

Write your name here

Surname

Other names

In the style of:

**Edexcel GCSE**

Centre Number

--	--	--	--	--	--

Candidate Number

--	--	--	--	--

# 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.

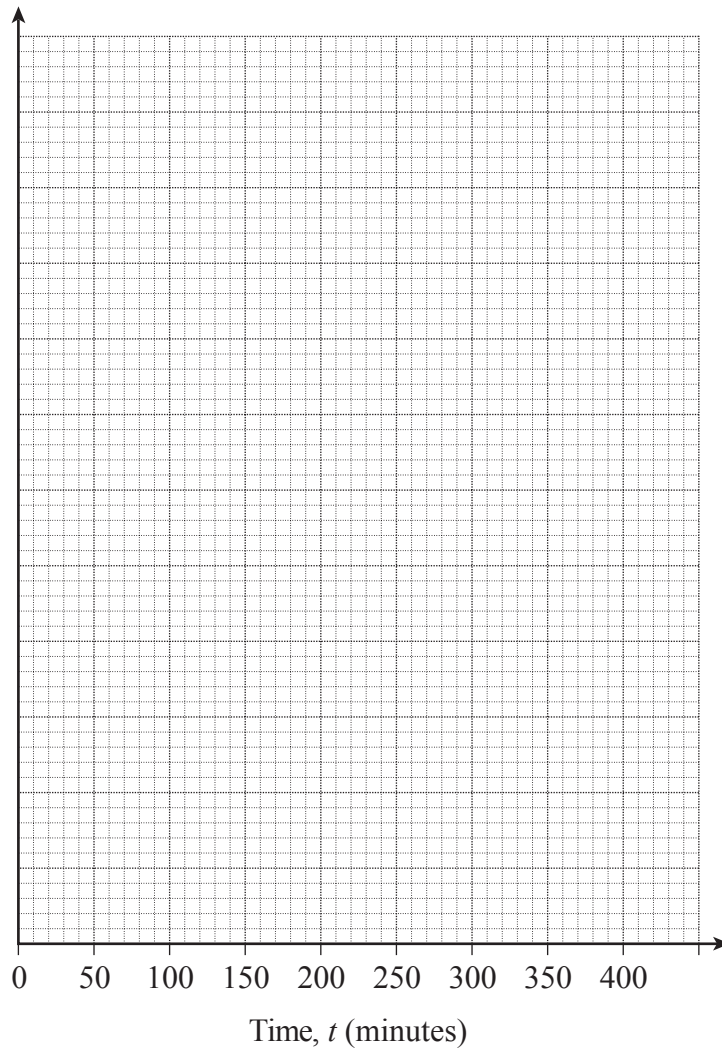
Turn over ►



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

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



(3)



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

..... minutes

(2)

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

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

.....

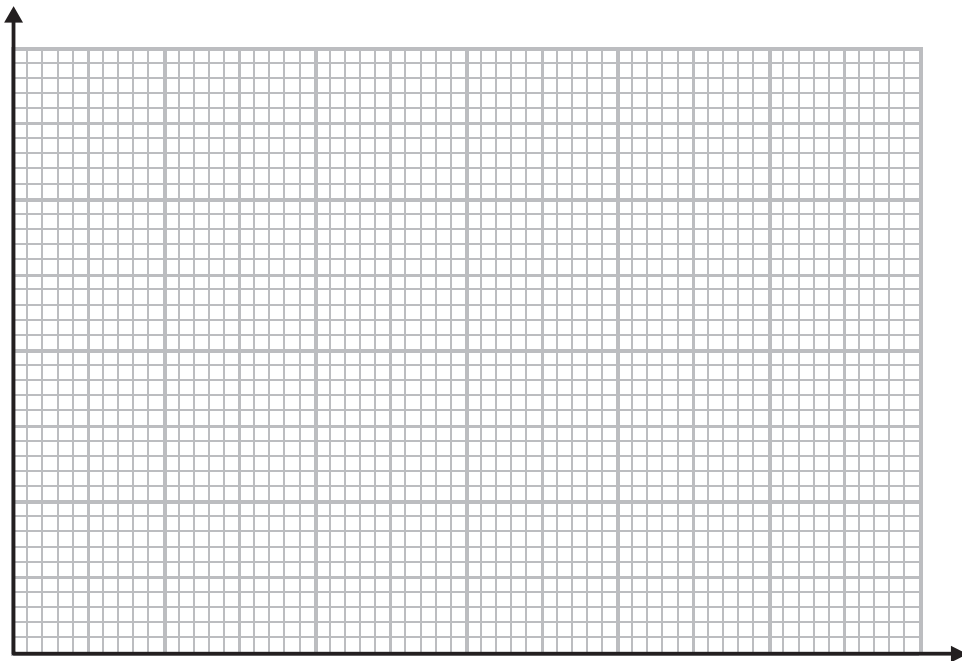
(3)



2. The table gives information about the heights,  $h$  centimetres, of plants in a greenhouse.

Height ( $h$ centimetres)	Frequency
$0 < h \leq 2$	7
$2 < h \leq 4$	14
$4 < h \leq 8$	16
$8 < h \leq 16$	22
$16 < h \leq 20$	12

Draw a histogram to show this information.



