Rewarding Learning

Centre Number

71

Candidate Number

General Certificate of Secondary Education
2014

Mathematics

Unit T1

(With calculator)

Foundation Tier

[GMT11]

TUESDAY 27 MAY, 9.15am–10.45am

MV18

TIME

1 hour 30 minutes, plus your additional time allowance.

INSTRUCTIONS TO CANDIDATES

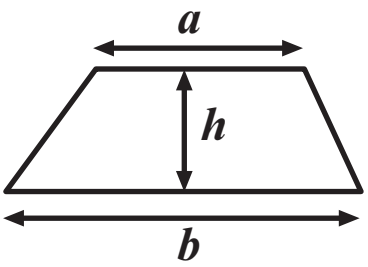
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Complete in blue or black ink only.
Answer **all twenty-eight** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

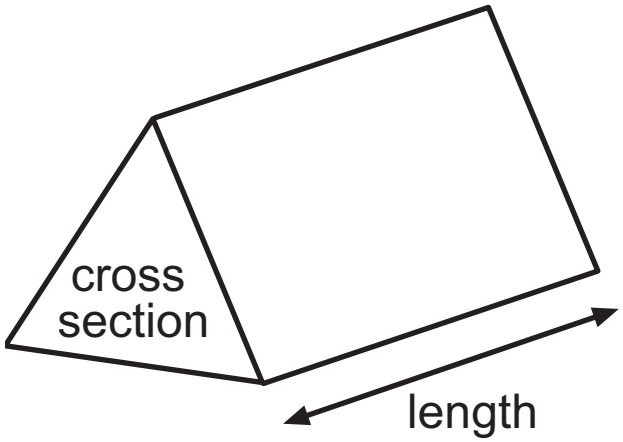
The total mark for this paper is 100.
Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **questions 23 and 24.**
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 3.

Formula Sheet

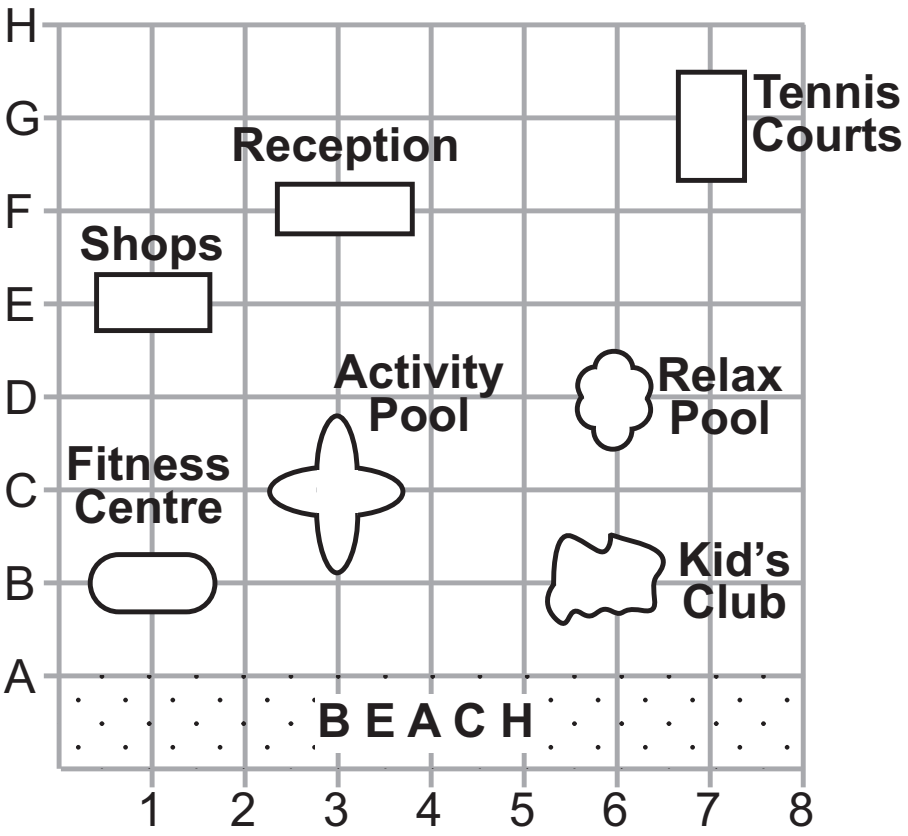
Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = area of cross section × length



1 The grid below shows the position of some features in a hotel complex.



(a) What feature is at position (6, D)? [1 mark]

Answer _____

(b) What is the position of the shops? [1 mark]

Answer (_____, _____)

(c) The Beach Bar is at position (4, A)

Mark with a "B" the position of the Beach Bar on the grid. [1 mark]

2 The table shows some of the numbers of each type of medal won by three countries in the 2012 Olympics.

Country	Gold	Silver	Bronze	Total
USA	46			104
China	38	27	23	
Japan			17	38

(a) How many medals did China win in total? [1 mark]

Answer _____

(b) The USA won an equal number of Silver and Bronze medals.

How many Silver medals did the USA win? [2 marks]

Answer _____

(c) Japan won twice as many Silver medals as Gold.

How many Gold medals did Japan win? [2 marks]

Answer _____

3 The 4 winning numbers in a swimming club lottery were called out as follows:

The 1st number is the square root of 576

The 2nd number is a multiple of 8 between 30 and 39

The 3rd number is the cube of 3

The 4th number is the largest prime number less than 40

What were the 4 winning numbers? [4 marks]

Answer 1st _____ 2nd _____ 3rd _____ 4th _____

4 On Rewards Day, Year 10 pupils are taken ice skating.

3 buses are hired. Each bus has 52 passenger seats.

(a) How many passenger seats are there in total? [1 mark]

Answer _____

9 teachers and 135 pupils are going on the trip.

(b) How many empty seats are there in total? [2 marks]

Answer _____

(c) How many teachers and how many pupils should be placed on each bus for safety reasons?

Complete the following sentence. [2 marks]

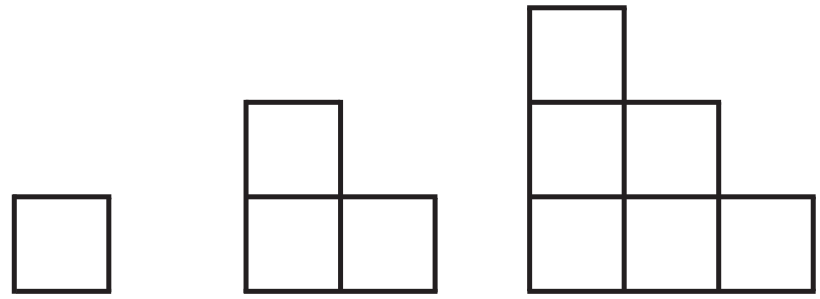
I would put _____ teachers and _____ pupils on each bus.

5 **(a)** Write down the next term of the sequence [1 mark]

1, 6, 11, 16 .....

Answer _____

(b) These patterns of squares are the first 3 in a sequence.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

(i) Draw pattern 4 in the sequence. [1 mark]

(ii) Count the number of squares in each pattern and write them below.

