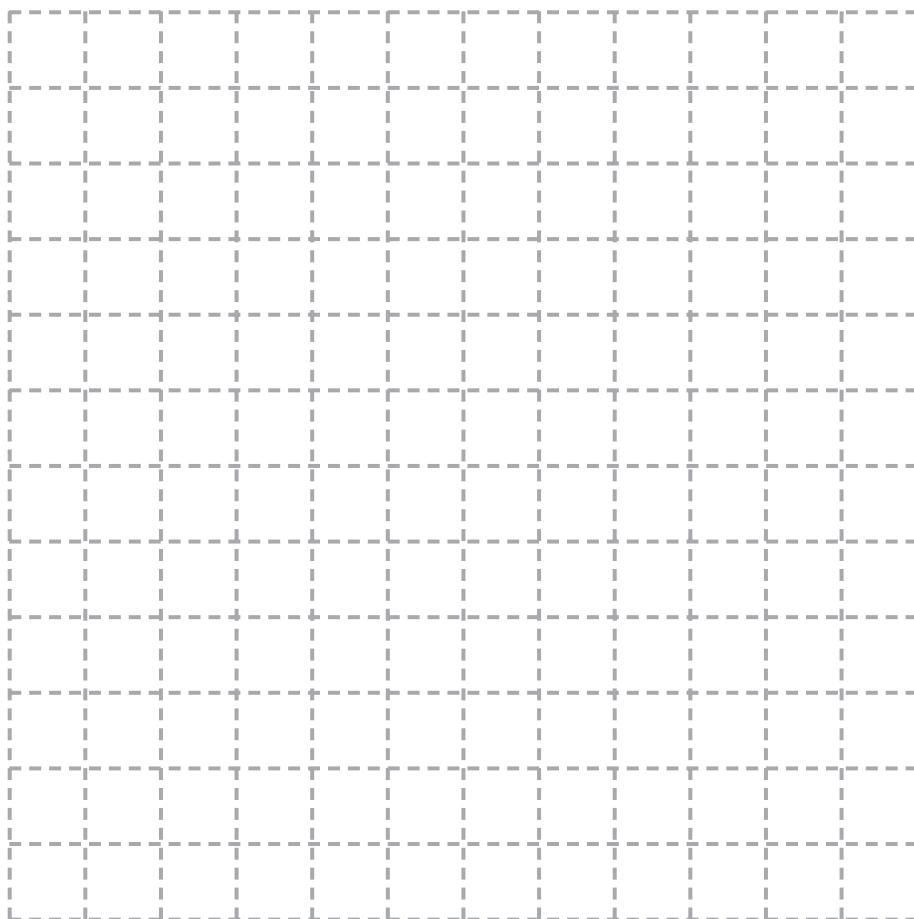
The starting point A has been given. [6 marks]

•  
A

(b) What is the mathematical name given to the quadrilateral ABCD? [1 mark]

Answer \_\_\_\_\_

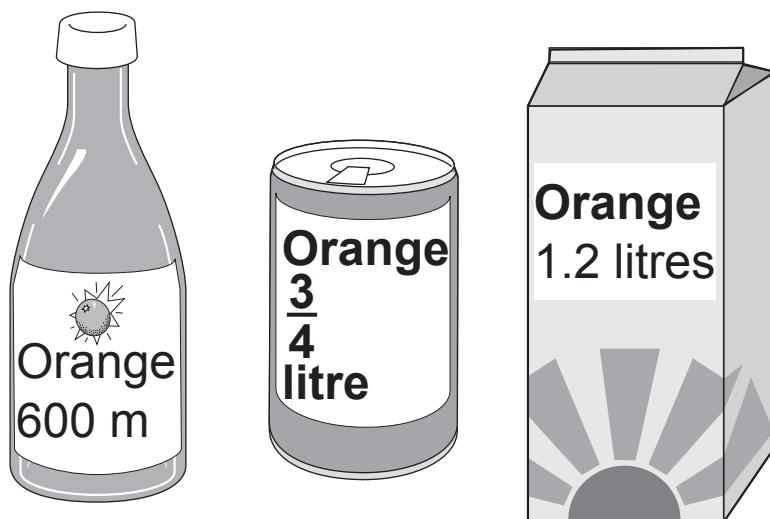
9 (a) On the grid below draw a rectangle with an area of  $24 \text{ cm}^2$   
Each small square is  $1 \text{ cm}^2$  [2 marks]