(Total 3 marks)

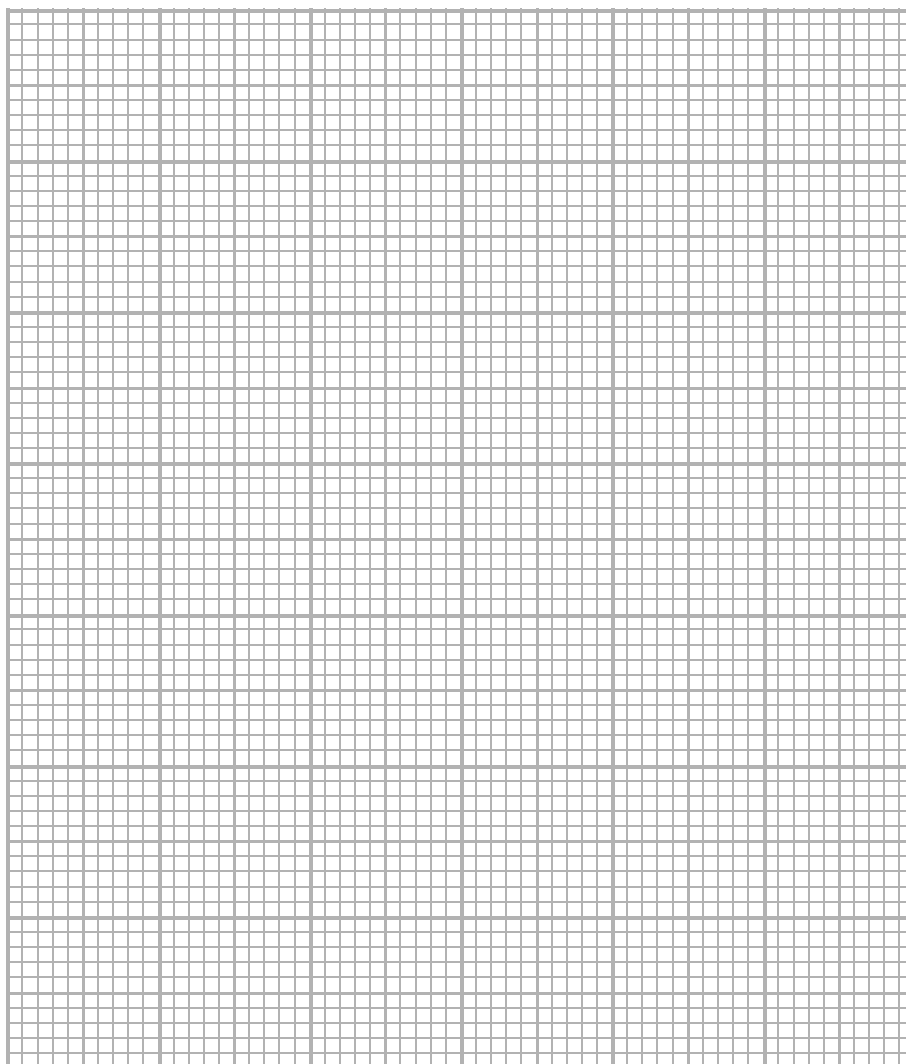


3. The table gives information about the ages of the population of a city.

Age ( $a$ years)	Number (thousands)
$0 \leq a < 10$	9
$10 \leq a < 20$	8
$20 \leq a < 35$	10
$35 \leq a < 50$	19
$50 \leq a < 55$	4
$55 \leq a < 65$	7
$65 \leq a < 80$	4
$80 \leq a < 100$	1

(a) On the graph paper below, using a scale of 1 cm to represent 10 years on the Age axis, draw a histogram to represent this information.

(4)



(b) Write down the class interval in which the median lies.

**(1)**

(c) Calculate, giving your answer in years and months, an estimate of the mean age of the population.

**(4)**

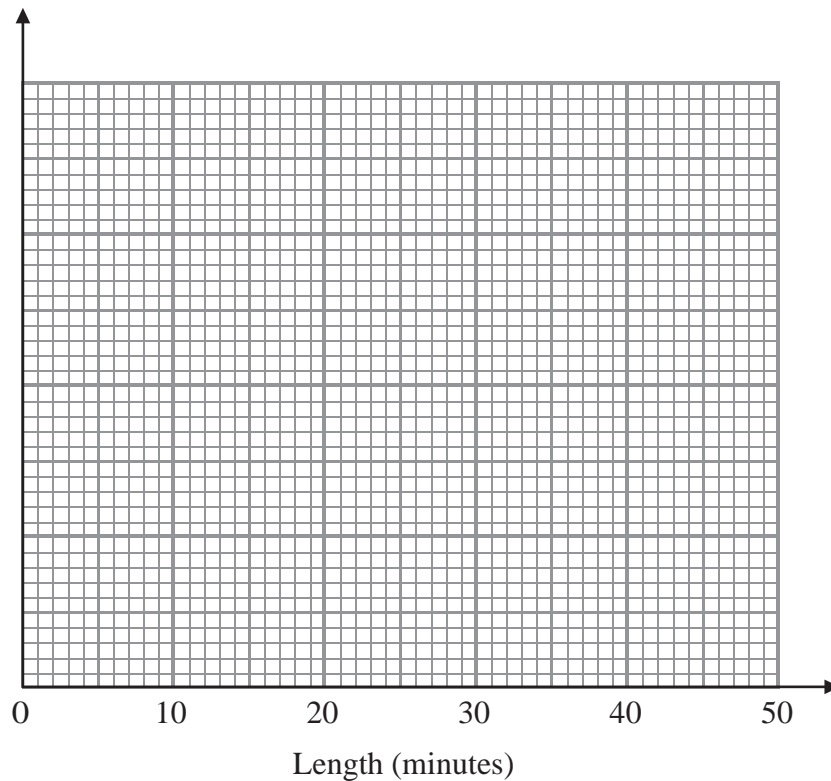


4. A pub has 64 customers one evening.

The table gives information about the lengths, in minutes, of the time the customers stayed for.

Length ( $x$ ) minutes	Frequency
$0 < x \leq 5$	1
$5 < x \leq 15$	10
$15 < x \leq 30$	17
$30 < x \leq 40$	21
$40 < x \leq 45$	15

Draw a histogram for this information.