What name is given to this sequence of numbers? [2 marks]

Answer The numbers are _____ , _____ , _____ and _____ and they are called _____ numbers.

6 140 drinks were sold in a coffee bar. A pictogram is to be drawn. The first four rows of the pictogram are shown below.

Drink Sales

Coffee	O O O O O O O
Tea	O O O
Cola	O O O O O O O O O
Orange	O O O O
Hot Chocolate	

(a) 45 colas were sold.

Complete the key: [1 mark] O = _____ drinks

(b) How many coffees were sold? [1 mark]

Answer _____

(c) How many more colas than teas were sold? [1 mark]

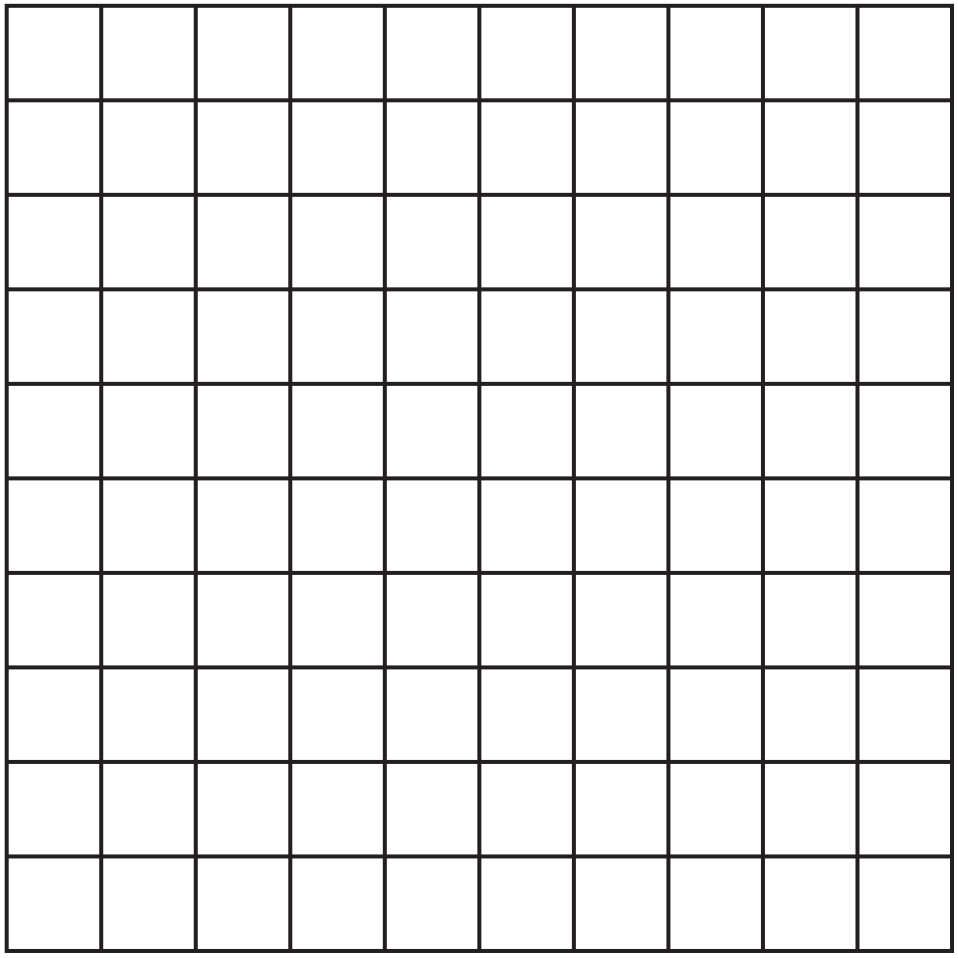
Answer _____

(d) Complete the row of the pictogram for hot chocolate. [2 marks]

7 Jake recorded the colours of cars passing his house using a tally chart.

Colour	Tally	Frequency
Red	𝍸 | | |	8
White	| | |	3
Black	𝍸	5
Silver	𝍸 | | | |	9
Blue	| | | |	4

(a) On the grid below, draw a bar chart to show this information. [3 marks]



(b) Which is the most popular colour of car? [1 mark]

Answer _____

(c) How many cars did Jake record altogether? [1 mark]

Answer _____

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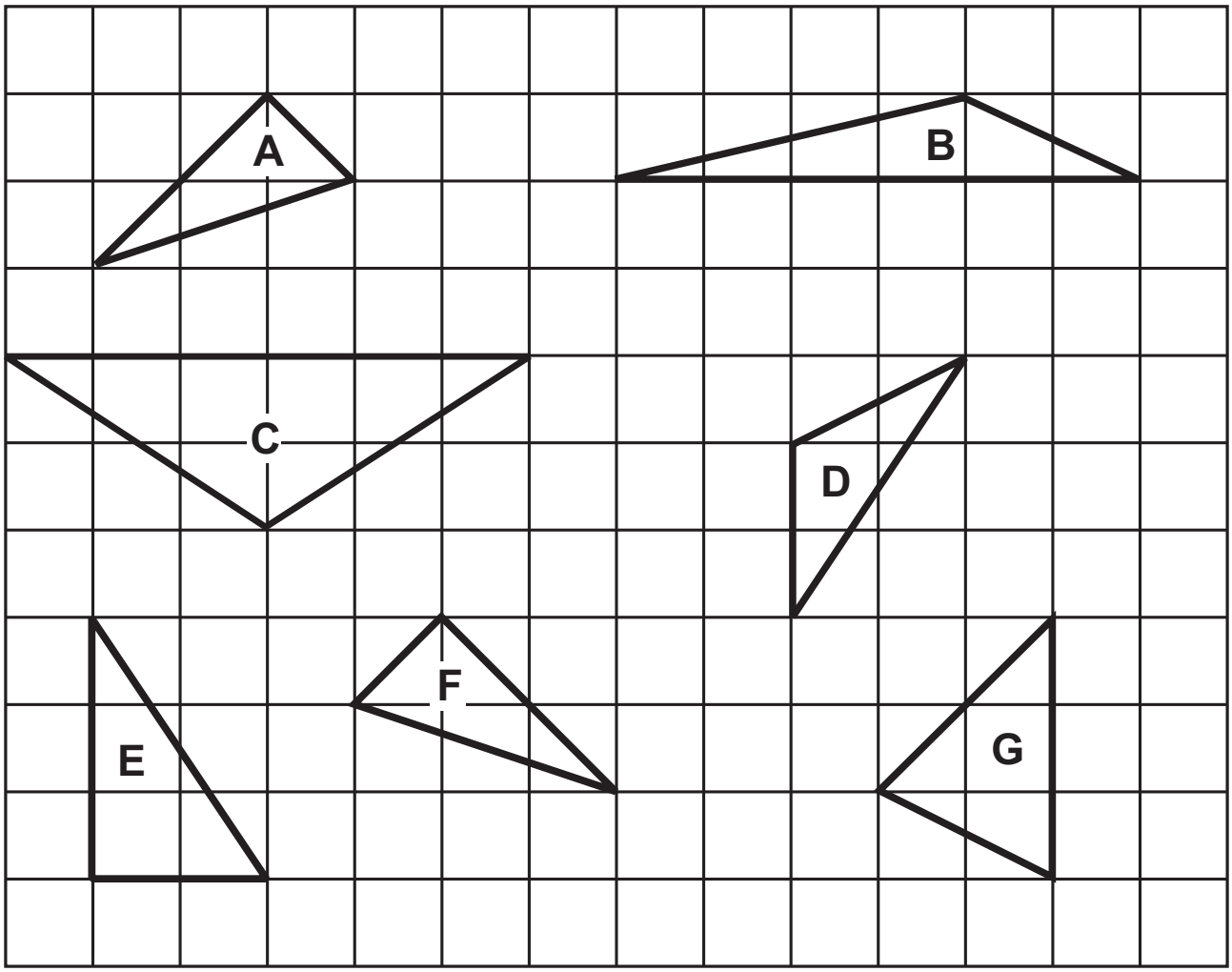
8 Here are some triangles on a grid.