(b) Lisa drew a rectangle with an area of  $24 \text{ cm}^2$  and a perimeter of  $22 \text{ cm}$ . What are the dimensions of Lisa's rectangle? [1 mark]

Answer length = \_\_\_\_\_ cm; breadth = \_\_\_\_\_ cm

10 Martha has three different containers of orange juice.



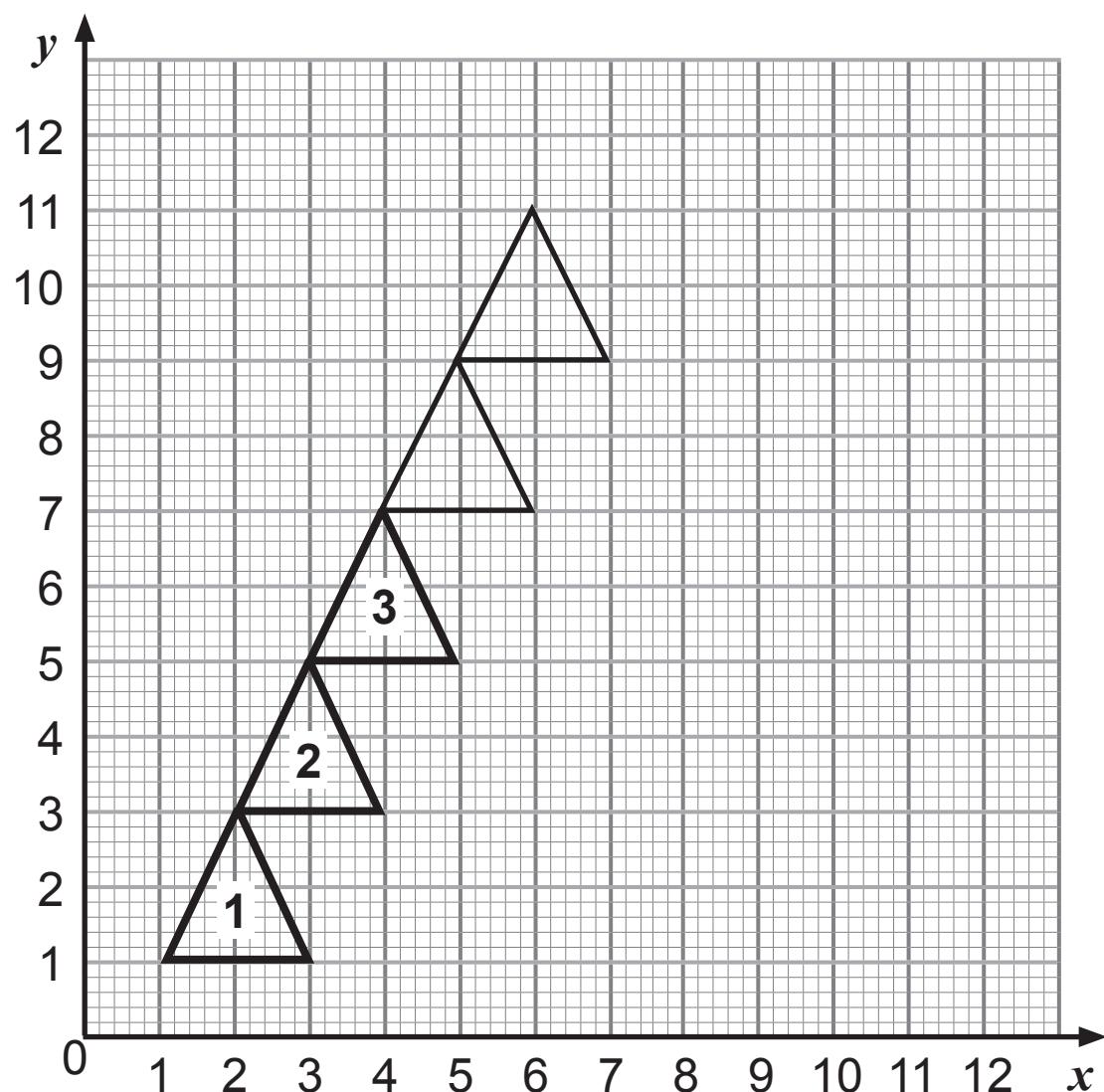
Calculate the **total** amount of orange juice in the three containers. [3 marks]

