

Please check the examination details below before entering your candidate information

Candidate surname					Other names				
Centre Number					Candidate Number				

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

Aiming for Grade 6

Paper reference	1MA1/3H
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Mathematics

PAPER 3 (Calculator)

Higher Tier

31 marks 30 minutes



You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator, 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.

Information

- The total mark for this paper is 31. There are 12 questions.
- Questions have been broadly arranged in an ascending order of mean difficulty, as found by students achieving Grade 6 in the Summer and November 2023 examinations.
- Questions marked with an asterisk (*) also appear on the Higher 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.

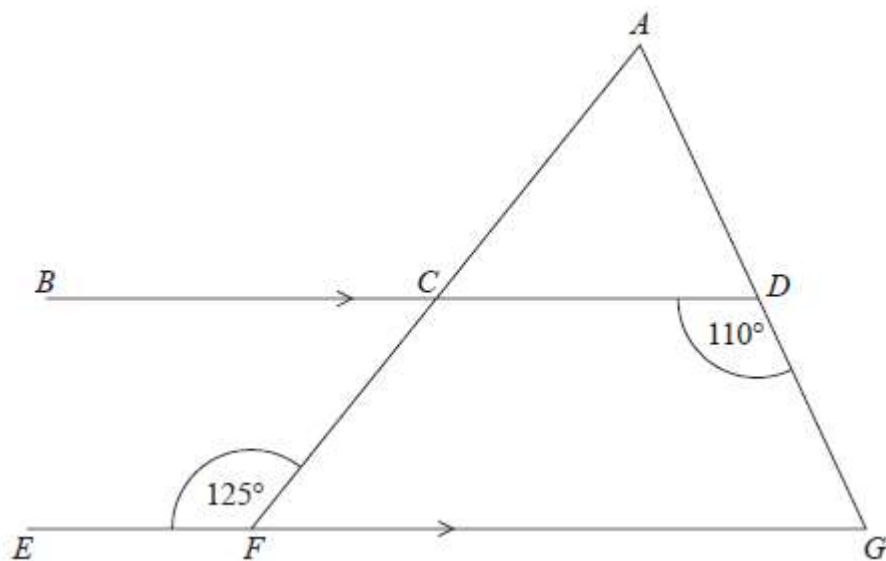
Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** Show that $(x - 1)(x + 3)(x - 5)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a , b , c and d are integers.

(Total for Question 1 is 3 marks)

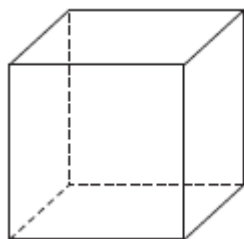
- *2 ACF and ADG are straight lines.
 BCD and EFG are parallel lines.



Show that triangle ACD is isosceles.
Give a reason for each stage of your working.

(Total for Question 2 is 5 marks)

- *3 The diagram shows a solid cube placed on a horizontal table.



$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

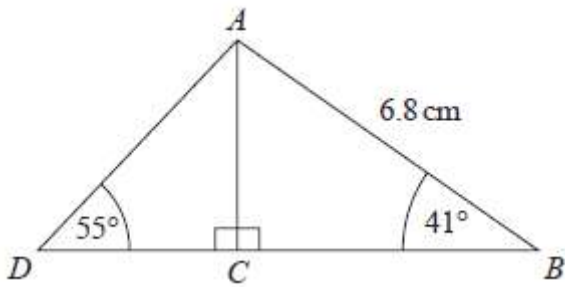
The pressure on the table due to the cube is 3.5 newtons/cm^2

The force exerted by the cube on the table is 504 newtons.

Show that the total surface area of the cube is less than 900 cm^2

(Total for Question 3 is 3 marks)

- 4 ABD is a triangle.
 C is a point on BD .



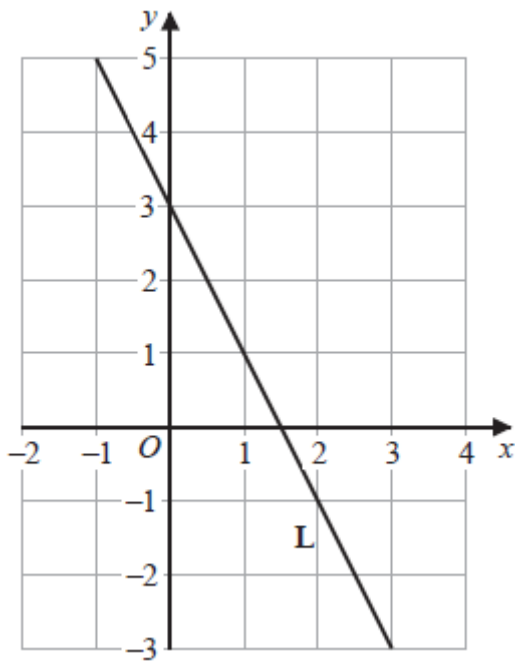
Work out the length of DC .
 Give your answer correct to 1 decimal place.

..... cm
 (Total for Question 4 is 3 marks)

- *5 Lava flows from a volcano at a constant rate of $11.9 \text{ m}^3/\text{s}$
 How many days does it take for $67\,205\,600 \text{ m}^3$ of lava to flow from the volcano?
 Give your answer correct to the nearest day.