(a) Which triangle is isosceles? [1 mark]

Answer _____

(b) Write down the special name for triangle E. [1 mark]

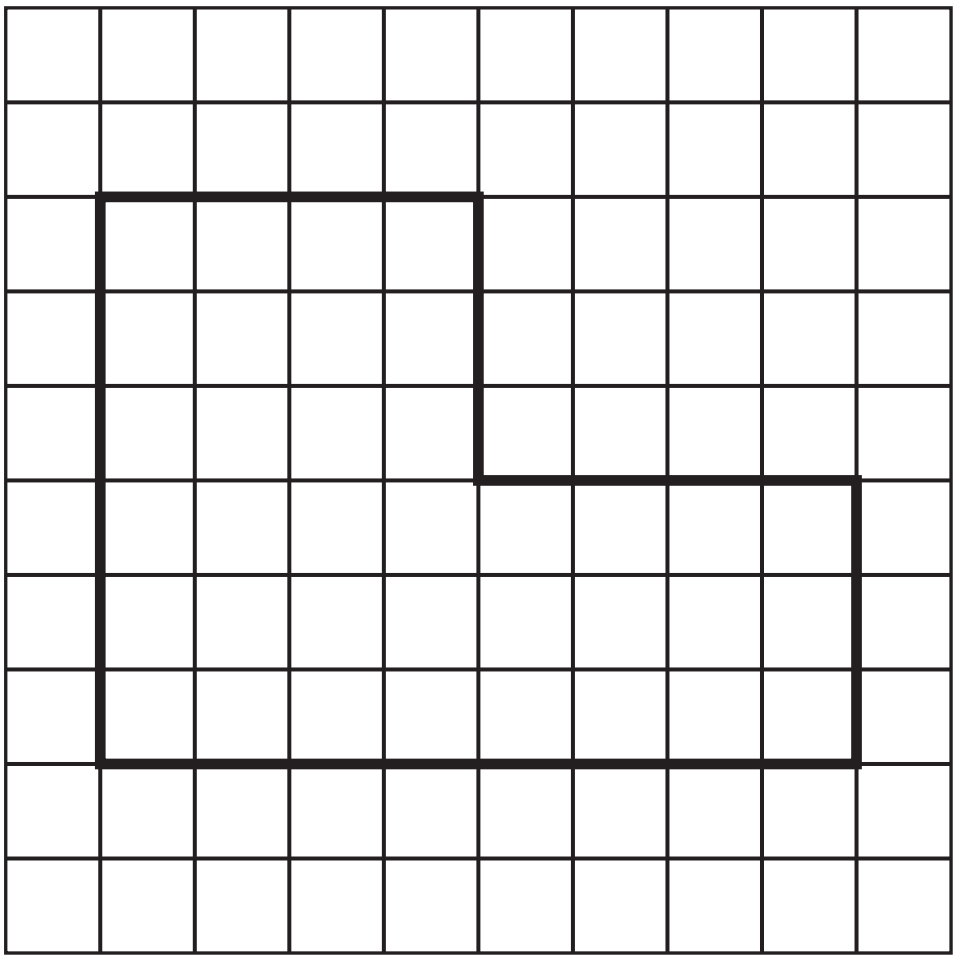
Answer _____

Two of the triangles are congruent.

(c) Write down the letters of the two triangles which are congruent. [1 mark]

Answer _____ and _____

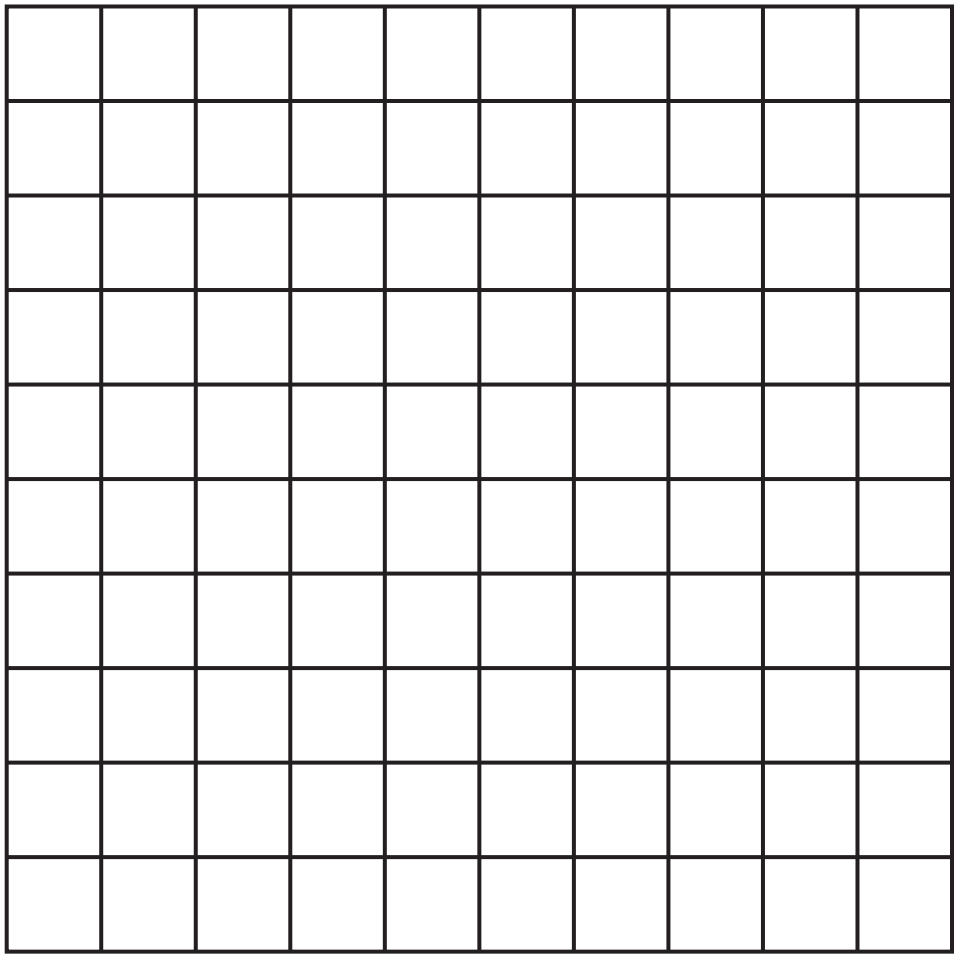
9 An L-shape is drawn on the centimetre grid below.

