cea

Rewarding Learning

Mathematics

Unit T1
(With calculator)
Foundation Tier

[GMT11]

GMT11

MONDAY 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.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page, on blank pages or tracing paper.
Complete in blue or black ink only. **Do not write with a gel pen.**
Answer **all twenty-seven** questions.
All 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 **5** and **14(c)**.
You should have a calculator, ruler, compasses and a protractor.
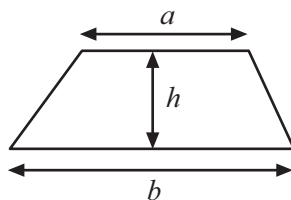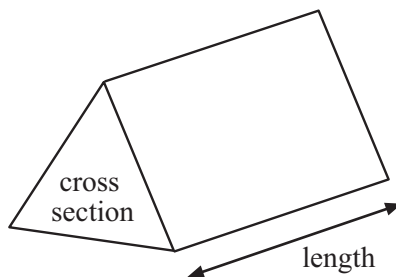The Formula Sheet is on page 2.

9857

Formula Sheet

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

Volume of prism = area of cross section × length

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(Questions start overleaf)

1 (a) Write the number twenty-six thousand and forty-one in figures.

Answer _____ [1]

(b) Write in words the number $100\frac{1}{2}$

Answer _____ [1]

28GMT1104

2 **(a)** Write down the two missing numbers in this sequence:

6   14   _____   30   38   _____   [2]

(b) What rule did you use to find the missing numbers in part **(a)**?

Answer _____ [1]

3 From the table below

16	8	20
36	1	49
17	23	6

(a) write down two numbers which add to give 50

Answer _____ and _____ [1]

(b) write down two numbers which have a difference of 16

Answer _____ and _____ [1]

(c) write down two prime numbers,

Answer _____ and _____ [1]

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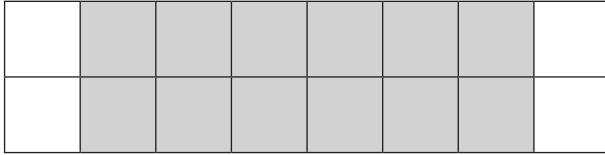**(d)** write down two numbers where one is the square of the other,

Answer _____ and _____ [1]

(e) write down two numbers which are factors of 60

Answer _____ and _____ [1]

28GMT1107

4

(a) Write, in its simplest form, the fraction of the rectangle which is shaded.

Answer _____ [2]

(b) What percentage is **not** shaded?

Answer _____ % [1]

28GMT1108

Quality of written communication will be assessed in this question.

5 The two-way table shows some information about boys and girls in a class and whether they are right-handed or left-handed.

	Boys	Girls	TOTAL
Right-handed		10	
Left-handed	6	5	
TOTAL	20		

(a) How many girls are left-handed?

Answer _____ [1]

(b) How many boys are right-handed?

Answer _____ [1]

