



Rewarding Learning

General Certificate of Secondary Education
January 2015

Centre Number

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Candidate Number

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Mathematics

Unit T1

(With calculator)



Foundation Tier

[GMT11]

ML

FRIDAY 9 JANUARY, 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. Do not write outside the box, around 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-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 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.

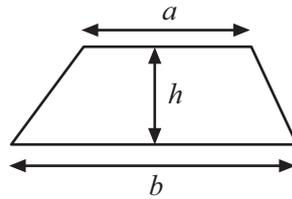
Quality of written communication will be assessed in **Questions 12(b) and 26**.

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

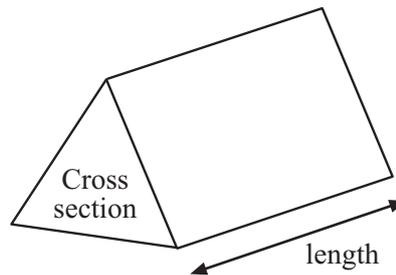
The Formula Sheet is on page 2.

Formula Sheet

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



Volume of prism = area of cross section \times length



1

13

47

16

80

77

78

8

63

37

49

(a) Look at the numbers in the squares above. Write down:

(i) two numbers with a total of 50,

Answer _____, _____ [1]

(ii) two numbers with a difference of 30,

Answer _____, _____ [1]

(iii) a multiple of 9,

Answer _____ [1]

(iv) a cube number.

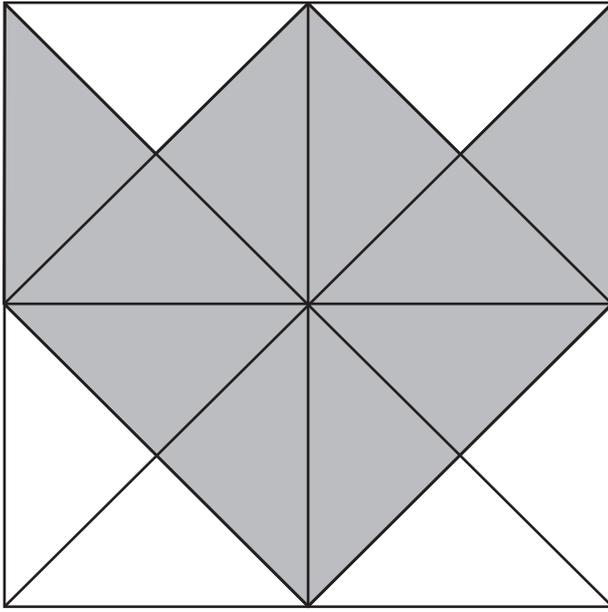
Answer _____ [1]

(b) What is the largest number you can get by multiplying any two numbers in the squares?

Answer _____ [2]

[Turn over

2 (a)



What fraction of this diagram is shaded?

Write down your answer in its **simplest form**.

Answer _____ [2]

(b) Write 5672 to the nearest 100

Answer _____ [1]

(c) Write down in figures the number forty-nine thousand and twenty-five.

Answer _____ [1]

3 (a) One cake costs £7.99
How many cakes can Sandra buy with £60?

Answer _____ [2]

(b) Betty buys 9 of these cakes.
How much change does she get from £80?

Answer £ _____ [2]

4 (a) (i) Draw a quadrilateral in which two sides are parallel and are not the same length.

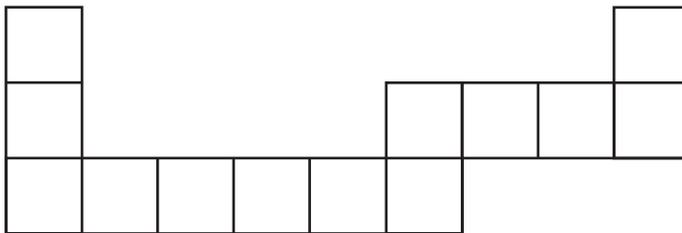
[1]

(ii) What is the special name for this quadrilateral?

Answer _____ [1]

(b) The shape below is made up of squares of side 1cm.

Work out the perimeter of the shape.