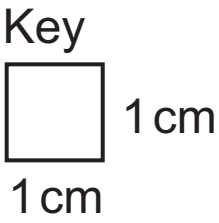


(a) What is the perimeter of the L-shape? [2 marks]

Answer _____ cm

(b) Draw a square on the grid below with the same perimeter as the L-shape opposite. [1 mark]





10 Cans of Cola are sold in packs of 6

135 pupils attend a school disco.

How many packs of Cola are needed to give each pupil one can of Cola? [2 marks]

Answer _____

11 **(a)** Write in order of size, smallest first [2 marks]

$\frac{1}{5}$, 0.26, 19%

Answer _____ , _____ , _____

(b) Write 0.157 as a fraction. [1 mark]

Answer _____

12 Ben buys items of equipment for his exams at the following cost:

Item	**Cost**
A calculator	**£**6.80
A ruler	60p
A pack of 3 pens	**£**5.45
A file block	**£**3.20

Ben pays for the items with a **£**20 note.

Calculate the change that Ben should receive. [3 marks]

Answer **£** _____

13 Sam owns 30 acres of land.

15 acres are grass.

12 acres are woodland.

The rest is marsh.

(a) Write, in its simplest form, the fraction of Sam's land that is woodland. [1 mark]

Answer _____

(b) What percentage of Sam's land is marsh? [2 marks]

Answer _____**%**

14 Sixteen students had the following number of coins in their pockets.

9, 3, 5, 8, 2, 7, 4, 8, 7, 3, 8, 6, 5, 9, 8, 5

(a) What is the mode of the number of coins? [1 mark]

Answer _____

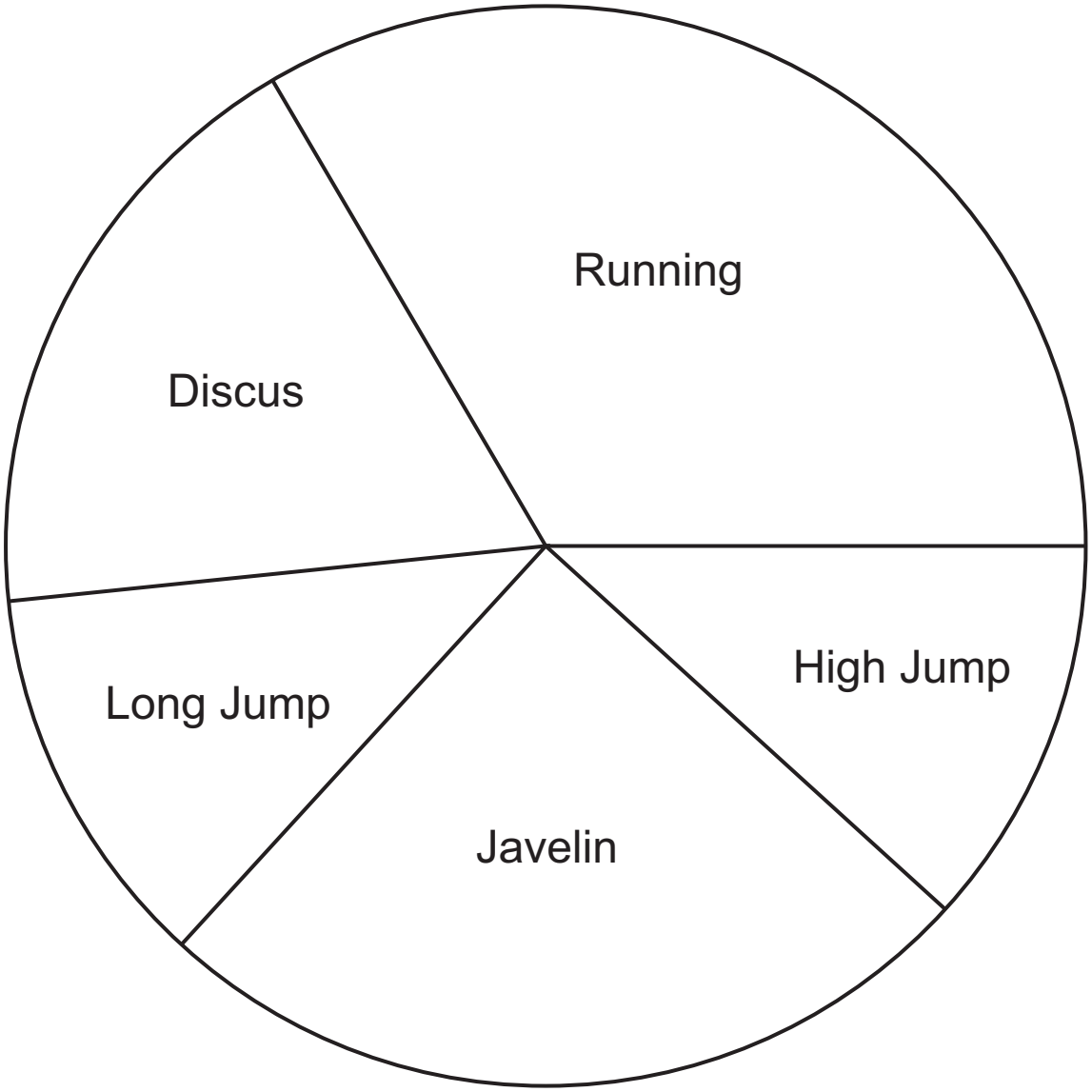
(b) What is the range of the number of coins? [1 mark]

Answer _____

(c) What is the median number of coins? [2 marks]

Answer _____

15 The pie chart shows how Jessica spent 6 hours doing sports one day.



(a) How much time was spent on the javelin? [1 mark]

Answer _____

(b) Calculate the time spent running. [1 mark]

Answer _____

16

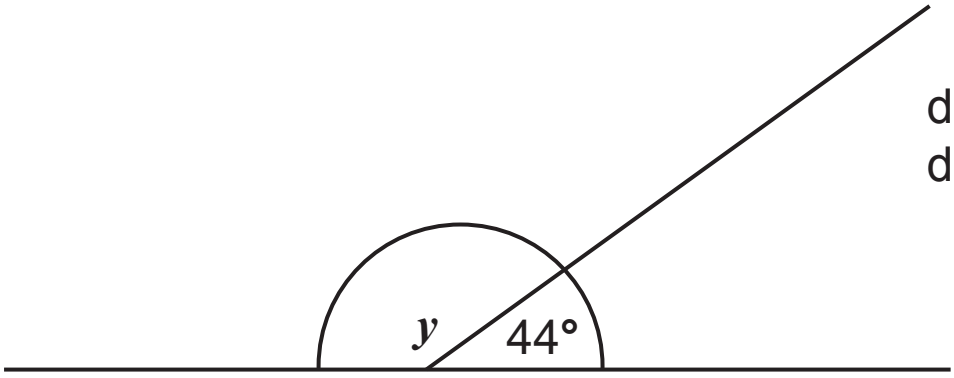


diagram not drawn accurately

(a) Work out the value of y. [1 mark]