(c) How many pupils are in the class?
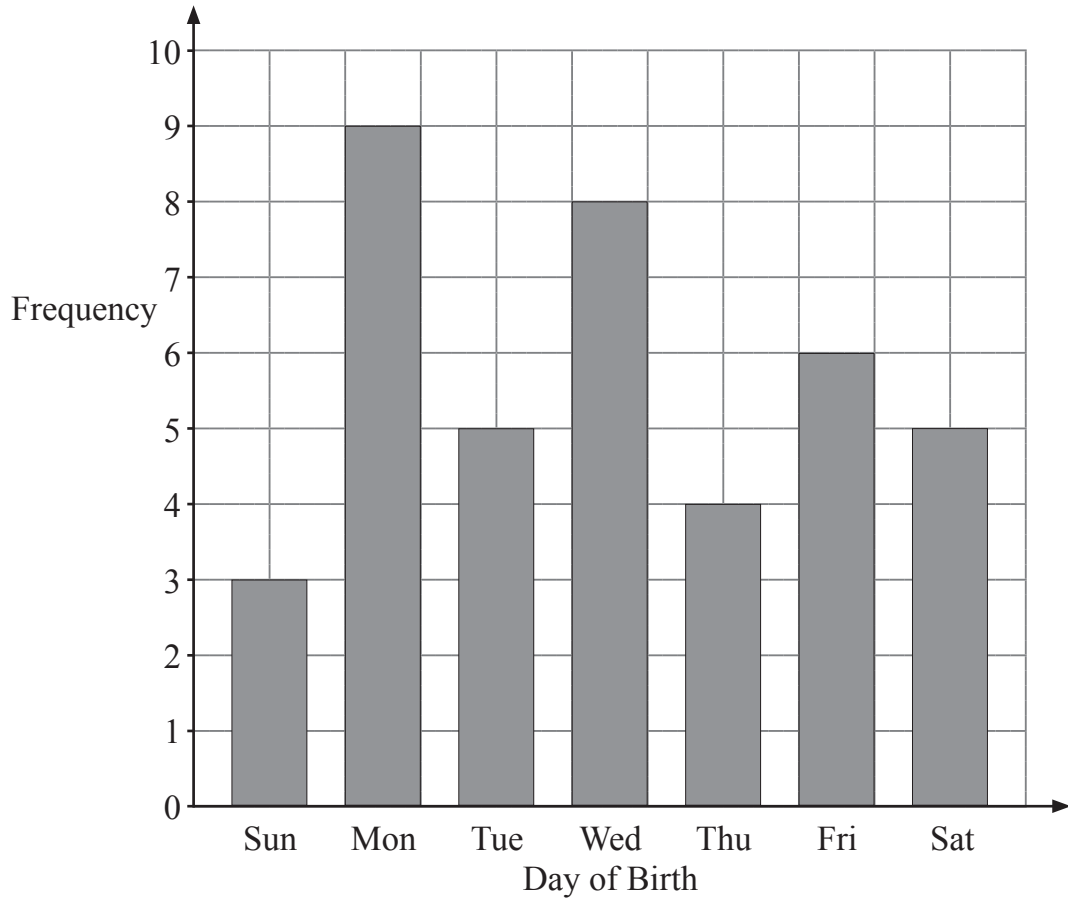
Answer _____ [1]

(d) Megan states "boys are more likely to be left-handed than girls". Do you agree? **Explain your answer clearly**.

_____ because _____

_____ [2]

[Turn over

9857

6 The bar chart below shows the day of birth for a group of children.

(a) Complete the statement:

"twice as many children were born on a _____ as on a Sunday".

[1]

(b) Which day of birth is the mode?

Answer _____ [1]

(c) On which day were 10% of the children born?

Answer _____ [2]

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(d) Sarah wishes to draw a different diagram to represent the data.

(i) She plans to draw a pictogram where �младенец represents 4 children. Why would this symbol not be a good choice?

Answer _____

_____ [1]

(ii) She is going to draw a pie chart. What angle will she need to draw to represent the children born on a Friday?
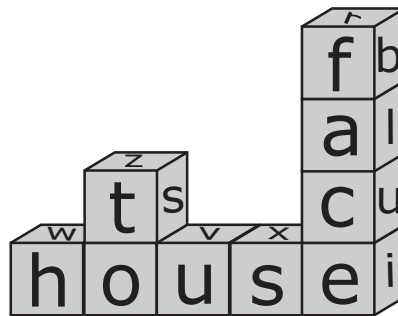
Answer _____° [2]