Answer _____ cm [1]

5 Complete the four statements below by writing in the **metric** units.

(a) A can of cola contains 330 _____

(b) A jar of coffee beans weighs 300 _____

(c) The width of a TV screen is 120 _____

(d) The distance from Belfast to Sligo is 200 _____

[4]

6 (a) Use the point O as centre to draw a circle with a diameter of 9 cm.

• O

[1]

(b) Mark clearly a point X anywhere on the circumference of your circle.

Draw a straight line from O to X.

[1]

(c) By what name is the line OX known?

Answer _____ [1]

7 The marks in a vocabulary test are shown below.

| | | | | |
|---|---|---|---|---|
| 4 | 9 | 3 | 6 | 5 |
| 2 | 7 | 7 | 4 | 3 |
| 9 | 1 | 6 | 5 | 7 |

(a) Find the median of the marks.

Answer _____ [2]

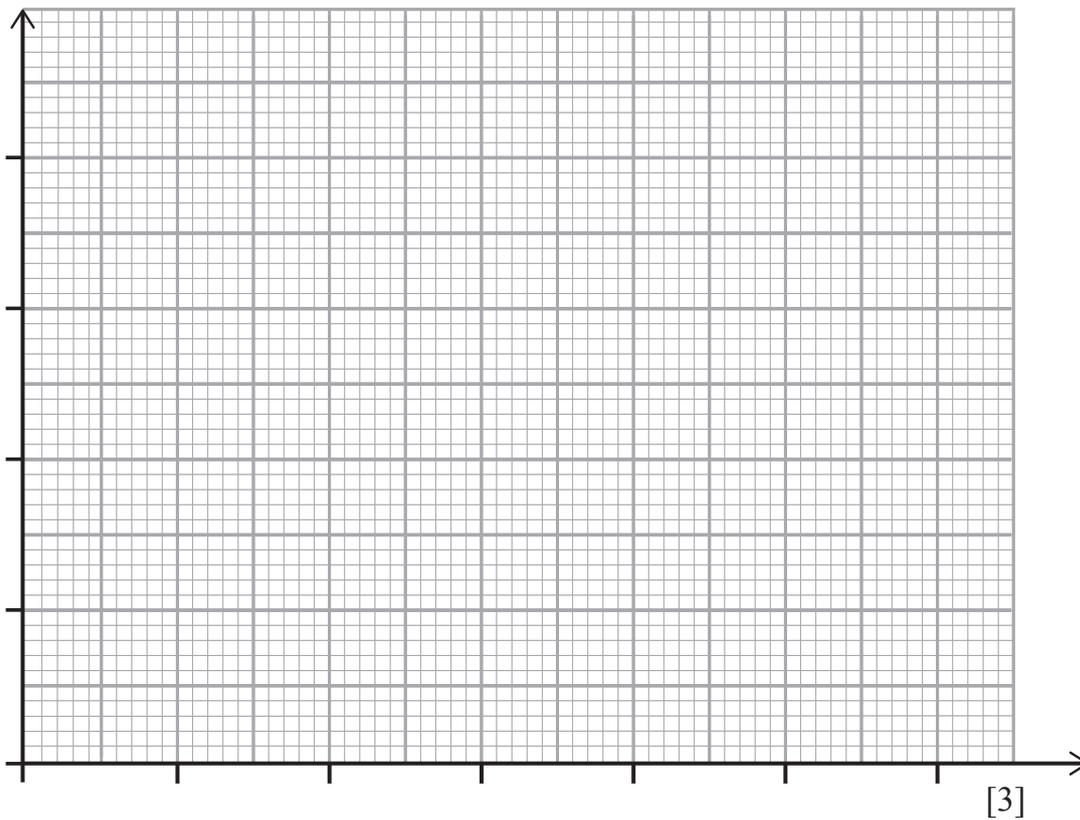
(b) Find the range of the marks.

