

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 7

Paper reference	1MA1/2H
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Mathematics

PAPER 2 (Calculator)

Higher Tier

33 marks 35 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 33. There are 9 questions.
- Questions have been broadly arranged in an ascending order of mean difficulty, as found by students achieving Grade 7 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** (a) Show that the equation $x^4 - x^2 - 5 = 0$ can be written in the form $x = \sqrt[4]{x^2 + 5}$

(1)

- (b) Starting with $x_0 = 1.5$

use the iteration formula $x_{n+1} = \sqrt[4]{x_n^2 + 5}$ three times to find an estimate for a solution of $x^4 - x^2 - 5 = 0$

.....
(3)

(Total for Question 1 is 4 marks)

- 2 Starting with $x_0 = 1.45$
 use the iteration formula $x_{n+1} = \frac{6}{x^2 + 2}$ twice to find an estimate
 for the solution of $x^3 + 2x - 6 = 0$
 Give your answer correct to 4 decimal places.

.....
 (Total for Question 2 is 3 marks)

- 3 Here are the first four terms of a quadratic sequence.

3 9 17 27

Find an expression, in terms of n , for the n th term of this sequence.

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

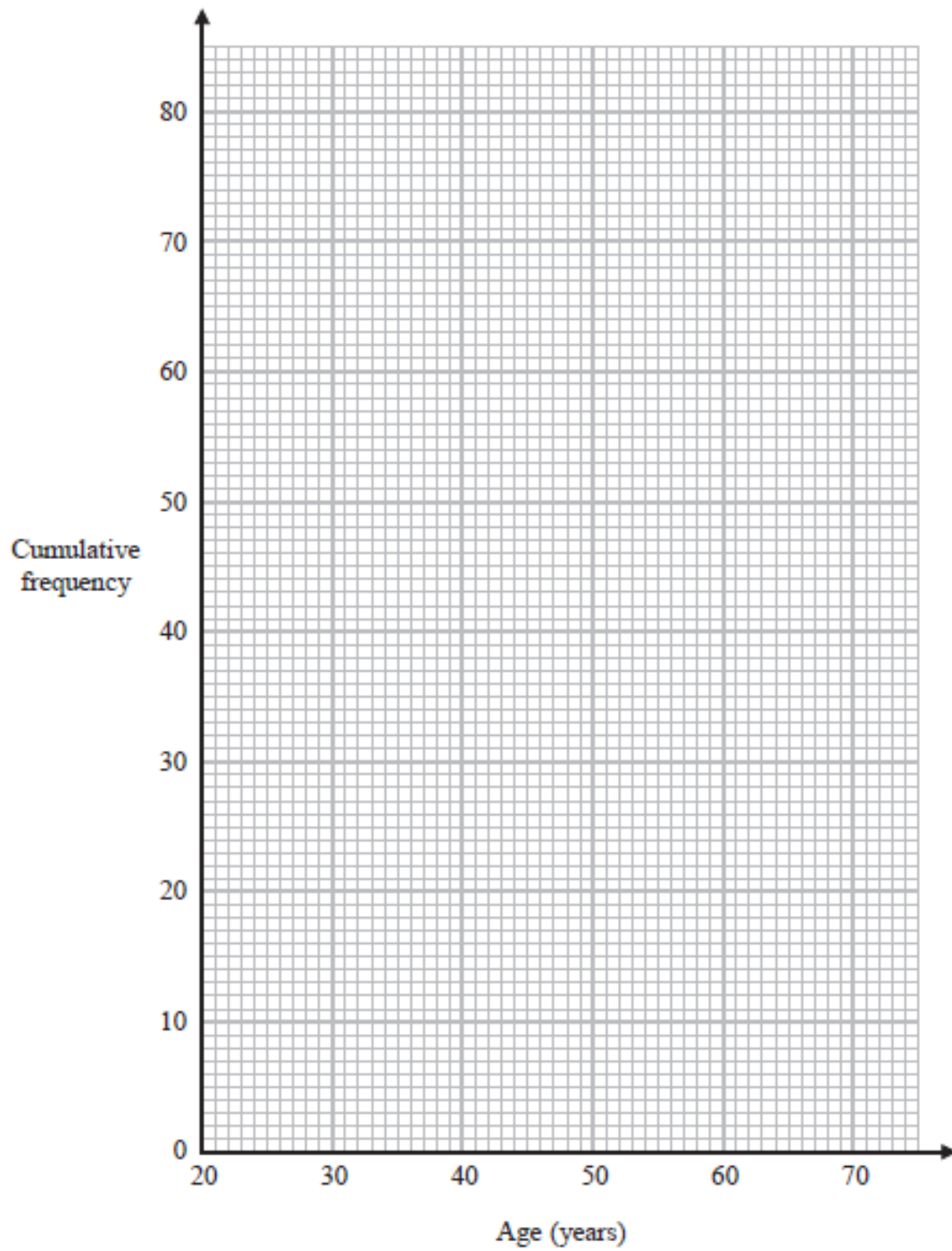
- 4 The cumulative frequency table gives information about the ages of 80 people working for a company.

