Candidate surname | Other names

Centre Number | Candidate Number

Pearson Edexcel Level 1/Level 2 GCSE (9-1)

Aiming for Grade 9

Paper reference **1MA1/1H**

Mathematics

PAPER 1 (Non-Calculator)
Higher Tier

42 marks 40 minutes

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 42. There are 10 questions.
- Questions have been broadly arranged in an ascending order of mean difficulty, as found by students achieving Grade 9 in the Summer and November 2023 examinations.
- Questions marked with an asterisk (*) also appear on the Foundation Tier paper.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer all questions.
Write your answers in the spaces provided.
You must write down all the stages in your working.

1 Alice recorded the number of cars going into a village on each of 80 days.
The incomplete table and the incomplete box plot give information about her results.

	Number of cars
Least number	300
Lower quartile	
Median	900
Upper quartile	
Range	1000
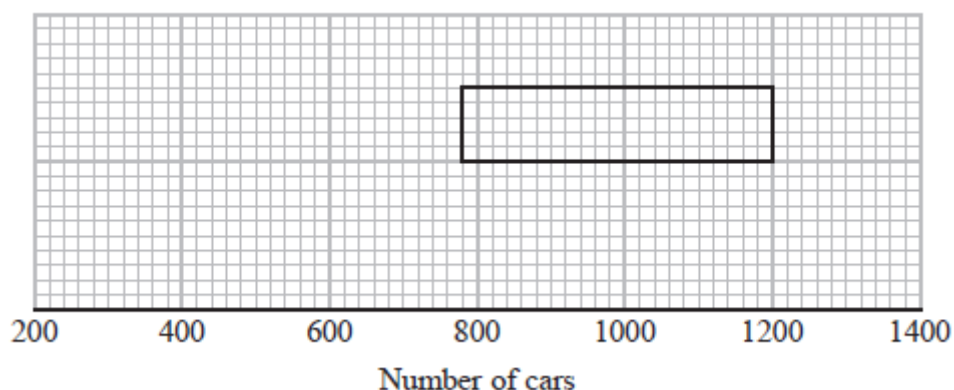
Number of cars

(*a*) (i) Use the information in the table to complete the box plot.
(ii) Use the information in the box plot to complete the table.

(3)

On some of these 80 days Alice saw fewer than 1200 cars going into the village.
(*b*) Work out an estimate for the number of days Alice saw fewer than 1200 cars going into the village.

....

(2)

(Total for Question 1 is 5 marks)

2 To cook rice

the number of cups of rice (x) : the number of cups of water (y) = 4 : 5

(*a*) Use this information to draw a graph to show the relationship between the number of cups of rice and the number of cups of water needed to cook rice.

Number of cups of rice
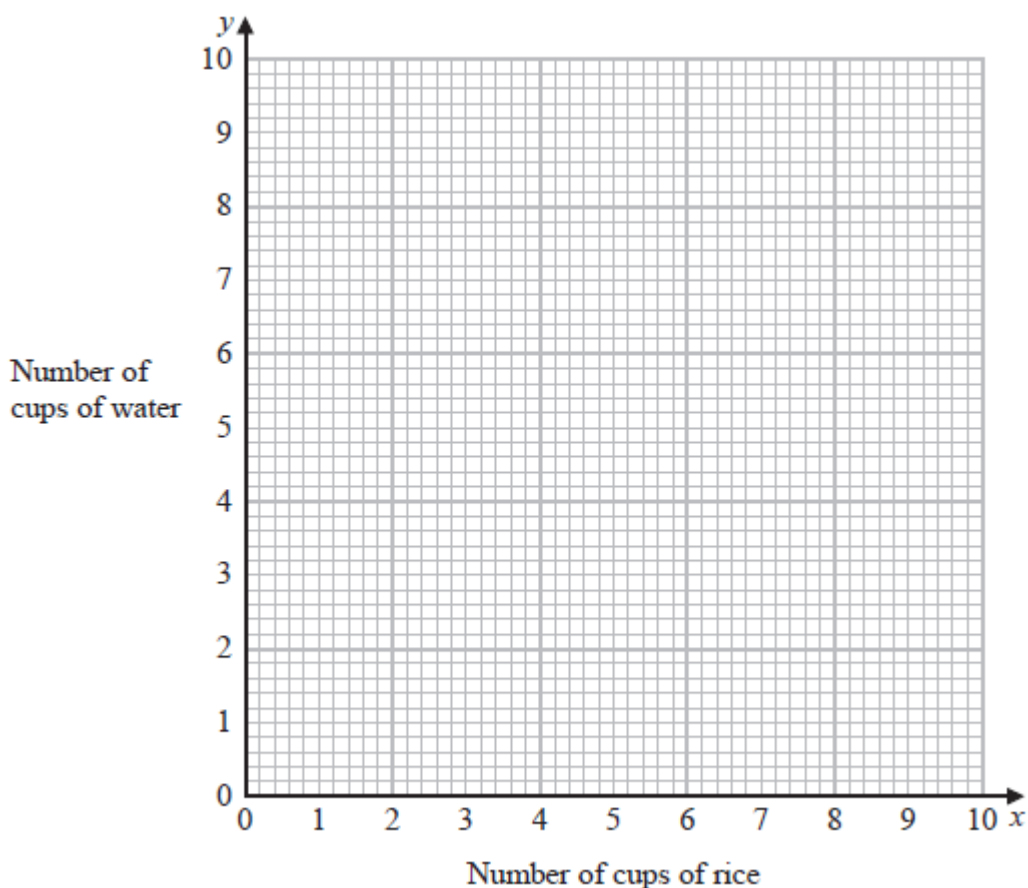
(2)