[Turn over

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7 **(a)** A shape is drawn on a 1 cm grid. Calculate the perimeter of this shape.
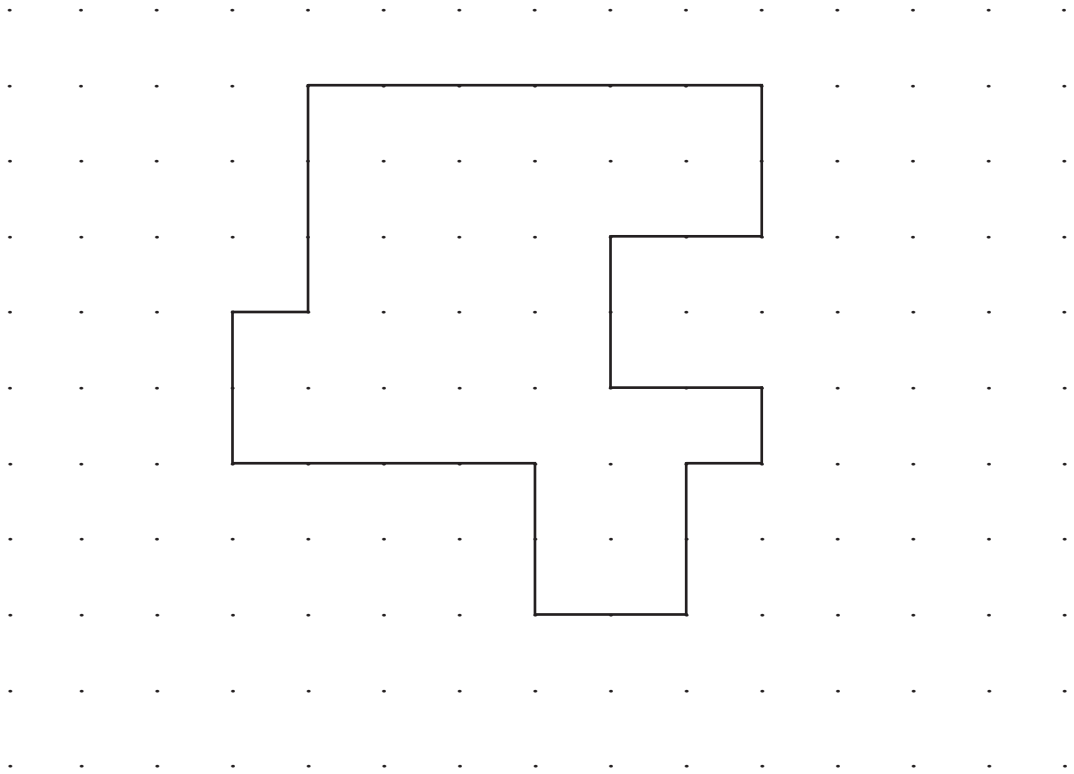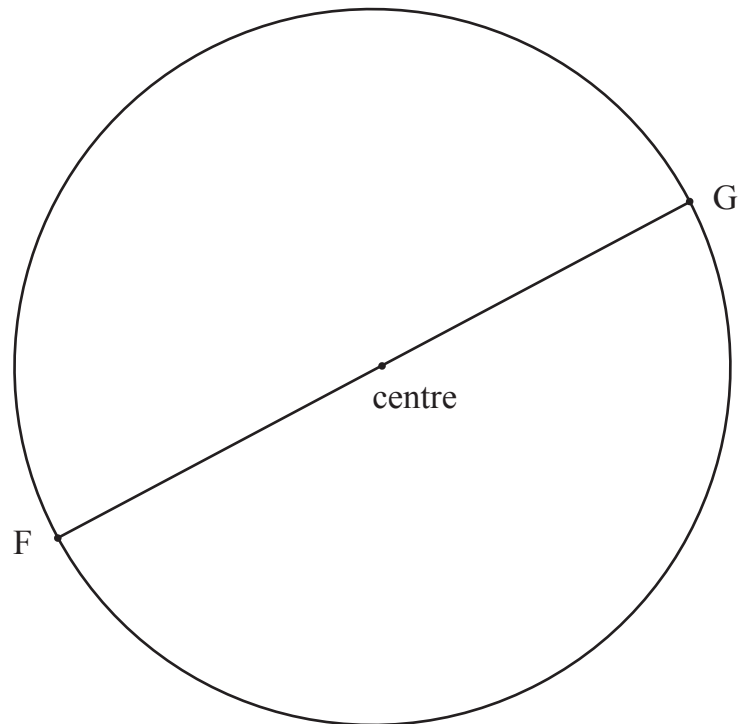

Answer _____ cm [2]

(b) Alphabet cubes of side length 1 cm are placed on top of one another in a game of Block Scrabble. What is the volume of this solid?