(Total 4 marks)



5. The incomplete histogram and table show information about the weights of some vehicles.

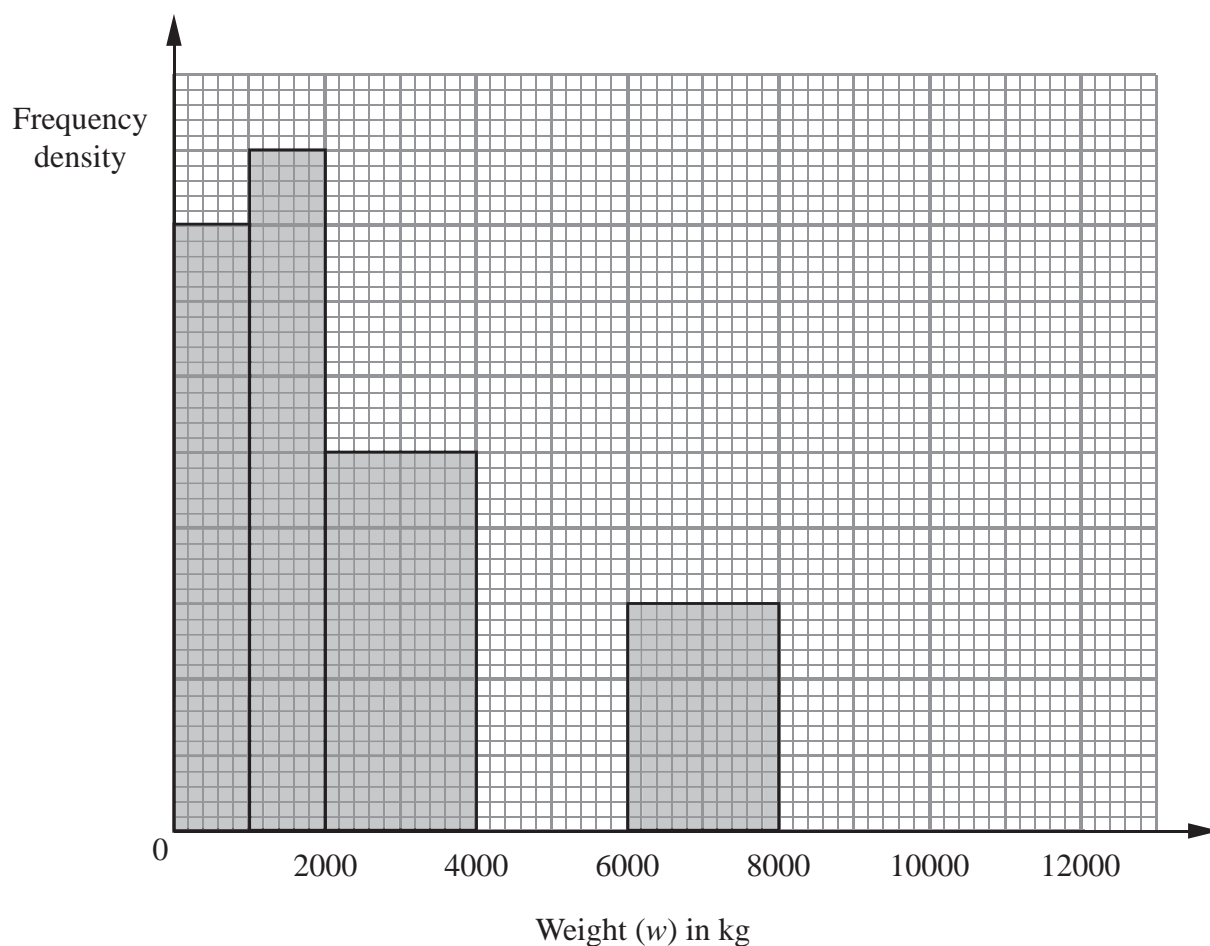
Weight ( $w$ ) in kg	Frequency
$0 < w \leq 1000$	16
$1000 < w \leq 2000$	
$2000 < w \leq 4000$	
$4000 < w \leq 6000$	14
$6000 < w \leq 8000$	
$8000 < w \leq 12000$	4

(a) Use the information in the histogram to complete the table.

(2)

(b) Use the information in the table to complete the histogram.

(2)



(Total 4 marks)