(*b*) (i) Find the gradient of the line drawn in part (*a*).

....

(1)

(ii) Explain what this gradient represents.

....

....

....

(1)

(Total for Question 2 is 4 marks)

3   (*a*) On the grid, draw the graph of $x^2 + y^2 = 169$
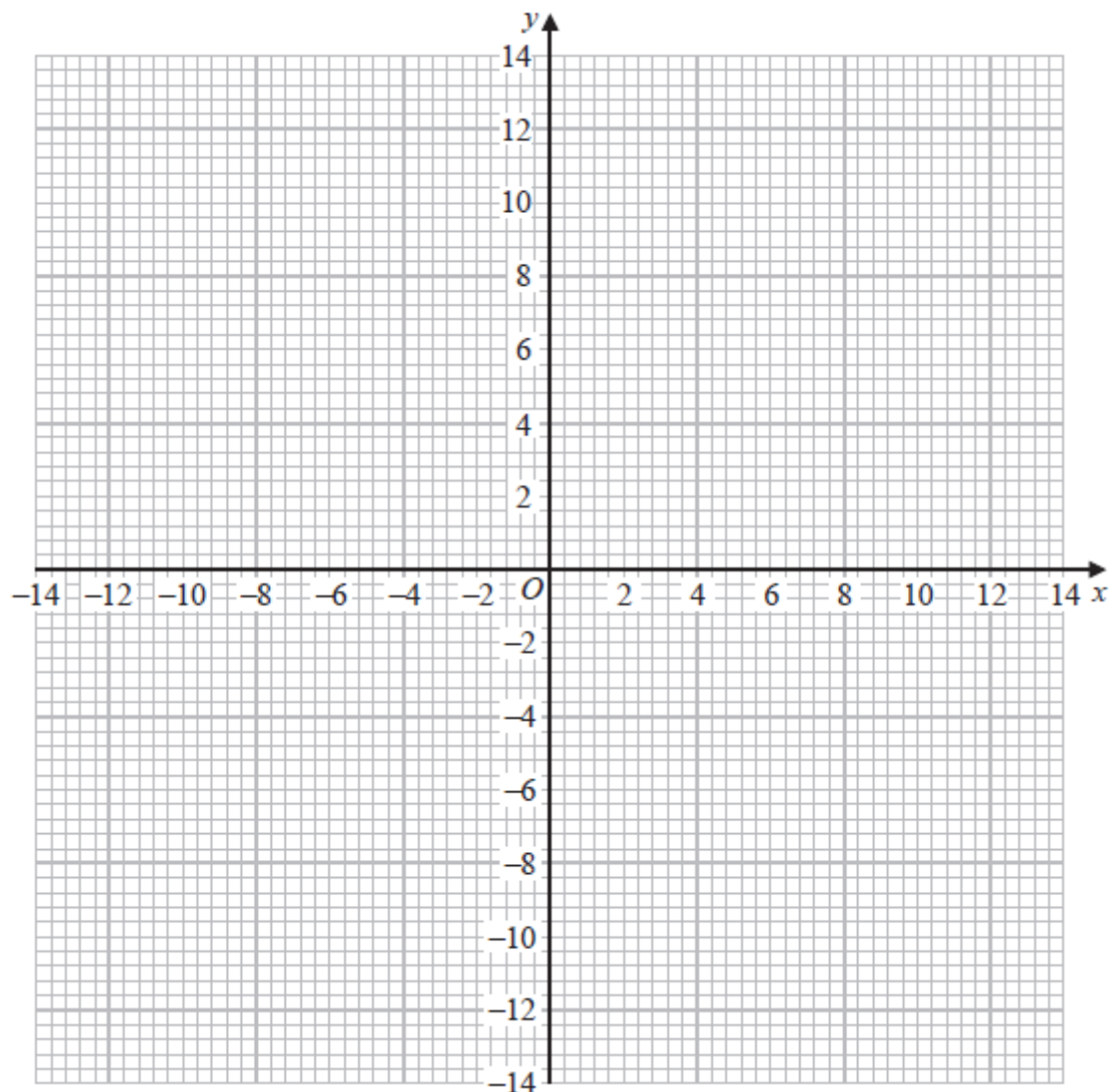
(2)