Answer _____ [2]

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8 Here is a circle with a diameter FG.

(a) Measure the length of the diameter FG.

Answer _____ cm [1]

(b) Complete the statement:

The diameter divides the circle into 2 halves called _____ [1]

(c) (i) Draw a line parallel to FG with each end on the circumference. [1]
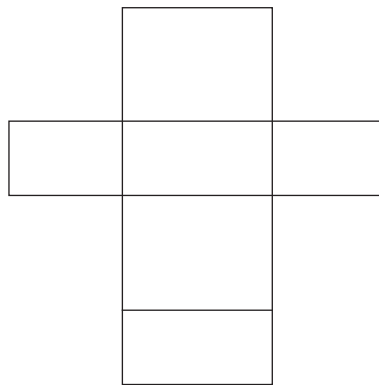
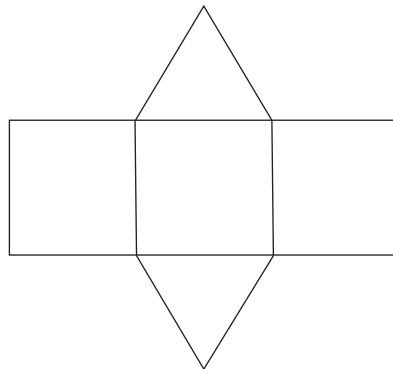**(ii)** What is the special name given to this line?

Answer _____ [1]

[Turn over

28GMT1113

9 **(a)** Name the 3D shapes which can be made by folding these nets.

(i) _____ [1]

(ii) _____ [1]

(b) This net is folded to make a cube. Which letter will be opposite X?

B E
A X C
D

Answer _____ [1]

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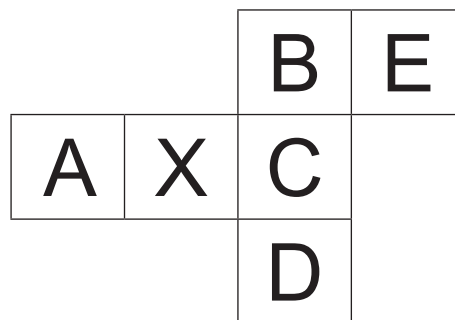
10 Without using a calculator show how to work out 483 – 167

You must show all your working.

[2]

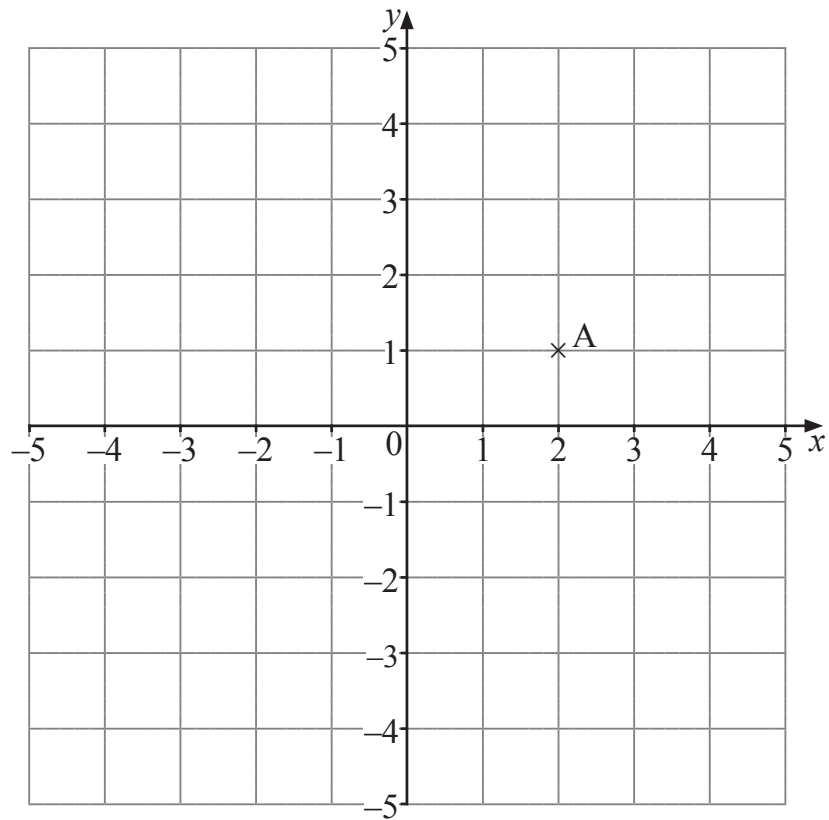**11** How many cartons of milk costing £1.28 each can be bought for £10?