Answer \_\_\_\_\_

11 Complete the table below. The first line has been done for you. [6 marks]

I start facing	I turn	Fraction of turn	Degrees turned	I am now facing
North	clockwise	$\frac{3}{4}$	$270^\circ$	West
East	anticlockwise		$90^\circ$	
North West			$135^\circ$	East
	clockwise	$\frac{7}{8}$		South

12 Triangles are drawn on a grid to form a pattern. Here are the first three triangles.



**(a)** Write down the coordinates of the bottom right corner of triangle 2 [1 mark]

Answer ( \_\_\_\_\_, \_\_\_\_\_ )

The pattern of triangles is continued.

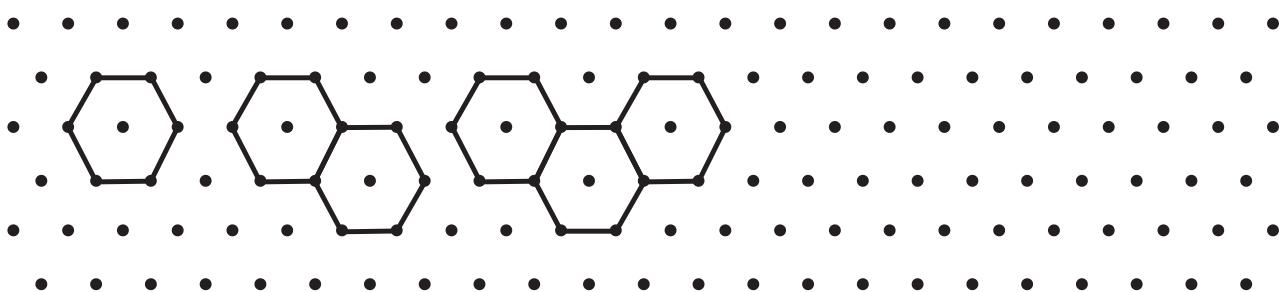
**(b)** Write down the coordinates of the bottom right corner of triangle 5 [1 mark]

Answer ( \_\_\_\_\_, \_\_\_\_\_ )

**(c)** Write down the coordinates of the top corner of triangle 5 [1 mark]

Answer ( \_\_\_\_\_, \_\_\_\_\_ )

13 Regular hexagons of side length 1 cm are placed to form a pattern.



pattern 1

pattern 2

pattern 3

pattern 4

(a) Draw pattern 4 [1 mark]

(b) Complete the following table. [2 marks]

pattern number	1	2	3	4
perimeter of shape (cm)	6	10		

(c) Describe how the perimeter of the shape changes as each new hexagon is added. [1 mark]

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(d) What is the perimeter of pattern 9? [2 marks]

Answer \_\_\_\_\_ cm

**Quality of written communication will be assessed in this question.**

**14** To divide any number by 28 you can first divide by 7 and then by 4

Use this idea to divide 504 by 56

**Do not use a calculator.**

Show all your working. [2 marks]

Answer \_\_\_\_\_

## 15 Green Dale Guest House

Adult holiday prices as shown.

Children (under 12) pay only 40% of Adult price.

Dates between	7 Nights	14 Nights
1st Jan–31st March	£315	£595
1st April–30th June	£485	£770

**(a)** Sarah, Tom and their two children, Becky (aged 11) and Sam (aged 7) stay in Green Dale for 14 nights in June.

What is the total cost for their holiday? [4 marks]

Answer £ \_\_\_\_\_

**(b)** Tanya books online and receives a 5% discount.

She goes on holiday for 7 nights in February with her son Ben (aged 14) and daughter Jade (aged 10).