Age (a years)	Cumulative frequency
$20 < a \leq 30$	20
$20 < a \leq 40$	48
$20 < a \leq 50$	64
$20 < a \leq 60$	75
$20 < a \leq 70$	80

- (a) On the grid on the next page, draw a cumulative frequency graph for this information. (2)

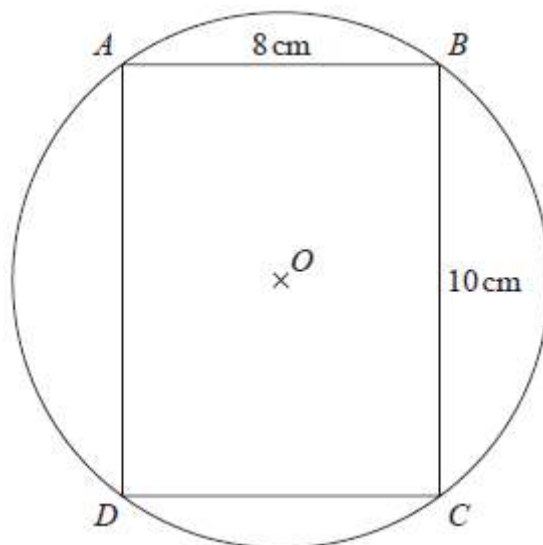
- (b) Use your graph to find an estimate for the median age.

..... years (1)



(Total for Question 4 is 3 marks)

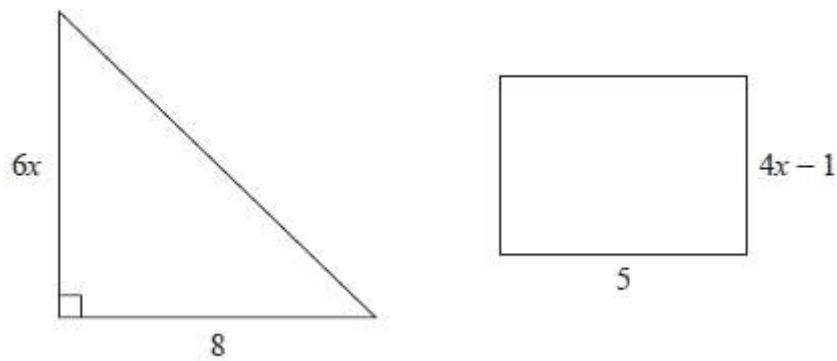
- *5 The points A , B , C and D lie on a circle, centre O .
 $ABCD$ is a rectangle.



$AB = 8\text{ cm}$ $BC = 10\text{ cm}$
Work out the circumference of the circle.
Give your answer correct to 3 significant figures.

..... cm
(Total for Question 5 is 4 marks)

6 Here is a triangle and a rectangle.



All measurements are in centimetres.
The area of the triangle is 10 cm^2 greater than the area of the rectangle.
Work out the value of x .