Show all your working.

Answer _____ [2]

[Turn over

12

(a) Write down the coordinates of the point A.

Answer _____ [1]

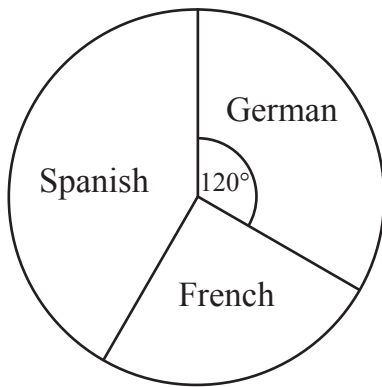**(b)** Plot and label the points B (–2, 0) and C (4, –3). [2]

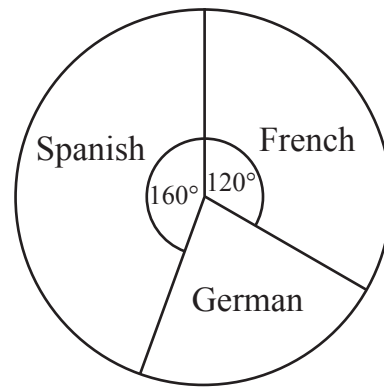**13** Write down any three numbers with a median of 8 and a range of 6

Answer _____ [2]

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Quality of written communication will be assessed in part (c) of this question.

14

8A (24 pupils)   **8B (27 pupils)**

The pie charts show the languages studied by pupils in 8A and 8B.

There are 24 pupils in 8A and 27 pupils in 8B.

(a) Measure the angle for Spanish in 8A.

Answer _____° [1]

(b) What fraction of the students in 8B study German?

Answer _____ [1]

(c) Jacob says "the same number of pupils in 8A study German as those who study French in 8B". Is he correct? Explain your answer.

_____ because _____

_____ [2]

[Turn over

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15 Solve the equations

(a) $4x = 20$

Answer $x =$ _____ [1]

(b) $x - 5 = 8$

Answer $x =$ _____ [1]

16 Calculate the following:

(a) 9^2

Answer _____ [1]

(b) $\sqrt{2.56}$
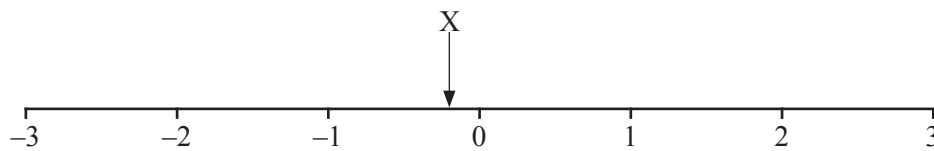
Answer _____ [1]

(c) 1.8^3

Answer _____ [1]

17 Write in descending order of size

$\frac{3}{5}$ 0.65   62%

Show all your working.