Answer _____ [1]

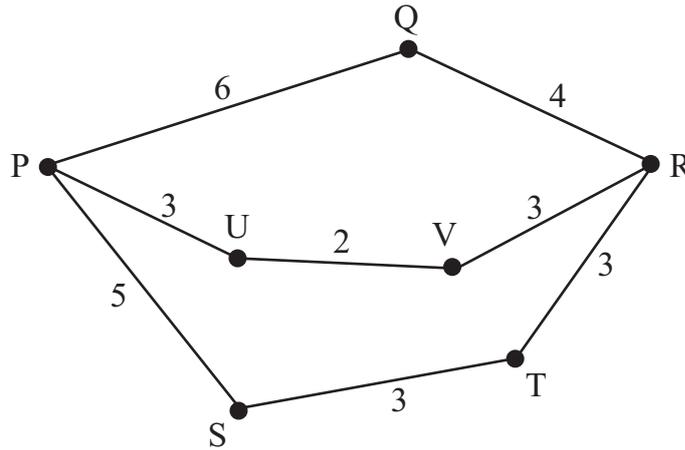
- 8 Look at the chart below.
It shows the number of letters delivered to houses in a street one morning.

| Number of letters | Number of houses |
|-------------------|------------------|
| 0 | 4 |
| 1 | 6 |
| 2 | 7 |
| 3 | 5 |
| 4 | 3 |
| 5 | 5 |

Now, on the grid below draw a frequency diagram for this information.



9 Seven towns are connected by road as shown. All distances are in miles.



The mileage table shows the **shortest** distance between towns.

| | | | | | | | |
|---|----|---|---|---|---|---|--|
| P | | | | | | | |
| 6 | Q | | | | | | |
| 8 | 4 | R | | | | | |
| 5 | 10 | 6 | S | | | | |
| 8 | | 3 | 3 | T | | | |
| 3 | 9 | 5 | 8 | | U | | |
| 5 | 7 | 3 | 9 | 6 | 2 | V | |

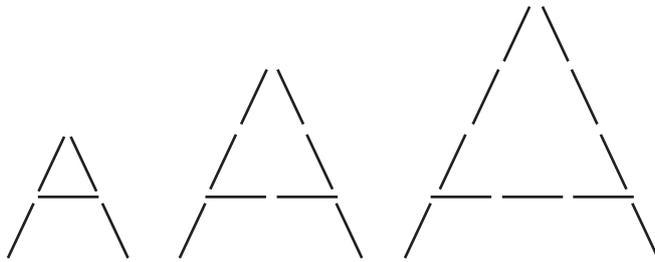
(a) Fill in the mileage table. [2]

(b) Find the length of the **shortest** journey from V to P which **does not** pass through U.

Answer _____ miles [2]

[Turn over

10 The 'A' shapes drawn below are made with matches.



Shape 1

Shape 2

Shape 3

Shape 4

(a) Draw Shape 4.

[1]

(b) Fill in the table for Shapes 4 and 5.

[1]

| | | | | | |
|-------------------|---|---|----|---|---|
| Shape Number | 1 | 2 | 3 | 4 | 5 |
| Number of Matches | 5 | 8 | 11 | | |