(*b*) Use your graph to find estimates for the solutions of the simultaneous equations

$$x^2 + y^2 = 169$$
$$2y = 3x$$

....

(3)

(Total for Question 3 is 5 marks)

4   7 kg of carrots and 5 kg of tomatoes cost a total of 480p

cost of 1 kg of carrots : cost of 1 kg of tomatoes = 5 : 9

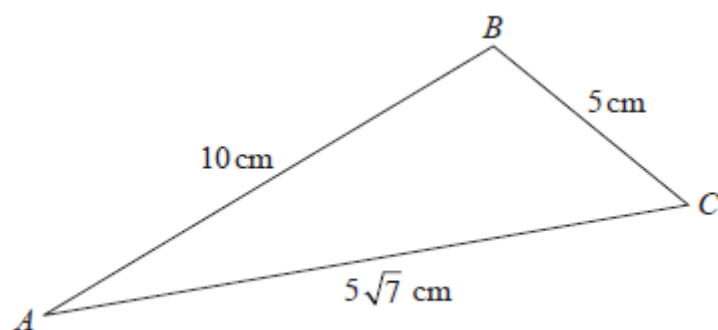Work out the cost of 1 kg of carrots and the cost of 1 kg of tomatoes.

carrots ....p

tomatoes ....p

(Total for Question 4 is 4 marks)

5   Write $\dfrac{3\sqrt{3}}{4-\sqrt{3}} - \dfrac{2}{\sqrt{3}}$ in the form $\dfrac{a\sqrt{3}+b}{c}$ where a, b and c are integers.

....

(Total for Question 5 is 4 marks)

6 Here is triangle *ABC*.

Find the size of angle *ABC*.
You must show all your working.

....°

(Total for Question 6 is 4 marks)

7 Solid **A** and solid **B** are similar.
The ratio of the height of solid **A** to the height of solid **B** is 2 : 5
The volume of solid **A** is 12 cm^3
Work out the volume of solid **B**.

.... cm^3

(Total for Question 7 is 3 marks)

8 The 2nd term of a geometric sequence is $3 + 2\sqrt{2}$

The 3rd term of the sequence is $13 + 9\sqrt{2}$

Find the value of the common ratio of the sequence.

Give your answer in the form $a + \sqrt{b}$ where a and b are integers.
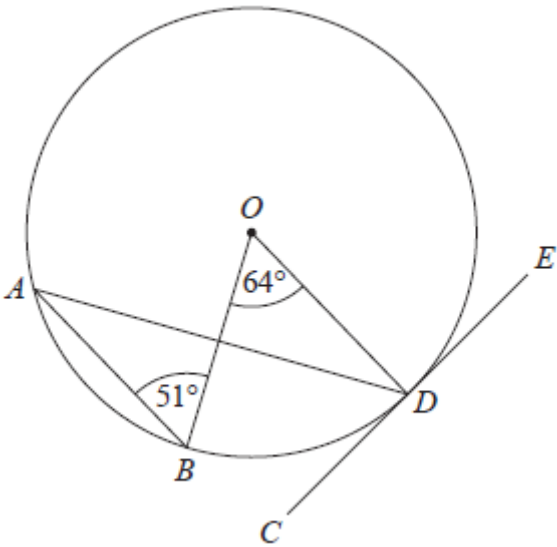
You must show all your working.

....

(Total for Question 8 is 4 marks)

9 Find the set of possible values of x for which

$$4x^2 - 25 < 0 \qquad \textbf{and} \qquad 12 - 5x - 3x^2 > 0$$

You must show all your working.

....

(**Total for Question 9 is 5 marks**)

10 *A*, *B* and *D* are points on a circle with centre *O*.
  CDE is the tangent to the circle at *D*.

Work out the size of angle *ADC*.
Write down any circle theorems you use.

....°

(Total for Question 10 is 4 marks)

TOTAL FOR PAPER IS 42 MARKS