Answer _____ [3]

18

X

-3   -2   -1   0   1   2   3

(a) Using arrows to show your answers

    (i) mark the position of $-1\frac{1}{2}$ [1]

    (ii) mark the position of 2.95 [1]

(b) What number is indicated by the letter X?

Answer X = _____ [1]

[Turn over

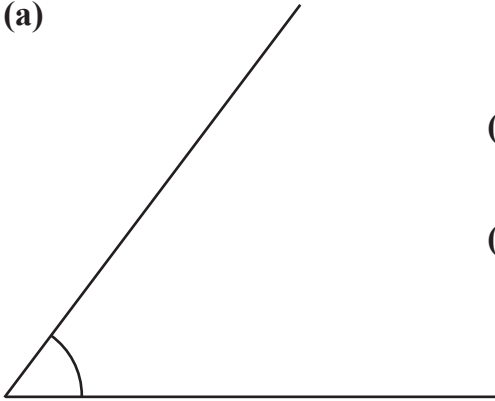**19** In a school there are 165 students in Year 9

Two-fifths of the students are boys. How many girls are there?

Show all your working.

Answer _____ [3]

20 For each of the following, measure the size of the angle marked and state what type of angle it is.
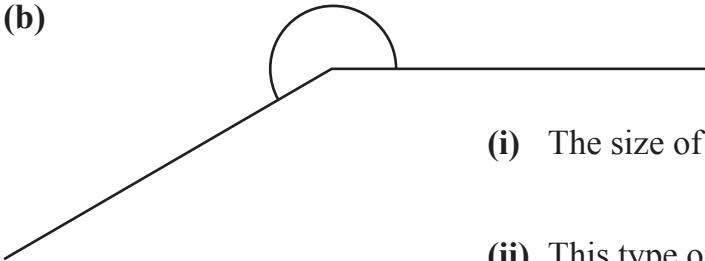
(a)

(i) The size of the angle is _____° [1]

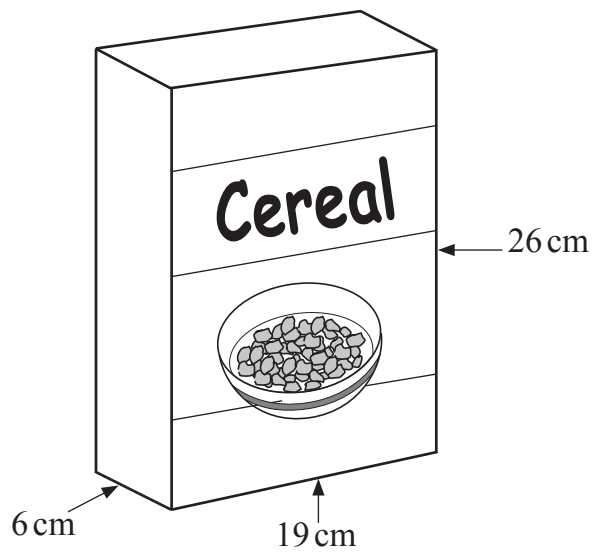**(ii)** This type of angle is _____ [1]

(b)

(i) The size of the angle is _____° [1]

(ii) This type of angle is _____ [1]

21 Calculate the volume of this cereal box.

26 cm

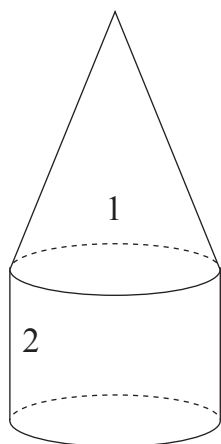6 cm   19 cm

Answer _____ cm³ [2]

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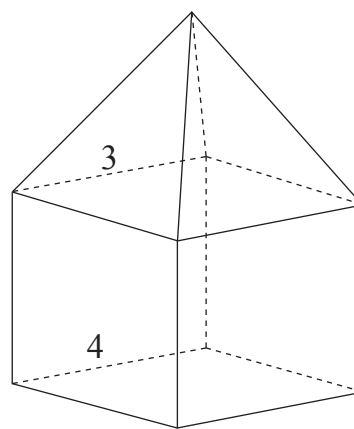*28GMT1121*

22 Each of the shapes below is made by joining two different solids together.

   (a) Fill in the names of the solids under each shape.