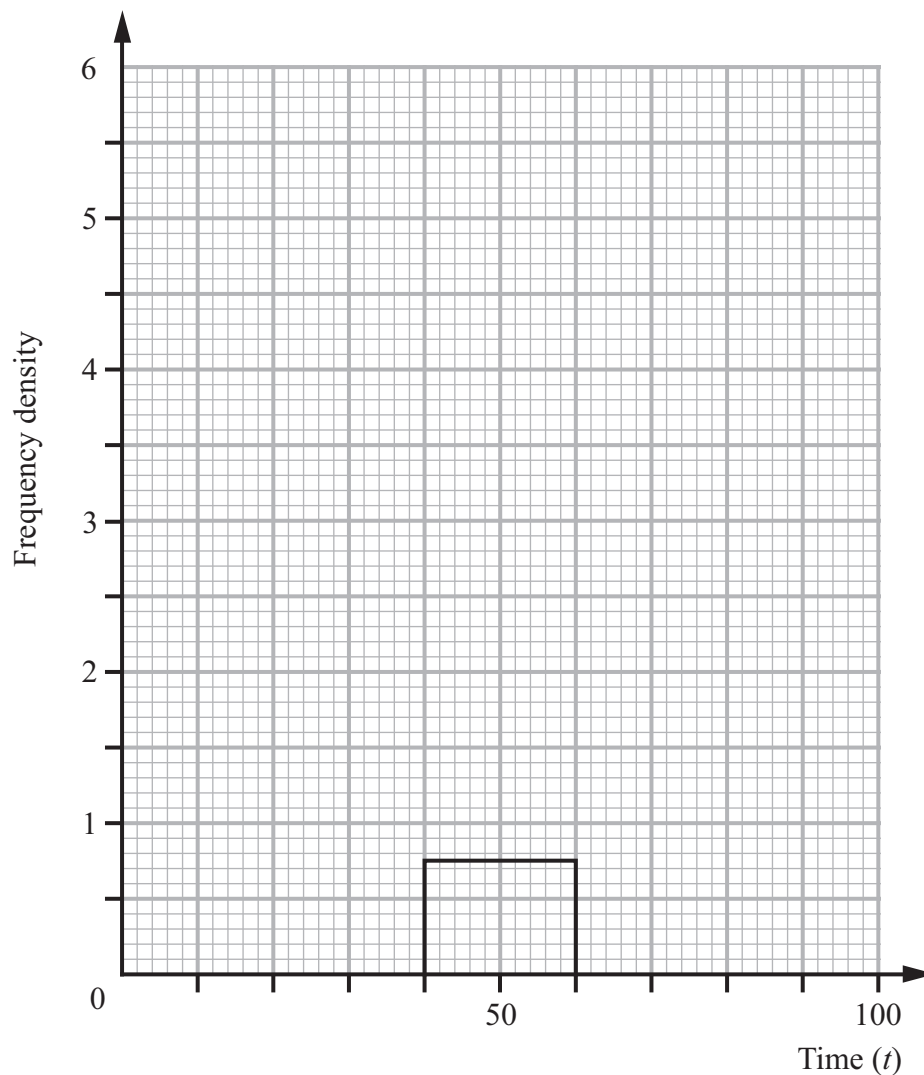




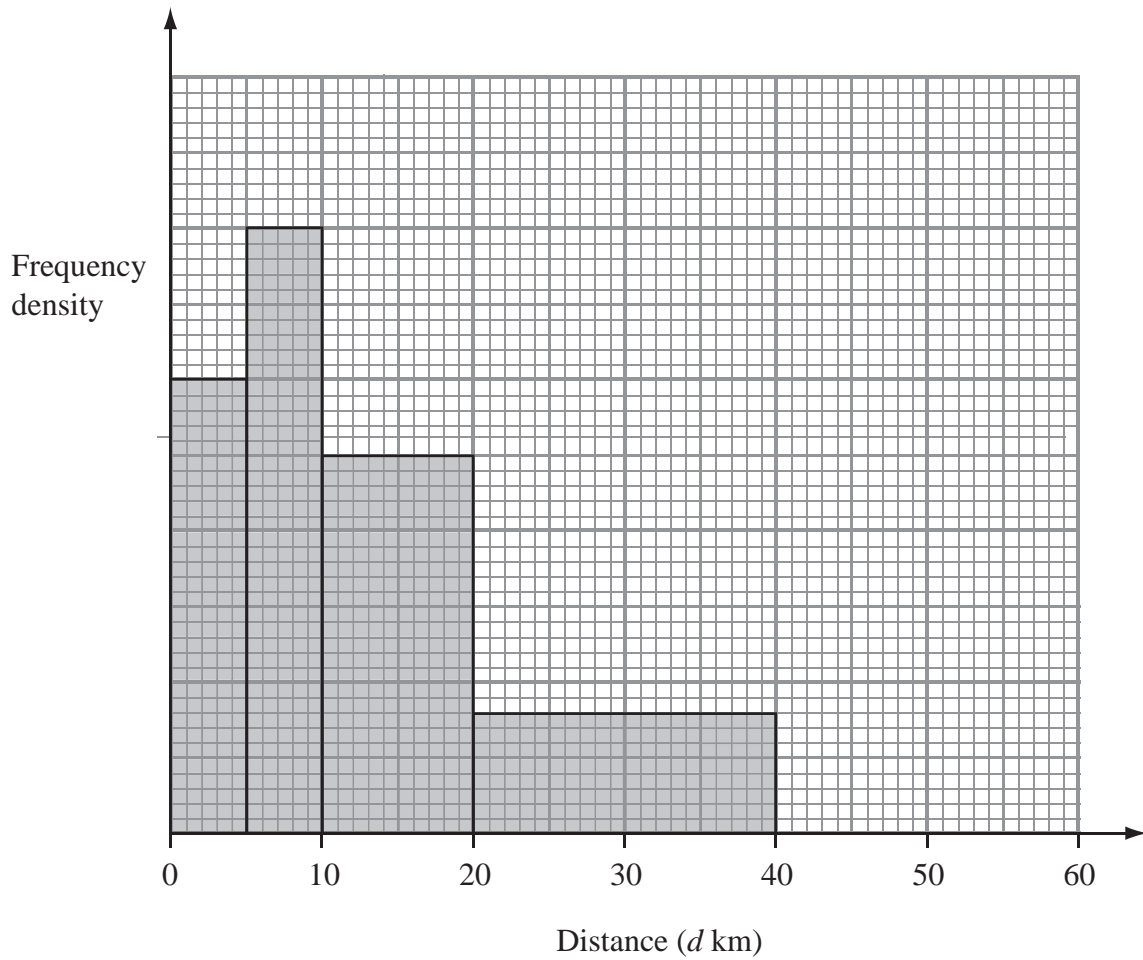
6. One hundred hikers went for a walk. The times taken by the hikers to complete the walk are summarised in the table.

Time ( $t$ )	Number of hikers
$0 \leq t < 25$	15
$25 \leq t < 35$	11
$35 \leq t < 40$	27
$40 \leq t < 60$	15
$60 \leq t < 90$	15
$90 \leq t < 100$	12

- (a) Use the information given in the table to calculate an estimate for the mean time taken, to one decimal place. (3)
- (b) Given that the frequency density for the  $40 \leq t < 60$  time interval is 0.75, complete the histogram to represent this information on the graph paper.



7. The incomplete histogram and table give some information about the distances some cyclists travel each day.



(a) Use the information in the histogram to complete the frequency table.

Distance ( $d$ km)	Frequency
$0 < d \leq 5$	15
$5 < d \leq 10$	20
$10 < d \leq 20$	
$20 < d \leq 40$	
$40 < d \leq 60$	15

(2)

(b) Use the information in the table to complete the histogram.