Answer y = _____ °

(b) Give a reason for your answer. [1 mark]

Reason _____

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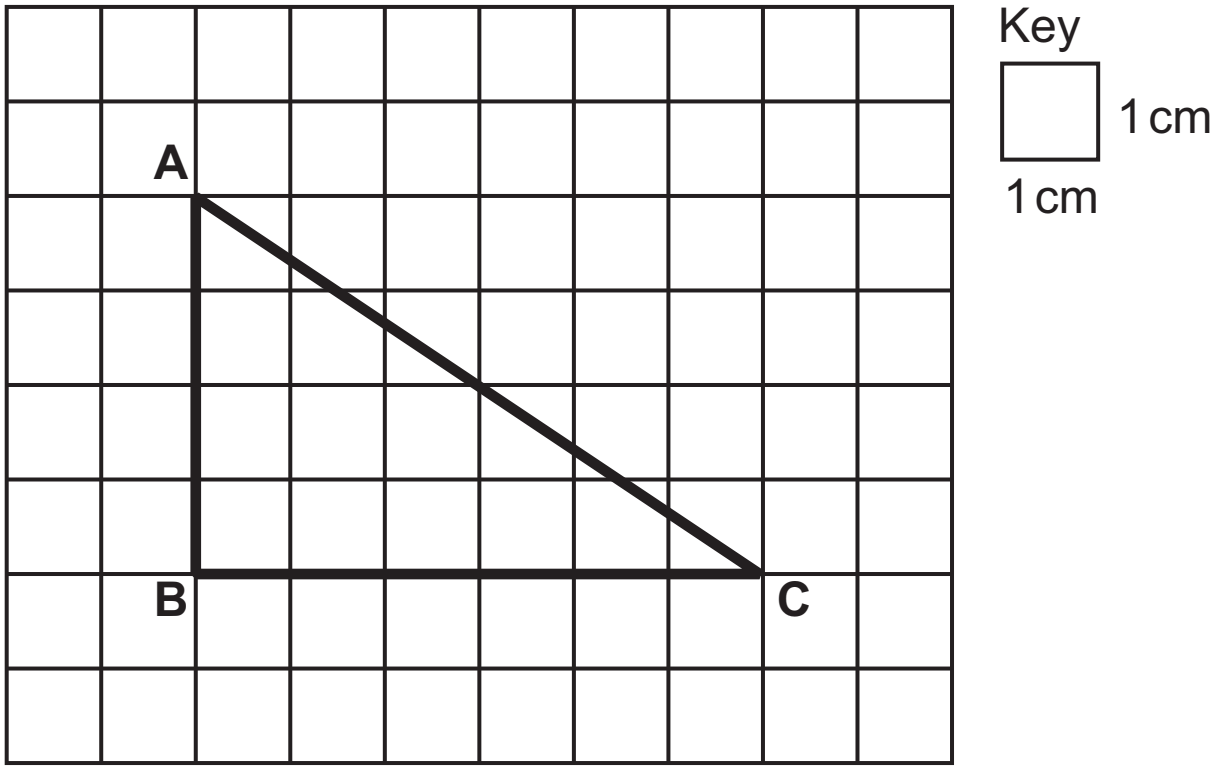
17 **(a)** Work out the area of the triangle ABC drawn on the centimetre grid below. [2 marks]

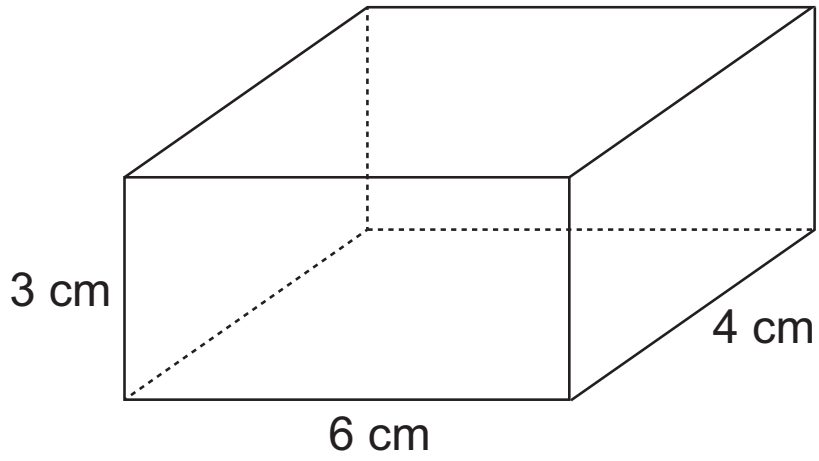


Answer _____ cm^2

(b) Measure the size of angle C in the triangle above. [1 mark]

Answer _____ °

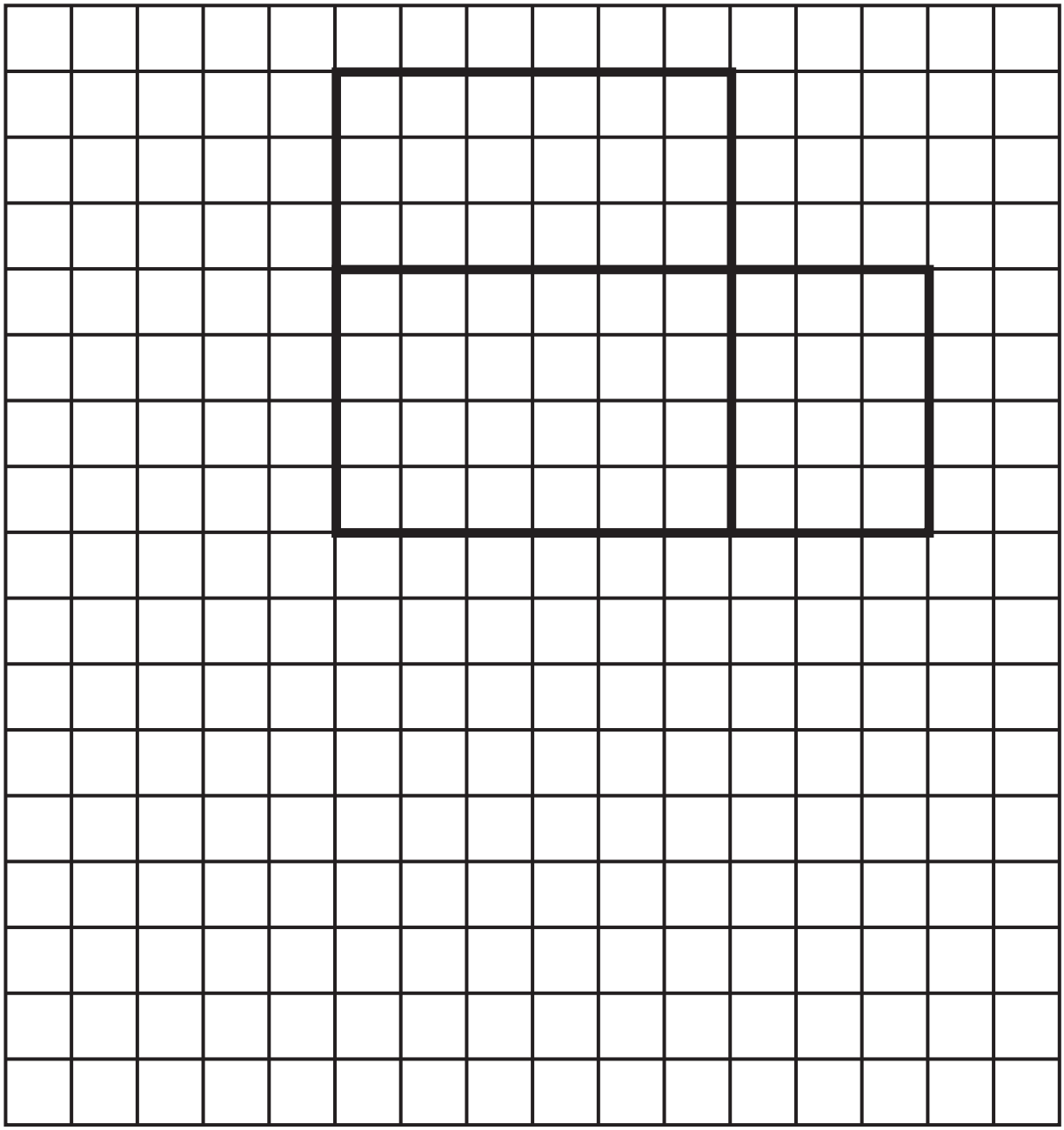
18 The diagram below shows a cuboid.