   Shape A   Shape B

Solid 1 _____   Solid 3 _____

Solid 2 _____   Solid 4 _____
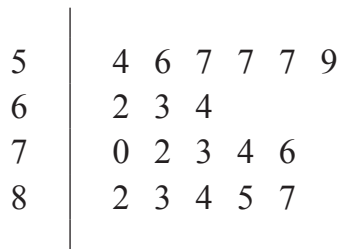
[4]

   (b) Complete the following table for **Shape B**.

Number of Faces	Number of Edges	Number of Vertices

[3]

23 The stem and leaf diagram illustrates the marks in a test for a group of students.

```
5 │ 4 6 7 7 7 9
6 │ 2 3 4
7 │ 0 2 3 4 6          Key: 5 | 4 = 54%
8 │ 2 3 4 5 7
```

(a) The mark for the top student has been left out of the diagram.

The range for the whole class of twenty students was 35.

Calculate the mark for the top student and insert it correctly in the stem and leaf diagram.

[2]

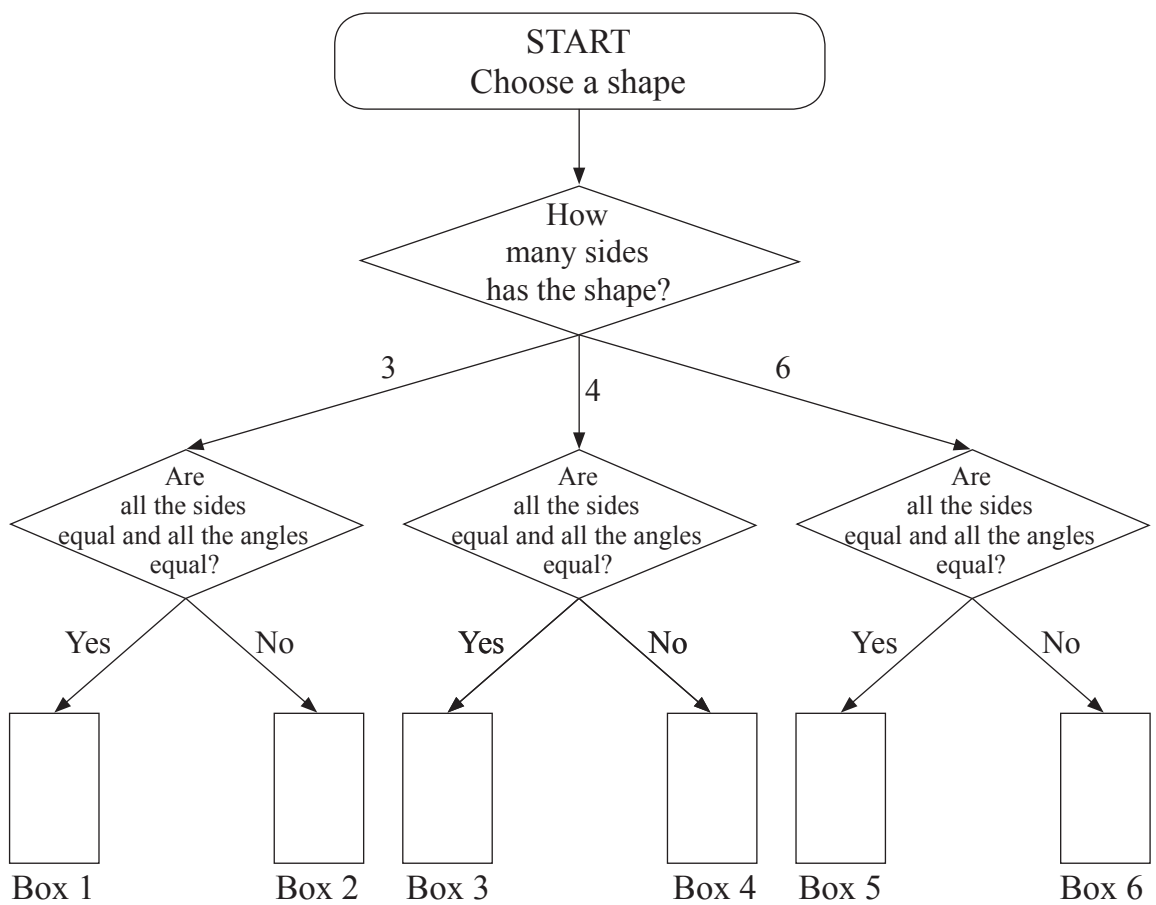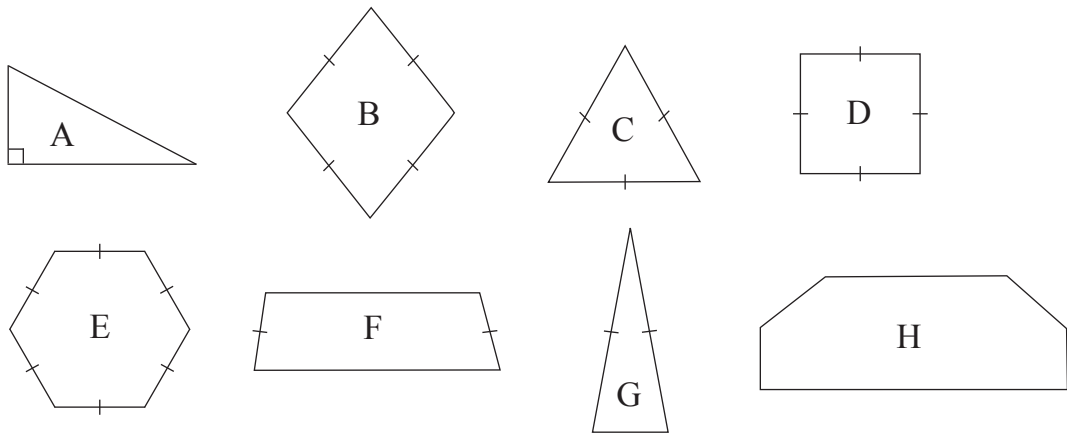**(b)** What was the mean of the lowest four marks?