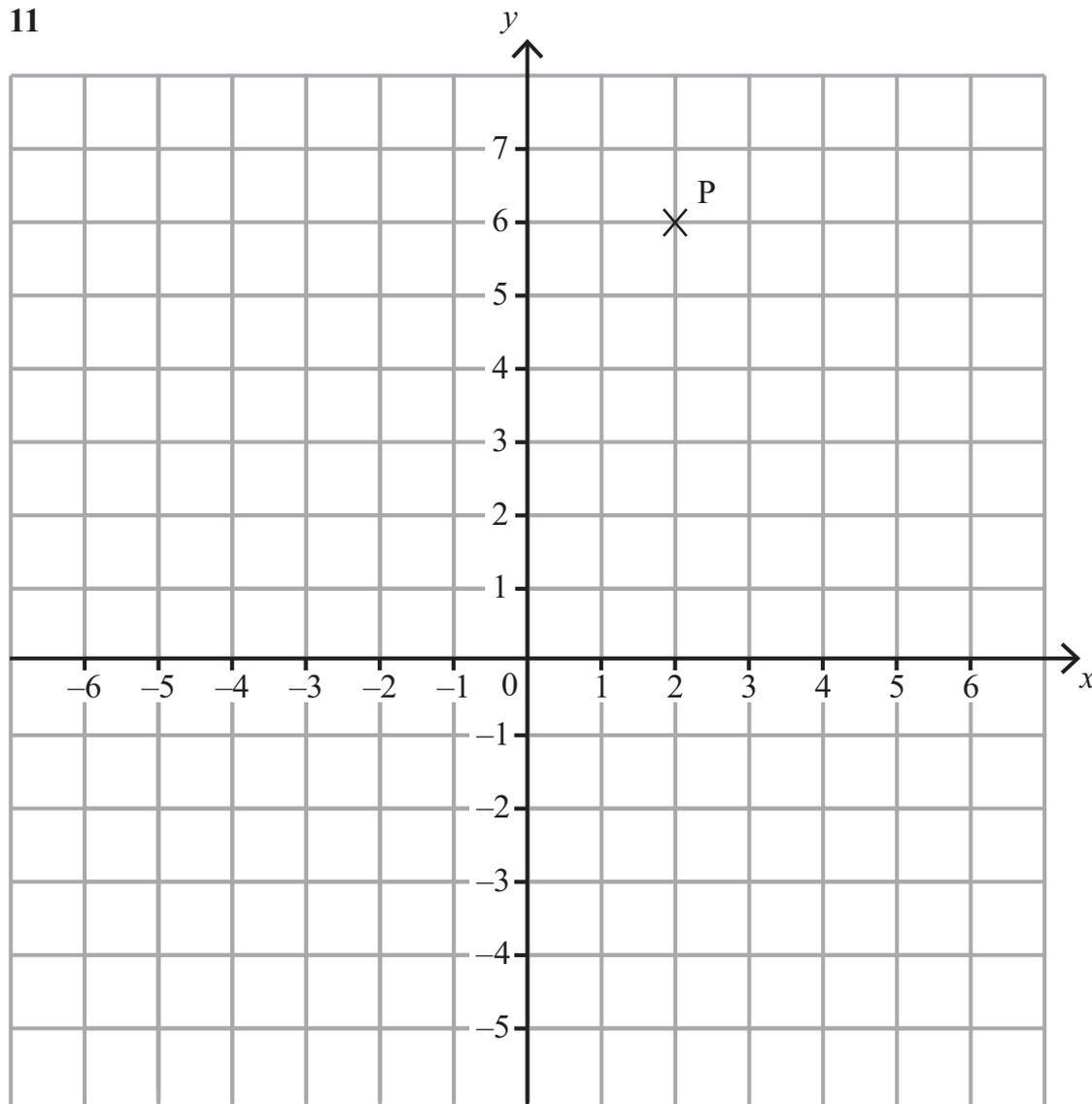
(c) What pattern do you see in the 'Number of Matches' row?

Answer _____ [1]

(d) Find the number of matches in Shape 9.

Answer _____ [2]

11



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

Answer (_____ , _____) [1]

(b) Plot and label the points Q (-1, -3) and R (2, -3). [2]

(c) Join up P, Q and R to form a triangle.