What is the total cost of their holiday? [5 marks]

Answer £ \_\_\_\_\_

**16** For these numbers

48    53    37    26    39    51    42    43    40    24

**(a)** calculate the mean,    [3 marks]

Answer \_\_\_\_\_

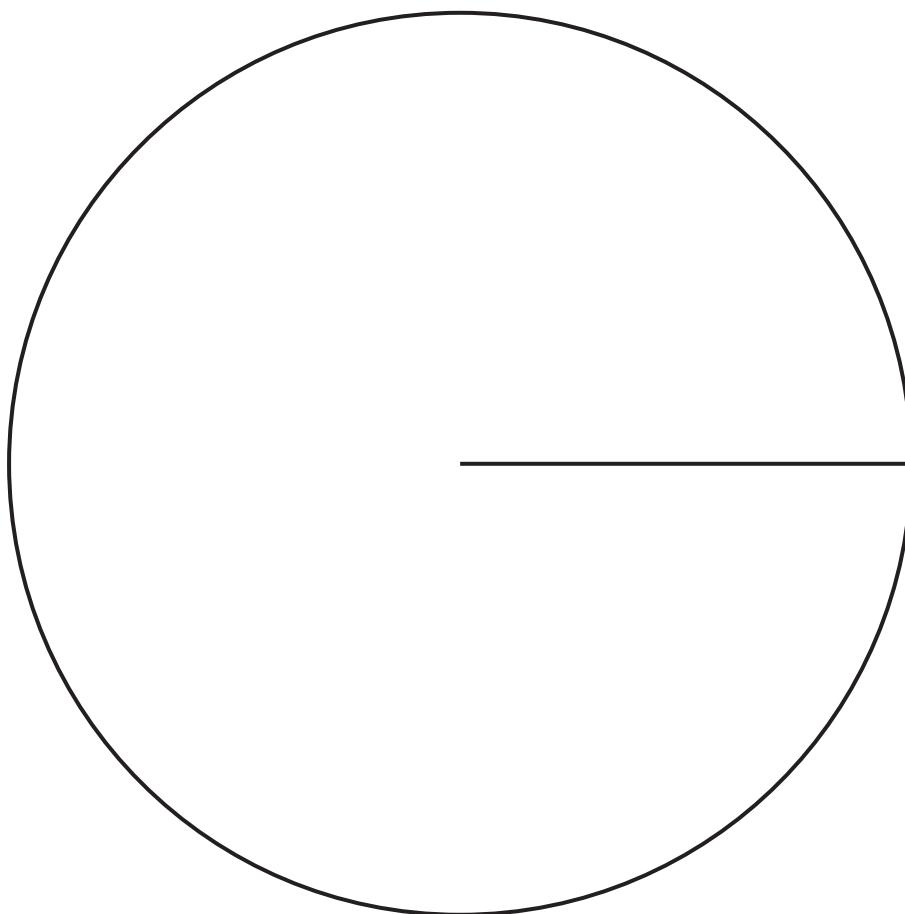
**(b)** calculate the range for the **largest** 5 numbers.  
[2 marks]