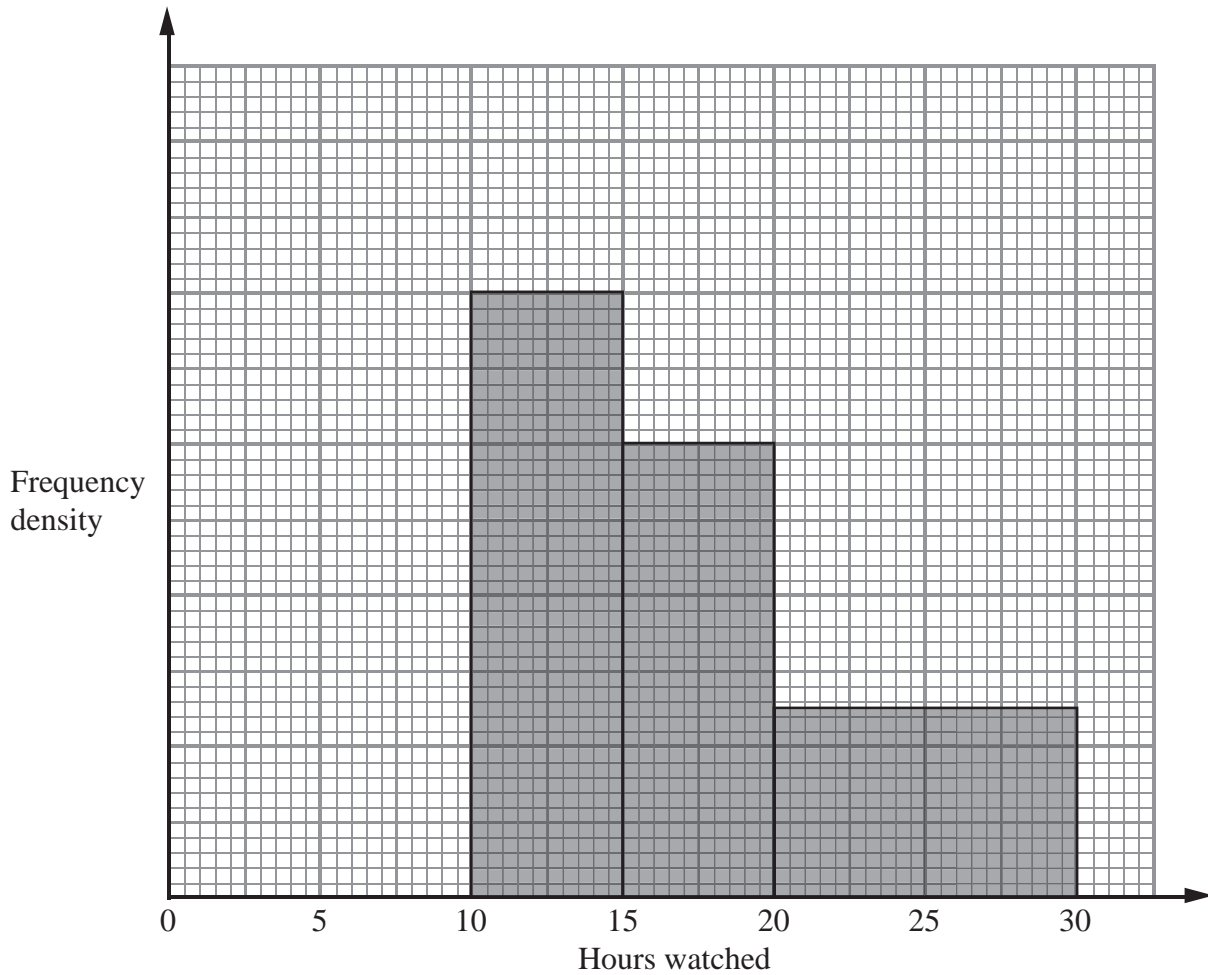
(1)

(Total 3 marks)



8. Terry asked the students in his class how many hours they played on computers last week.

The incomplete histogram was drawn using his results.



Eight students played for between 10 and 15 hours. Six students played for between 0 and 10 hours.

(a) Use this information to complete the histogram.

(2)

No students watched television for more than 30 hours.

(b) Work out how many students Terry asked.

.....  
(2)

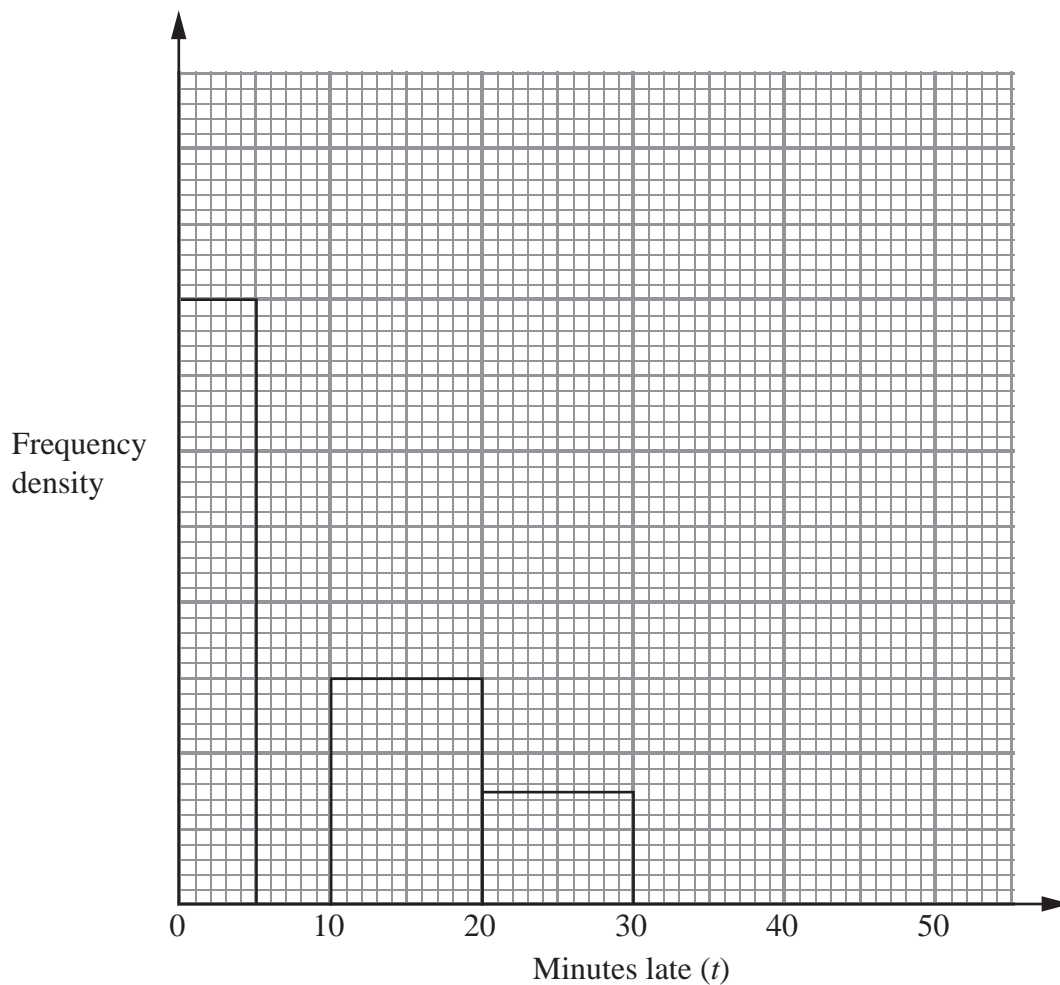
(Total 4 marks)