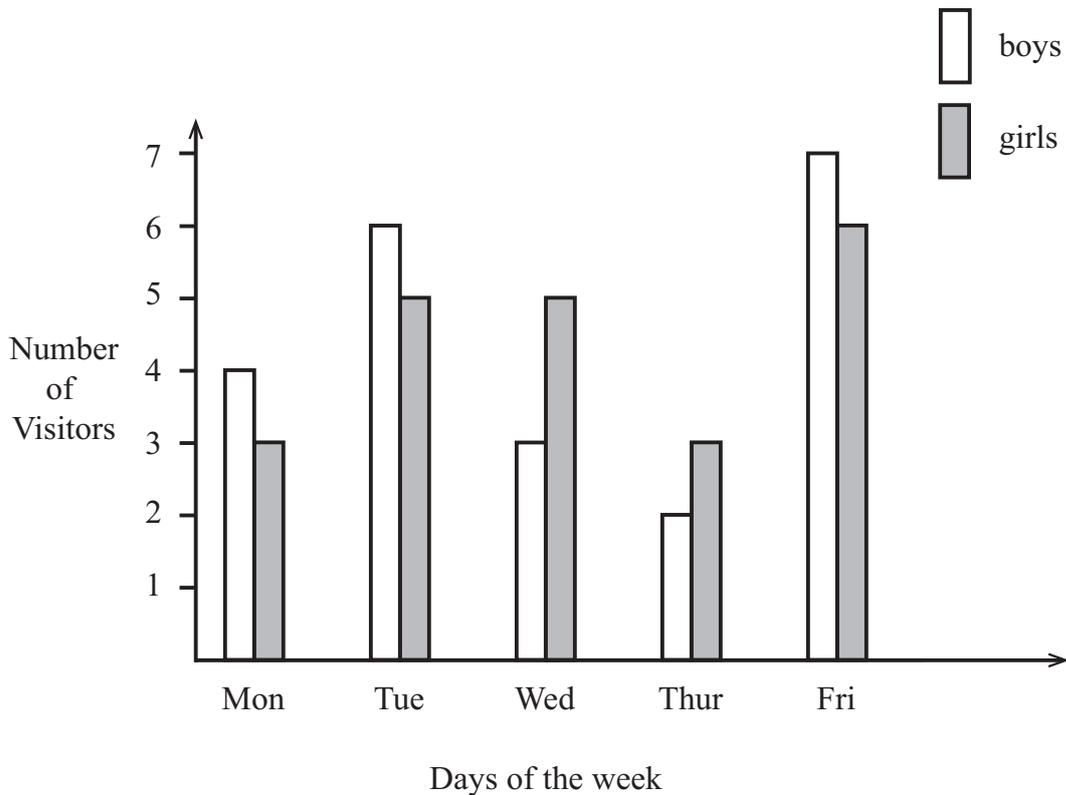
What type of triangle is PQR?

Answer _____ [1]

[Turn over

12 Look at the chart below.

It shows the numbers of boys and girls who visited a library during one school week.



(a) On which day did most boys and girls visit the library?

Answer _____ [1]

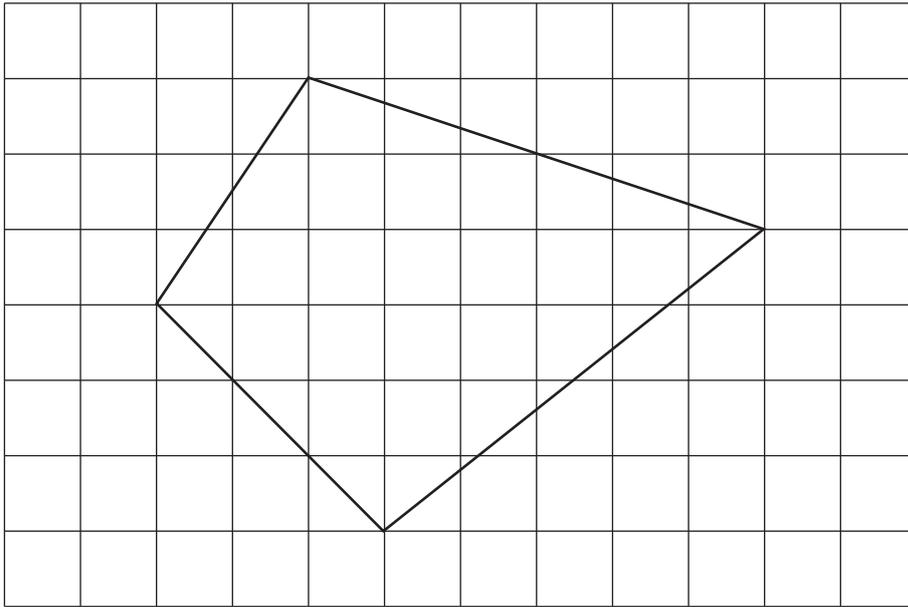
Quality of written communication will be assessed in this question.

(b) The librarian said that ‘more boys than girls visited the library during the week’. Was she correct? Write down a reason for your answer.

Answer _____ because _____

_____ [3]

- 13 The quadrilateral below is drawn on centimetre square paper.