(a) Work out the volume of the cuboid. [2 marks]

Answer _____ cm^3

(b) On the centimetre grid below, complete the net of the cuboid. [3 marks]

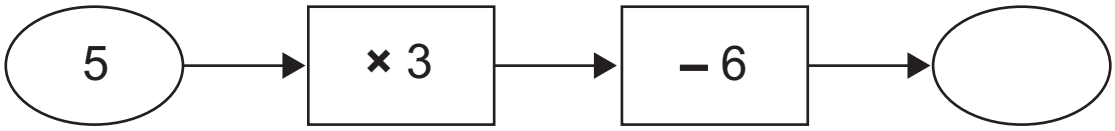


Key

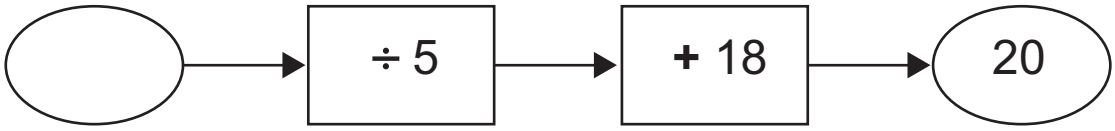
 1 cm

1 cm

19 **(a)** Fill in the missing number. [1 mark]



(b) Fill in the missing number. [2 marks]



20 Here is a sequence of numbers

0, 0.2, 0.5, 0.9, **.....**

(a) What is the next number in this sequence? [1 mark]

Answer _____

(b) Explain how each new number in this sequence is obtained. [1 mark]

_____

_____

21 Calculate

(a) $\sqrt{7.84} - 1.3^2$ [2 marks]

Answer _____

(b) $\frac{1}{0.4^3}$ [1 mark]

Answer _____

22 Of 304 000 flights from 10 UK airports, 74% were on time.

How many flights were on time? [2 marks]

Answer _____

Quality of written communication will be assessed in this question.

23 Tina bought a garden ornament costing **£**12.75 and some shrubs.
Each shrub cost **£**3.15
The total cost was **£**31.65
How many shrubs did she buy? [3 marks]

Answer _____

Quality of written communication will be assessed in this question.

24 Explain how $6^2 \div \sqrt[3]{64} = 3^2$ [2 marks]

25 The stem and leaf diagram shows the weights of some schoolbags.

2	5	6	7	9		
3	1	3	7	8	8	9
4	2	3	5	7	9	
5	3	4	5	6	8	
6	2	4	6			

Key 2 | 5 = 2.5 kg

Write down

(a) the range, [1 mark]