9. Some trains from London to Birmingham were late.

The incomplete table and histogram gives some information about how late the trains were.

Minutes late ( $t$ )	Frequency
$0 < t \leq 5$	16
$5 < t \leq 10$	10
$10 < t \leq 20$	
$20 < t \leq 30$	
$30 < t \leq 50$	6



(a) Use the information in the histogram to complete the table.

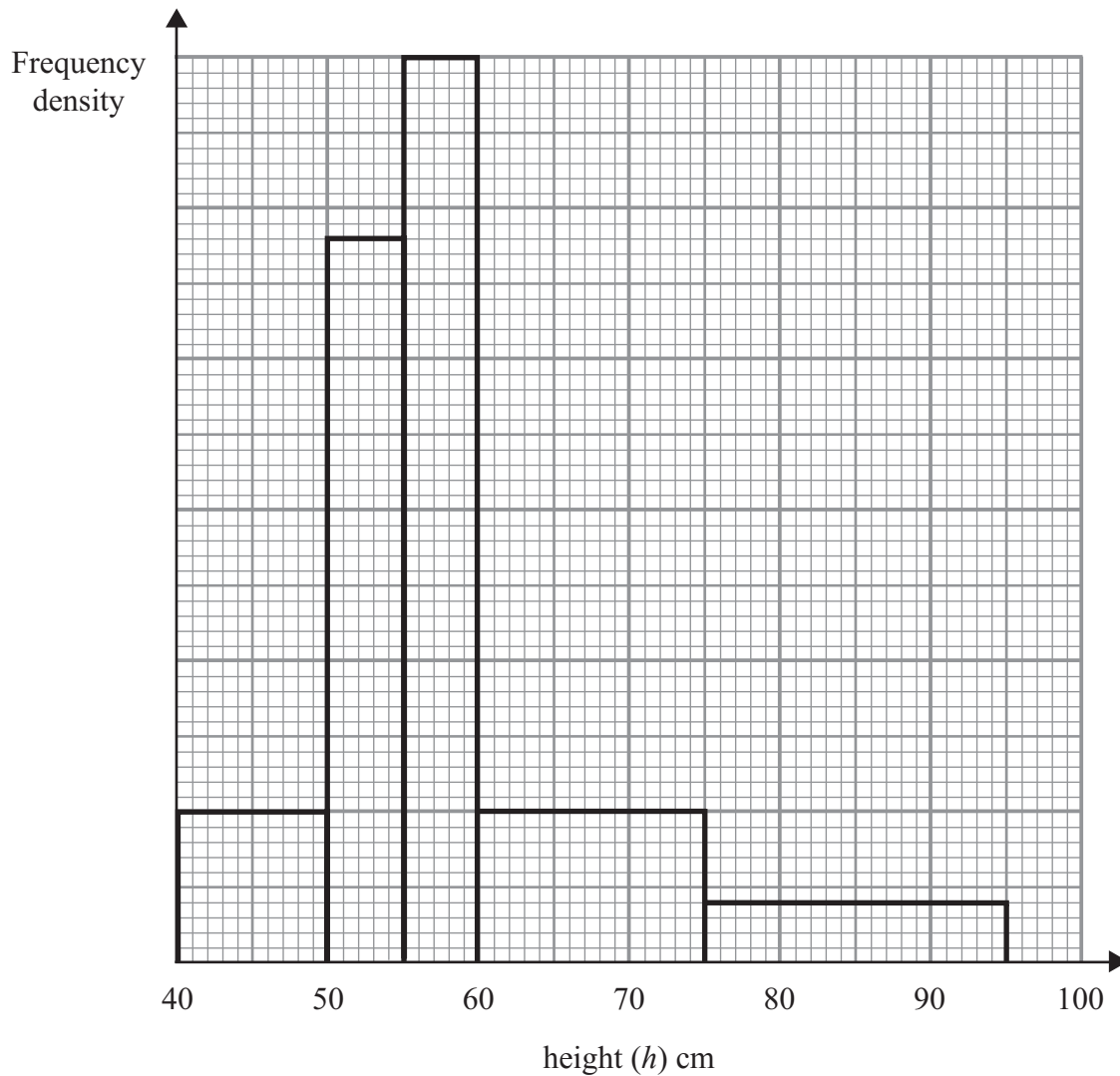
(2)

(b) Use the information in the table to complete the histogram.

(2)



10. The incomplete table and histogram give some information about the heights of some tomato plants in a greenhouse.



Use the information in the histogram to complete the frequency table.