Estimate the area of the quadrilateral.

Answer _____ [2]

- 14 Work out the size of the angle marked m in the diagram below.

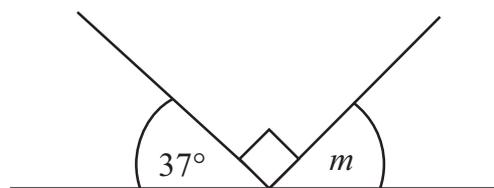


diagram not
drawn accurately

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

[Turn over

15 Work out the area of this triangle.

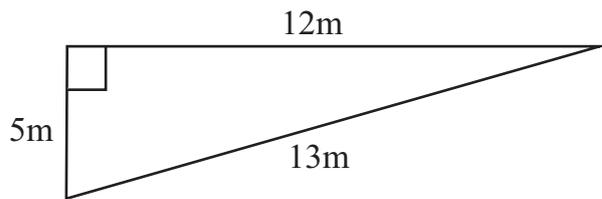


diagram not
drawn accurately

Answer _____ m² [3]

16 (a) Find $\sqrt{7.84}$

Answer _____ [1]

(b) Write these three numbers in order starting with the smallest.

0.597 0.64 0.5892

Answer _____ , _____ , _____ [1]

(c) Write down the next two prime numbers after 53

Answer _____ , _____ [2]

(d) What is the cube root of 27?

Answer _____ [1]

17 There are 7000 paper clips to be packed into boxes.
Each box will have 93 paper clips when full.

(a) How many boxes are completely filled?

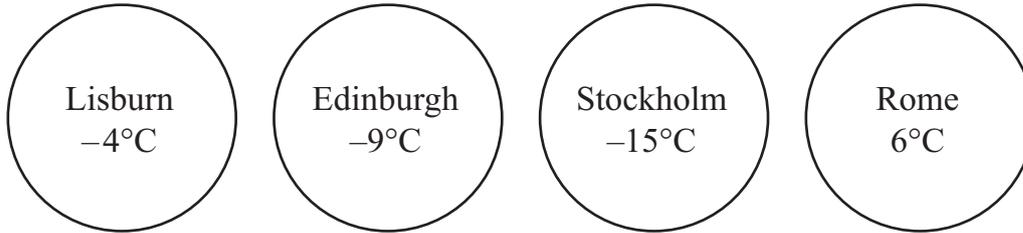
Answer _____ [2]

(b) How many paper clips are left over?

Answer _____ [1]

18 Look at the circles below.

They show the lowest temperatures in four cities on a winter's night.



(a) Write down the difference in temperature between

(i) Rome and Edinburgh,

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

(ii) Lisburn and Stockholm.

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

(b) The next day all these temperatures went up by 8°C .

Write down the temperature for the next day in

(i) Lisburn,

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

(ii) Stockholm.

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

19 Ben's salary is £22 000 for a year. He spends 15% of this on rent.

How much is his rent **per month**?

Answer £ _____ [3]