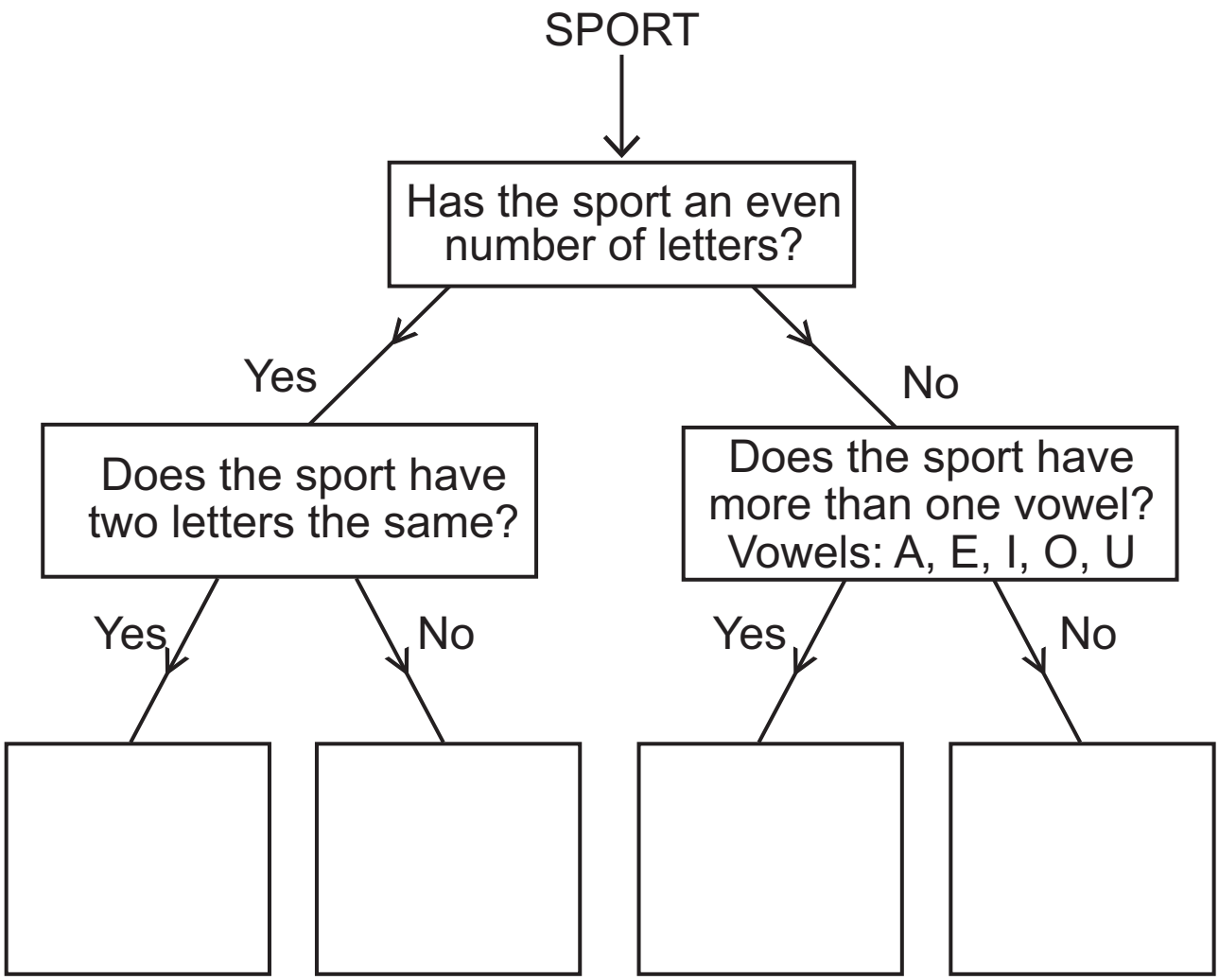
Answer _____ kg

(b) the median. [1 mark]

Answer _____ kg

26 (a) Use the decision tree diagram to write the sports in the correct boxes. [2 marks]

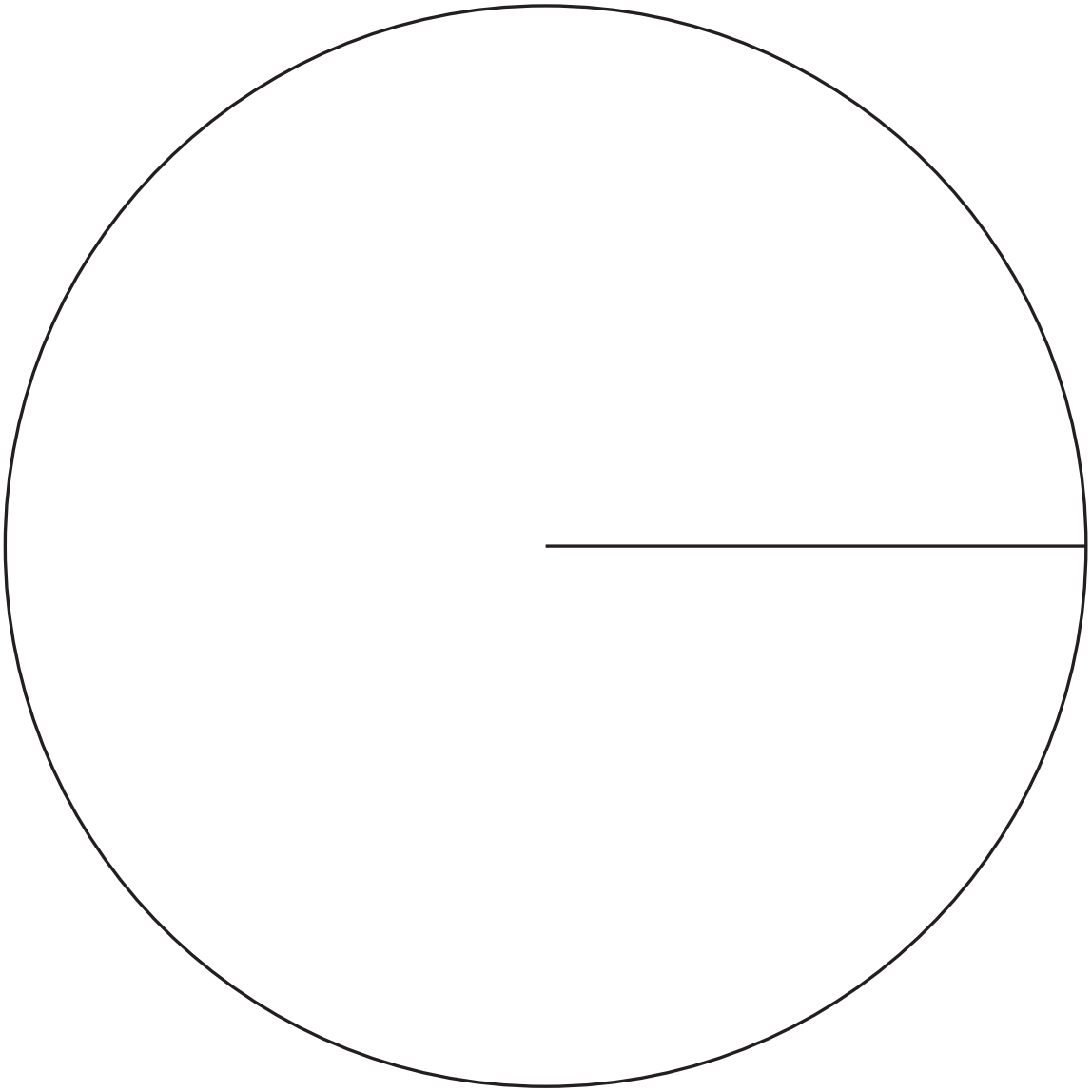
CYCLING GYMNASTICS ROWING TENNIS



(b) The number of items sold in a shop was recorded as follows.

Item	Number	Angle
Television	25	
Fridge	12	
Washing Machine	8	
Camera	15	

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



27 (a) The diagram shows a triangle.