Answer _____ [2]

(c) The top 15% of all the students in the class were awarded an A* grade. What was the lowest mark needed to obtain the A* grade?

Answer _____ % [2]

[Turn over

24 (a) Use the decision tree to sort the shapes A, B, C, D, E, F, G and H.

START
Choose a shape

How many sides has the shape?

3   4   6

Are all the sides equal and all the angles equal?

Are all the sides equal and all the angles equal?

Are all the sides equal and all the angles equal?

Yes   No   Yes   No   Yes   No

Box 1   Box 2   Box 3   Box 4   Box 5   Box 6

[2]

(b) Complete the sentence:

the shapes in Boxes 1, 3 and 5 are all _____ polygons. [1]

25 (a) Simplify

$$3p - 4r + 7p - 2r$$

Answer _____ [2]

(b) Solve

$$\frac{x}{20} = 100$$

Answer $x =$ _____ [1]

(c) Expand

$$4(y - 6)$$

Answer _____ [2]

(d) Solve

$$6 - 2x = 12$$

Answer $x =$ _____ [2]

[Turn over

26 3.2 metres of electrical cable and 0.6 metres of copper wire cost a total of £4.07

The electrical cable costs 85p per metre.

How much does the copper wire cost per metre?

Show clearly all your working.

Answer £ _____ per metre [4]

27 (a) Write down the next two numbers in the sequence

25   24   20   13   _____   _____   [2]

(b) Explain the rule for this sequence.

Answer _____ [2]

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