20 Calculate the mean of these numbers.

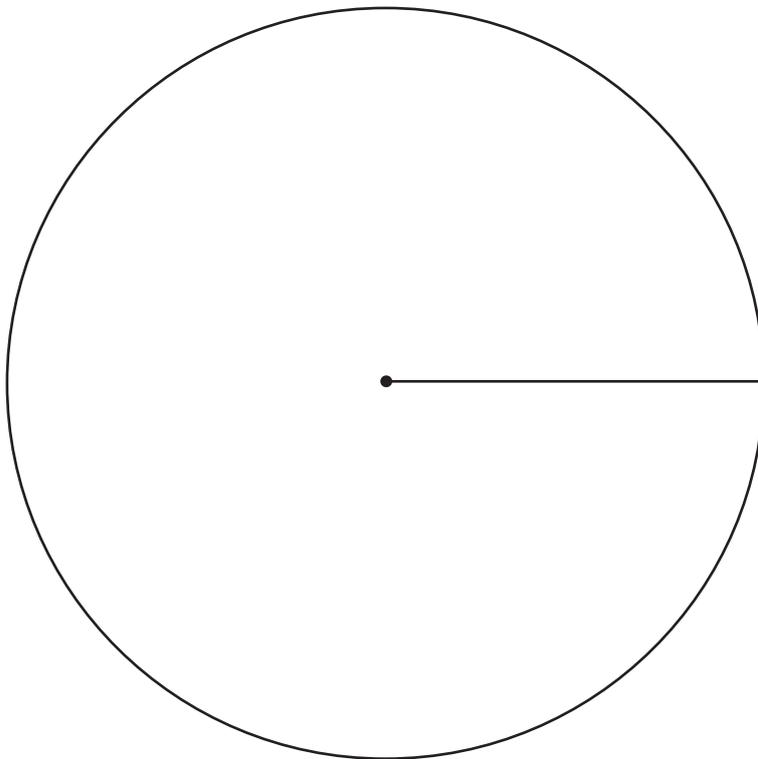
46 35 22 44 19 38 47 26 19 30

Answer _____ [3]

- 21 Look at the table below.
It gives information on the sports played by boys after school.

| Sport | Football | Rugby | Hockey | Tennis |
|----------------|----------|-------|--------|--------|
| Number of boys | 26 | 8 | 12 | 14 |
| Angle | | | | |

Draw a clearly labelled pie chart to show this information.



[4]

- 22 27 girls did a test.
This stem and leaf diagram shows their marks.

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

key 1|4 means 14 marks

Work out

- (a) the mode of the marks,

Answer _____ [1]

- (b) the median of the marks,

Answer _____ [1]

- (c) the range of the marks.

Answer _____ [1]

[Turn over

- 23** A fish tank is a cuboid.
The tank has a length of 9 metres, a width of 4 metres and a height of 3 metres.

(a) What is the maximum volume of water the fish tank can hold?

Answer _____ m^3 [2]

(b) The fish tank is filled with 99 m^3 of water.
What is the depth of water in the tank?

Answer _____ metres [2]

- 24** The Eurostar train leaves London at 11 24 (London time) and arrives in Paris at 14 47 (Paris time).

The time in Paris is 1 hour ahead of the time in London.
How long does the journey take?

Answer _____ [3]

25 Work out the size of the angle w .

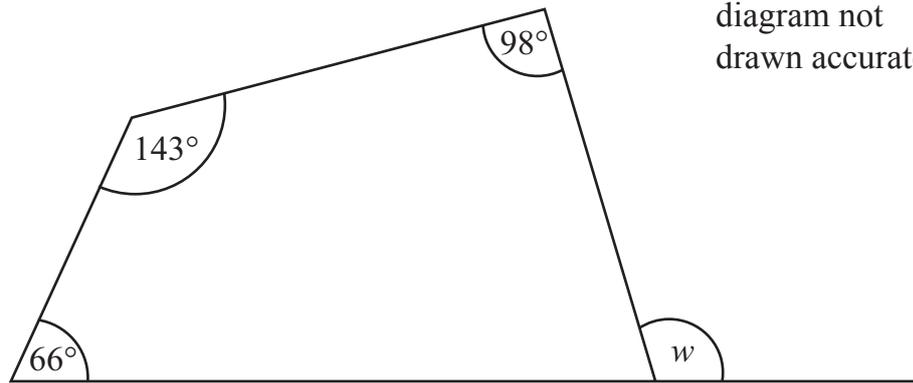


diagram not
drawn accurately

Answer $w =$ _____ $^\circ$ [3]

Quality of written communication will be assessed in this question.

26 A smartphone costs £375

Jill pays a deposit of £95 for this smartphone.

She then pays £35 each month.

How many months will it take before she has paid for the smartphone?

Show your working clearly.

Answer _____ months [3]

- 27 (a) Sam says '17 is a bigger number than 12 so it will have more factors'. Is he right? Give a reason for your answer.

Answer _____ because _____
_____ [3]

- (b) Calculate $4.2^2 + \sqrt{3.61}$

Answer _____ [2]

- 28 (a) Simplify $4x - 7y + 2y + 4x$

Answer _____ [2]

- (b) Solve $7x - 9 = 47$

Answer $x =$ _____ [2]

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Examiner Number

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