$x = \dots\dots\dots$
(Total for Question 6 is 4 marks)

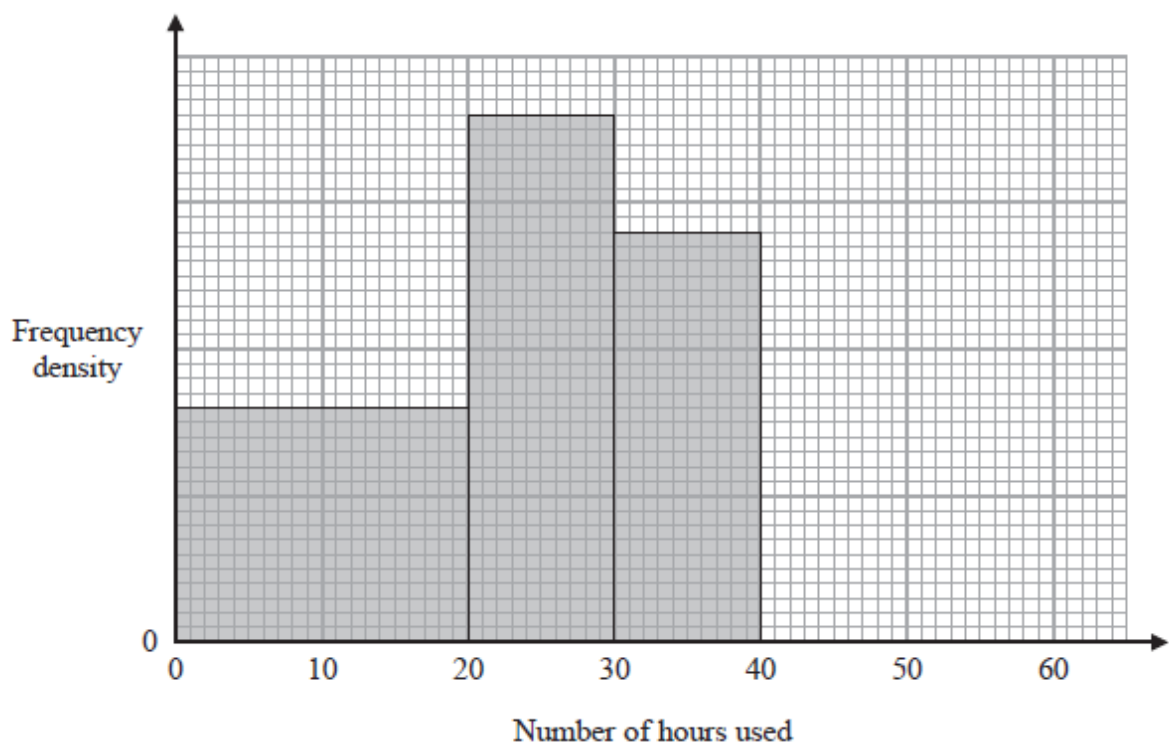
7 A biased dice is thrown 60 times.
The table shows information about the number that the dice lands on each time.

Number on dice	1	2	3	4	5	6
Frequency	12	7	8	9	9	15

Gethin throws the dice twice.
Work out an estimate for the probability that the dice will land on 6 both times.

$\dots\dots\dots$
(Total for Question 7 is 3 marks)

- 8 The histogram gives information about the number of hours some students used their phones last week.
The histogram is incomplete.



28 students used their phones for between 30 and 40 hours.
24 students used their phones for between 40 and 60 hours.

(a) Use this information to complete the histogram.

(2)

No student used their phone for more than 60 hours.

(b) Work out the total number of students.

(2)

(Total for Question 8 is 4 marks)

- 9 y is proportional to x^2
 $y = 3$ when $x = 0.5$
- x is inversely proportional to w
 $x = 2$ when $w = 0.2$
- Find the value of y when $w = 2$

$y = \dots\dots\dots$
(Total for Question 9 is 5 marks)

TOTAL FOR PAPER IS 33 MARKS