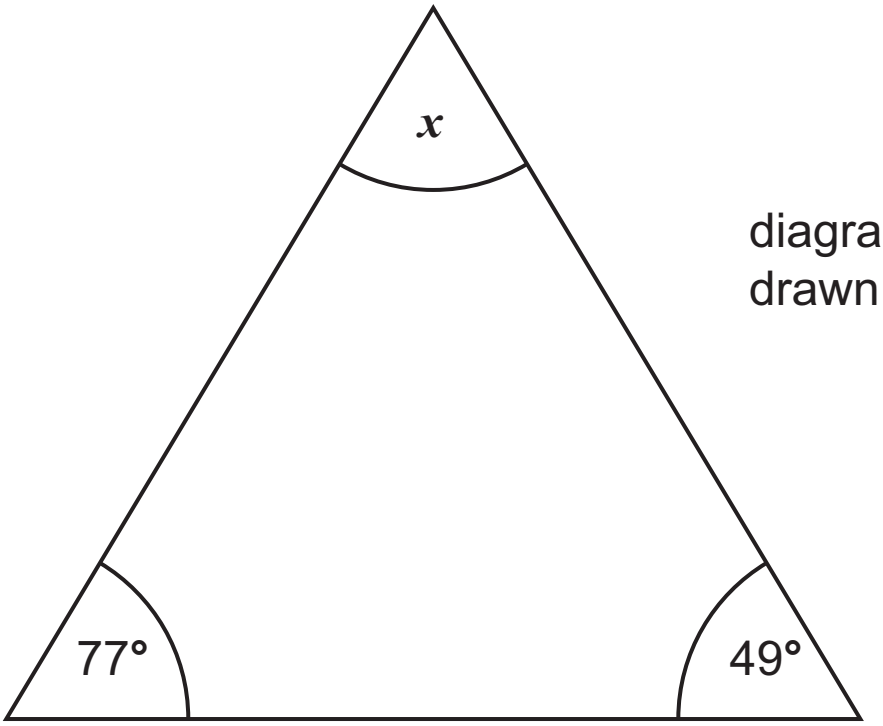


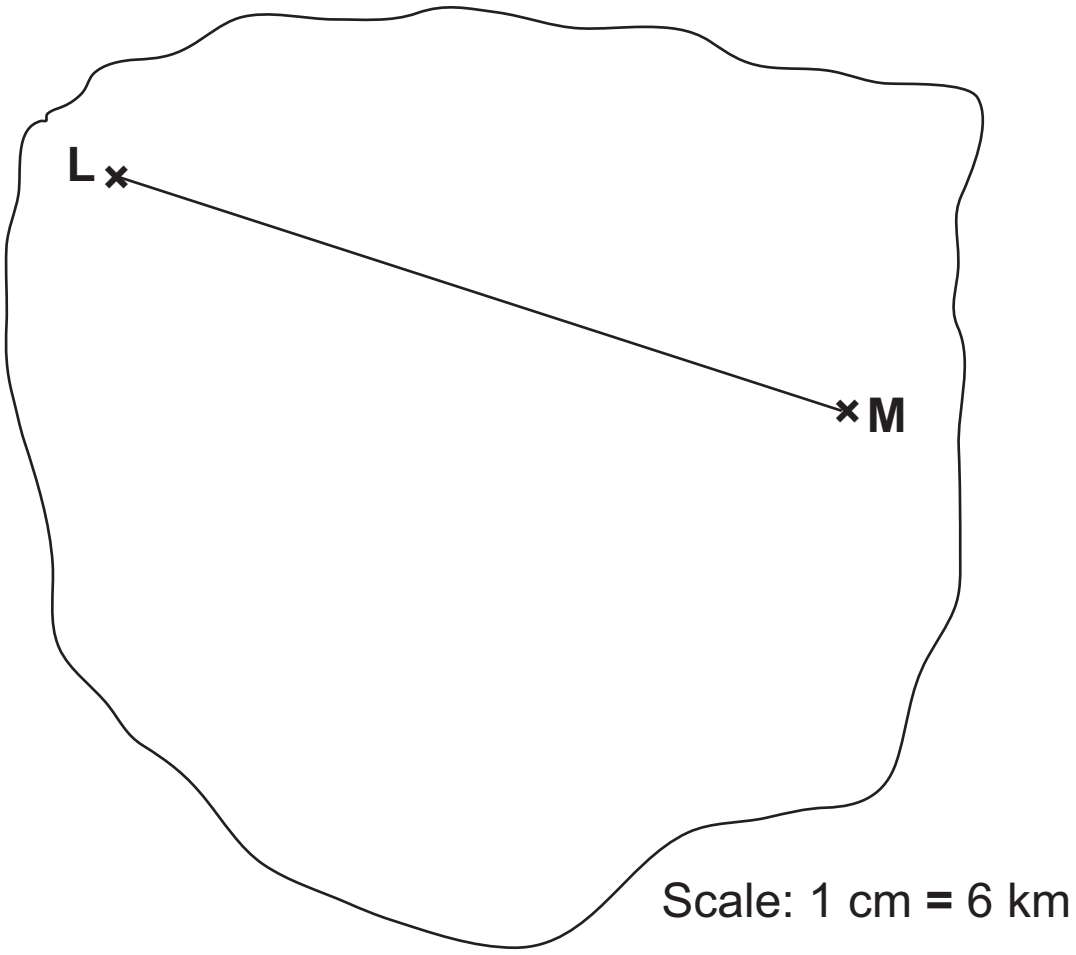
diagram not drawn accurately

Work out the size of the angle marked x [2 marks]

Answer x = _____ °

(b) The map of an island is shown below.

L and M are the positions of two houses on the island.



Calculate the actual distance from L to M in kilometres.
[2 marks]

Answer _____ km

(c) A sheet of A4 paper is a rectangle 297 mm long and 210 mm wide.

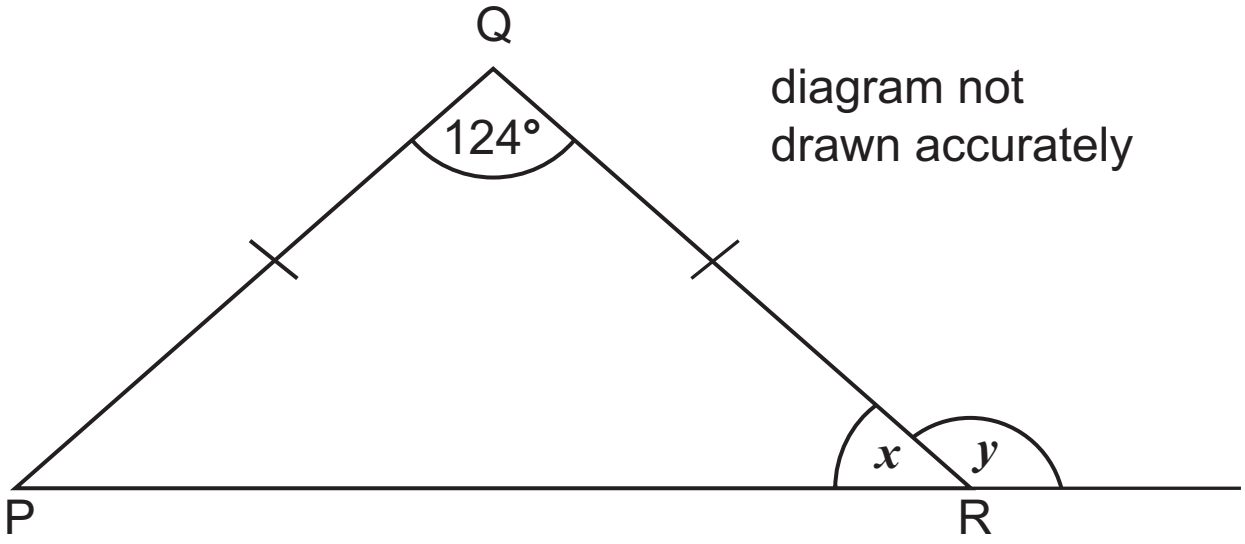
Calculate the area of a sheet of A4 paper.

Give your answer in square centimetres. [2 marks]

Answer _____ cm^2

(d) PQR is an isosceles triangle.

PQ = QR.



Calculate the angles x and y. [3 marks]

Answer x = _____ °

y = _____ °

28 **(a)** Solve

(i) $\frac{y}{4} = 12$ [1 mark]

Answer $y =$ _____

(ii) $2d - 4 = 5$ [2 marks]

Answer $d =$ _____

(b) $12f = 20$ Write down the value of $3f$ [1 mark]

Answer _____

THIS IS THE END OF THE QUESTION PAPER

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

Examiner Number