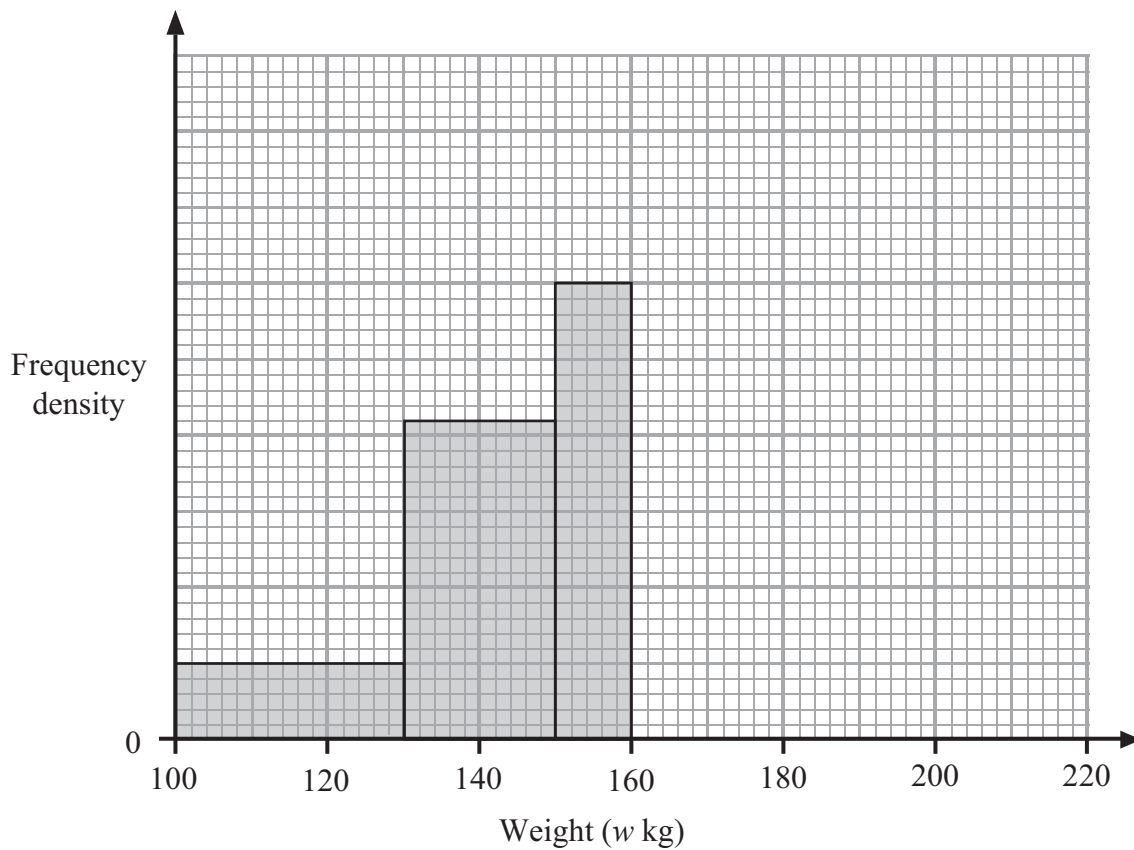
Height ( $h$ ) cm	Frequency
$40 \leq h < 50$	10
$50 \leq h < 55$	
$55 \leq h < 60$	
$60 \leq h < 75$	15
$75 \leq h < 95$	8

(Total 2 marks)



11. The incomplete table and histogram give some information about the weights (in kg) of some boxes.

Weight ( $w$ kg)	Frequency
$100 < w \leq 130$	30
$130 < w \leq 150$	
$150 < w \leq 160$	
$160 < w \leq 180$	40
$180 < w \leq 210$	18



(a) Use the histogram to complete the table. (2)

(b) Use the table to complete the histogram. (2)

**(Total 4 marks)**



12. The table and histogram show information about the length of time it took 165 adults to drink some water.

Time ( $t$ seconds)	Frequency
$0 < t \leq 10$	20
$10 < t \leq 15$	
$15 < t \leq 17.5$	30
$17.5 < t \leq 20$	40
$20 < t \leq 25$	
$25 < t \leq 40$	

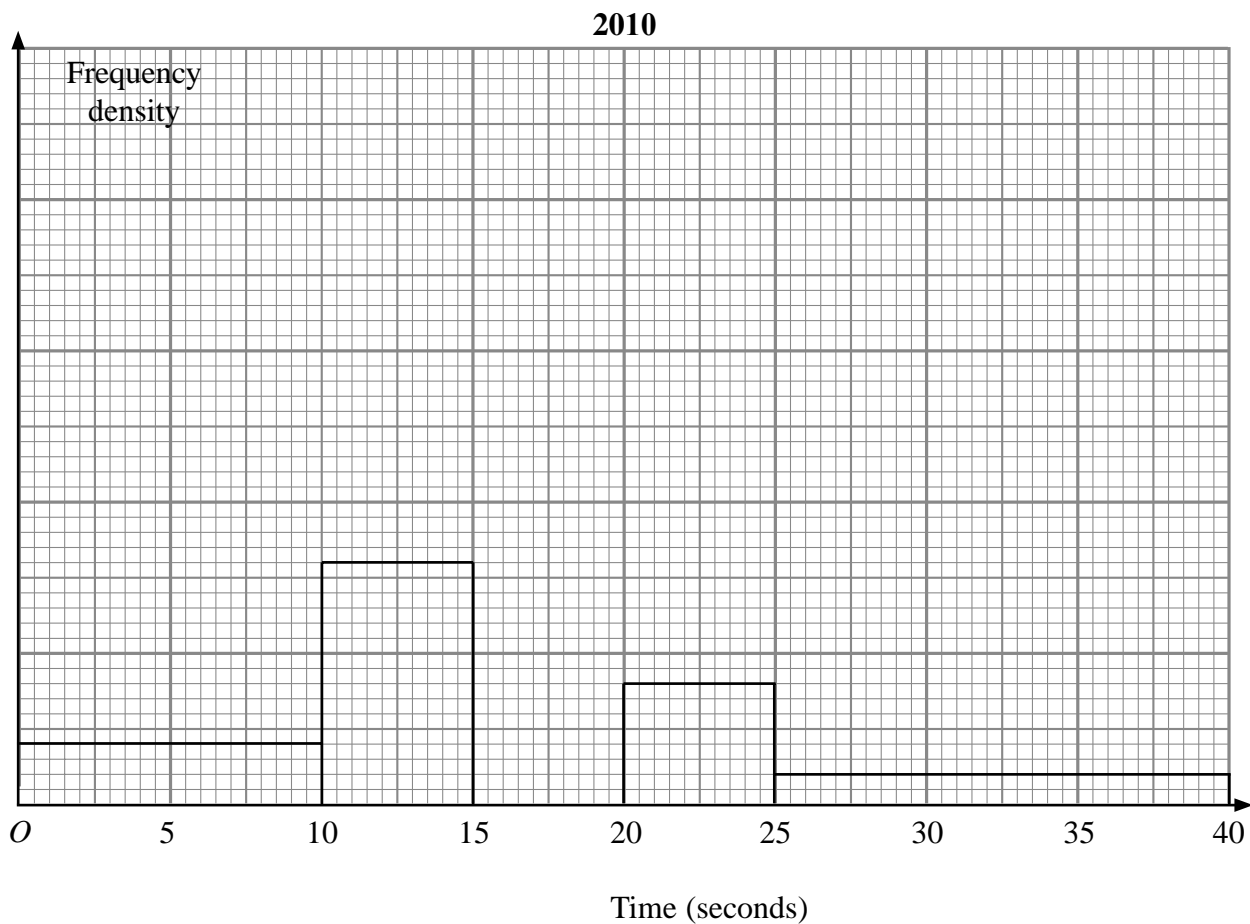
None of the adults took more than 40 seconds to drink the water

