

Write your name here

Surname

Other names

In the style of:

**Edexcel GCSE**

Centre Number

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Candidate Number

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# Mathematics A

## Histograms

**Higher Tier**

Past Paper Style Questions  
Arranged by Topic

Paper Reference

**1MA0/2H**

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. 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.*
- **Calculators may be used.**



### Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed.

### 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.

Turn over ►

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1. The table shows information about the length of time that 180 people spend gardening.

Time, $t$ (minutes)	Frequency
$60 < t \leq 150$	18
$150 < t \leq 180$	66
$180 < t \leq 240$	60
$240 < t \leq 360$	36

$$\text{Freq. Density} = \frac{\text{Freq.}}{\text{Class Width}}$$

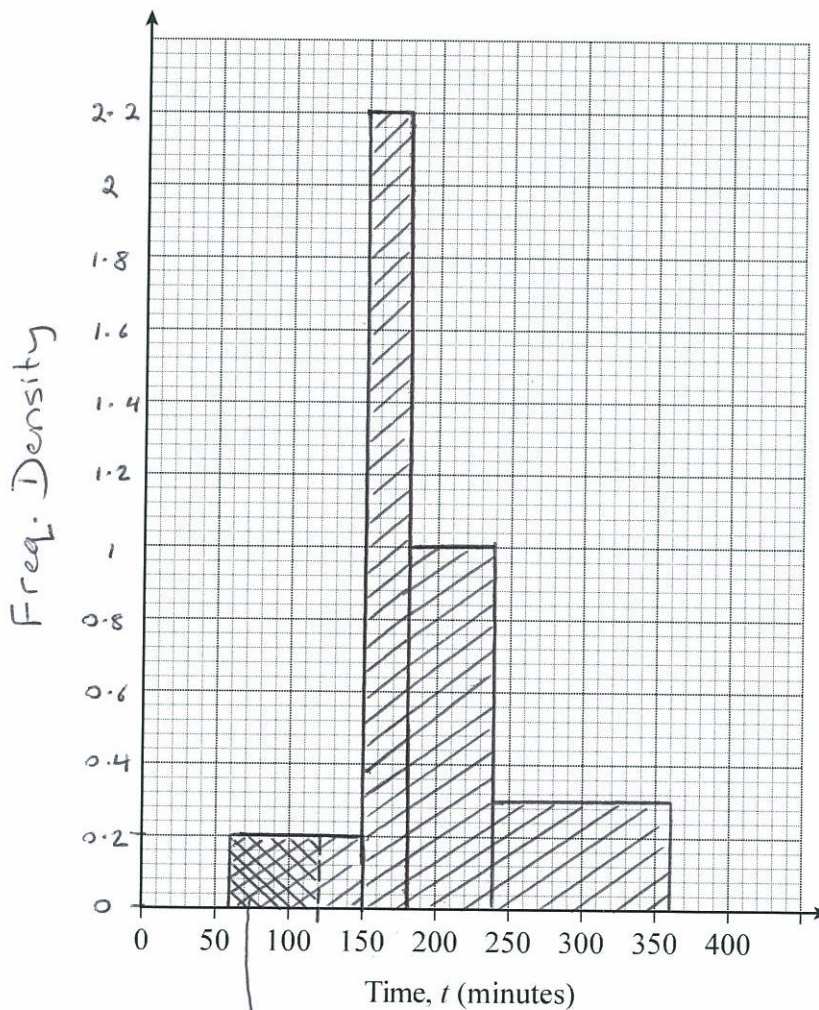
$$0.2$$

$$2.2$$

$$1$$

$$0.3$$

- (a) Draw a suitable frequency diagram for the data.



(3)

Area of 60-120min section  
of bar =  $0.2 \times 60 = 12$



- (b) Calculate an estimate of the average length of time for those people who are gardening for over three hours.

$$\begin{aligned} \text{Mean estimate} &= \frac{\sum(m \times f)}{\sum f} = \frac{(210 \times 60) + (300 \times 36)}{60 + 36} \\ &= \frac{23,400}{96} = 243.75 \text{ mins} \\ &\qquad\qquad\qquad \underline{\underline{243.75}} \text{ minutes} \\ &\qquad\qquad\qquad (2) \end{aligned}$$

- (c) Two people are chosen at random from the 180 people.

Estimate the probability that both are gardening for less than two hours.

Estimate for frequency of people gardening for less than 120 minutes is given by the area of the portion of the histogram bar indicated, namely  $0.2 \times 60 = 12$ .

$$\begin{aligned} P(< 120 \text{ mins AND } < 120 \text{ mins}) \\ &= \frac{12}{180} \times \frac{11}{179} = \frac{132}{32,220} \\ &= \frac{11}{2685} \\ &\qquad\qquad\qquad \frac{11}{\underline{\underline{2685}}} \\ &\qquad\qquad\qquad (3) \end{aligned}$$