Answer \_\_\_\_\_

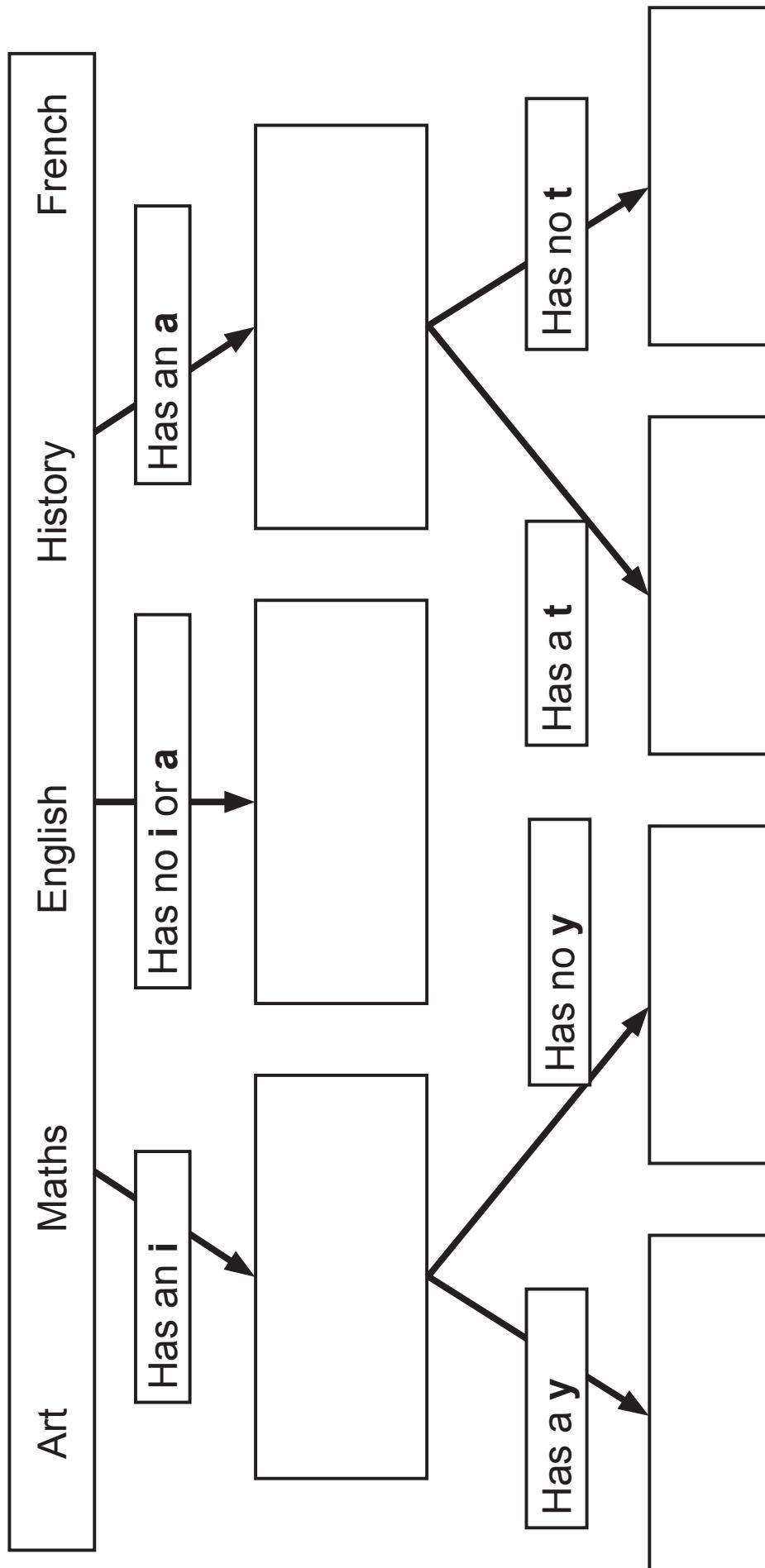
17 The number of dogs in an animal shelter was recorded.

Breed of dog	Frequency	Angle
Terrier	12	
Collie	9	
Labrador	14	
Alsatian	5	

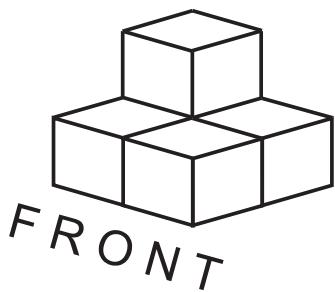
Draw a pie chart to show this information. [4 marks]



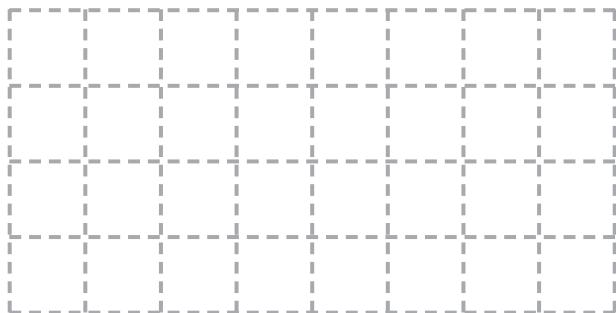
18 Use the decision tree diagram to place all the words in their correct boxes. [2 marks]