..... days
 (Total for Question 5 is 3 marks)

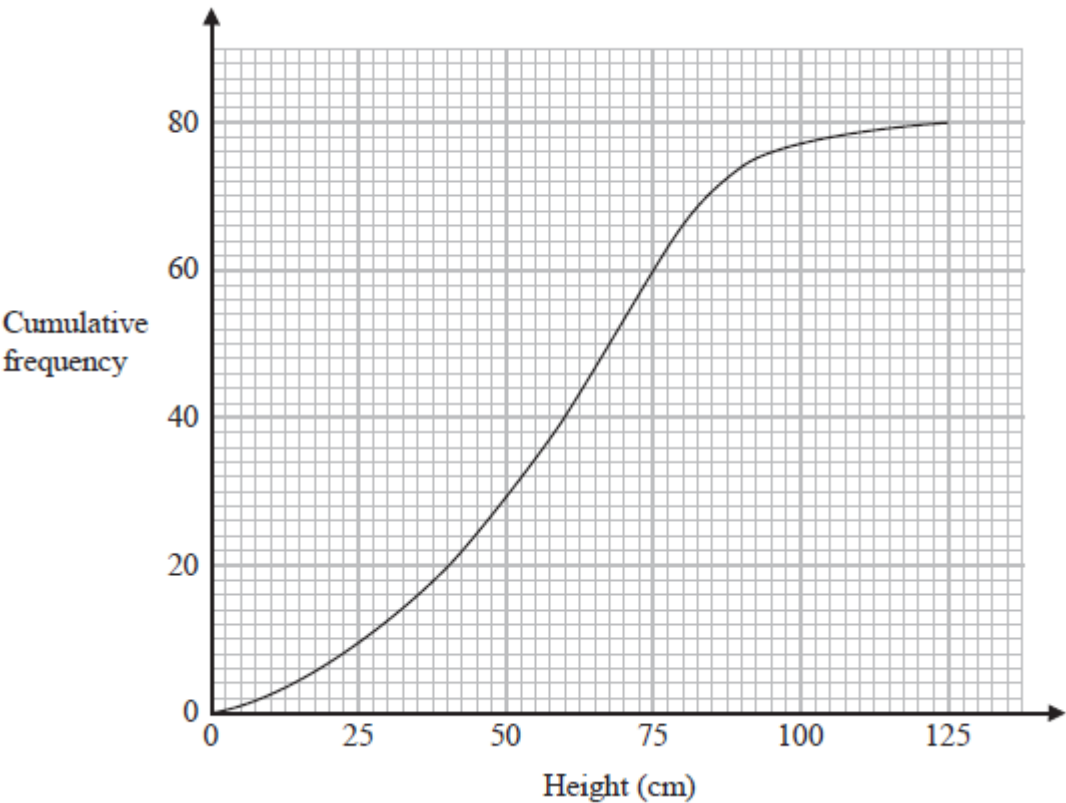
***6** The line **L** is shown on the grid.



Find an equation for **L**.

.....
(Total for Question 6 is 3 marks)

- 7 Alan grew 80 plants of the same type outside.
The cumulative frequency graph shows information about the heights, in cm, of these plants.



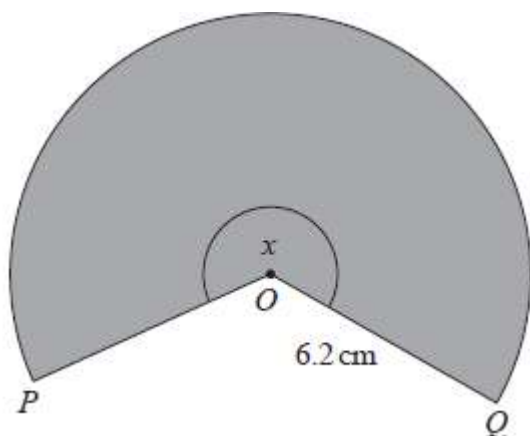
Use the graph to find an estimate for the median height.

..... cm
(Total for Question 7 is 1 mark)

- 8 Write $x^2 - 8x + 3$ in the form $(x - a)^2 - b$ where a and b are integers.

.....
(Total for Question 8 is 2 marks)

- 9 The diagram shows a shaded sector POQ of a circle with centre O and radius 6.2 cm.



The area of the shaded sector is 82.6 cm^2
Calculate the size of angle x .
Give your answer correct to 3 significant figures.

.....°
(Total for Question 9 is 2 marks)

- *10 A and B are numbers such that

$$A = 2^2 \times 3^4 \times 7$$

$$B = 3^2 \times 7^2$$

Find the highest common factor (HCF) of A and B .

.....
(Total for Question 10 is 1 mark)

- *11** Work out the greatest integer that satisfies the inequality
 $5y - 7 < 16$

.....
(Total for Question 11 is 2 marks)

- 12** Prove algebraically that $0.1\dot{2}\dot{3}$ can be written as $\frac{61}{495}$

(Total for Question 12 is 3 marks)

TOTAL FOR PAPER IS 31 MARKS