(a) Use the table to complete the histogram.

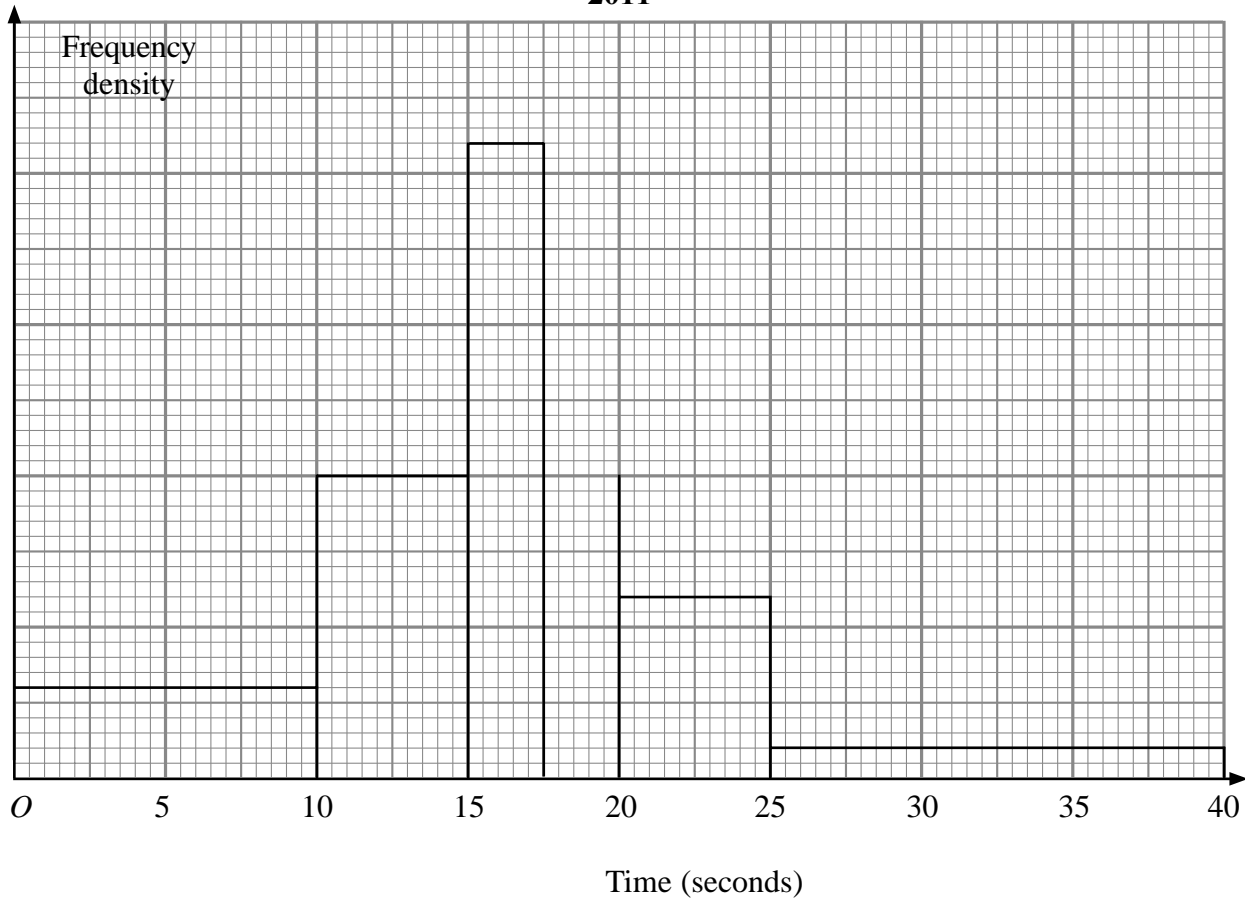
(2)

(b) Use the histogram to complete the table.

(2)



2011



The histogram shows information about the time it took some children to drink the water. None of the children took more than 40 seconds to drink the water.

110 children took up to 12.5 seconds to drink the water.

- (c) Work out an estimate for the number of children who took 21 seconds or more to drink the water.

.....  
(3)

(Total 7 marks)