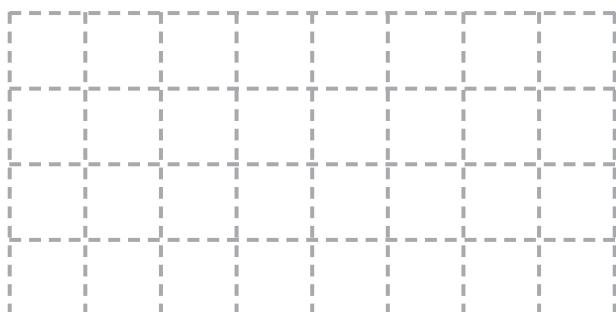
19 The diagram below shows a 3-dimensional shape.



(a) On the square grid, draw the plan for the shape.  
[1 mark]



(b) On the square grid below, draw the front elevation of the shape. [2 marks]



20

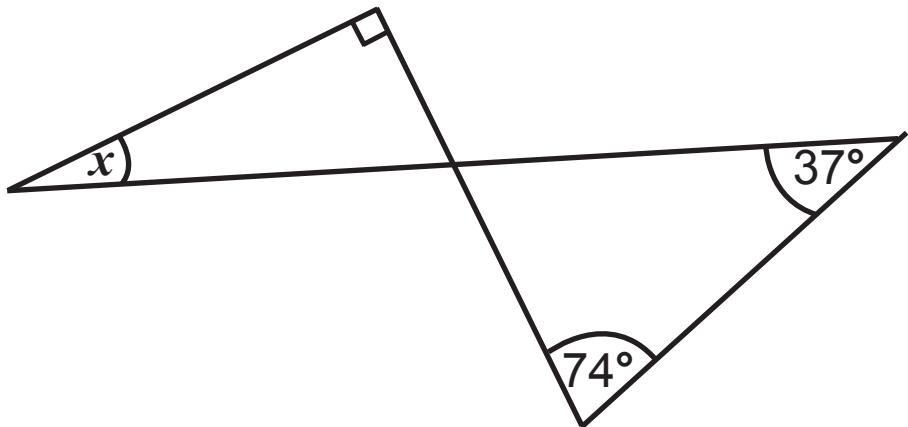


diagram not drawn accurately

Calculate the size of the angle marked  $x$ . [3 marks]

Answer \_\_\_\_\_ °

21 (a) Fill in the boxes to complete this sequence. [2 marks]

19, 18, 15, 10,  ,

(b) Solve  $7 + 2x = 13$  [2 marks]

Answer  $x =$  \_\_\_\_\_

(c) Expand  $3(5 - y)$  [2 marks]

Answer \_\_\_\_\_

(d) Calculate the cube of 11 [1 mark]

Answer \_\_\_\_\_

(e) Calculate  $10^5$  [1 mark]

Answer \_\_\_\_\_

**22** In High Grade College there are 800 students.

35% of the students have blond hair.

15% of the students with blond hair wear glasses.

How many students with blond hair wear glasses?  
[3 marks]

Answer \_\_\_\_\_

**23** Carrots come in bags with either 7 or 8 carrots in them.  
83 carrots are packed into bags.

How many bags have 8 carrots in them? [3 marks]

Answer \_\_\_\_\_

**24** What fraction is halfway between  $\frac{1}{4}$  and  $\frac{3}{8}$  ? [2 marks]

Answer \_\_\_\_\_

**25** 1st December 2019 falls on a Sunday. What day of the week will 12th March 2020 be? [2 marks]

Answer \_\_\_\_\_

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**THIS IS THE END OF THE QUESTION PAPER**

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<b>For Examiner's use only</b>	
<b>Question Number</b>	<b>Marks</b>
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<b>Total Marks</b>	
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Examiner Number

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