

Write your name here

Surname

Other names

In the style of:
Pearson Edexcel
Level 1/Level 2 GCSE (9 - 1)

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--	--

Mathematics

Histograms

Higher Tier

GCSE style questions arranged by topic

Paper Reference

1MA1/1H

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

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 not be used.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- 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.

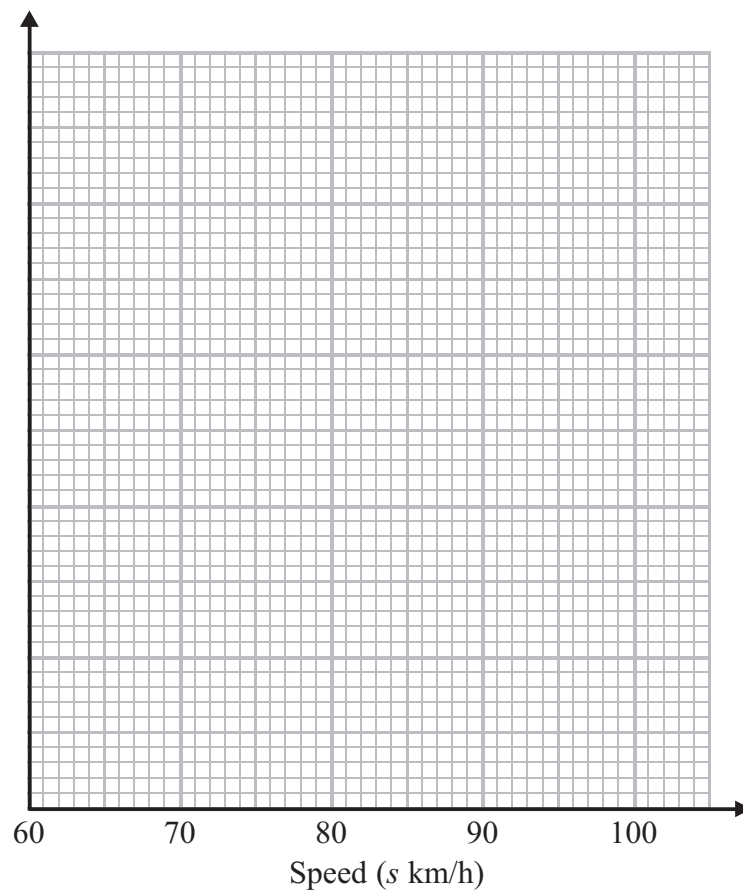
Turn over ►



1 The table gives some information about the speeds, in km/h, of 100 cars.

Speed (s km/h)	Frequency
$60 < s \leq 65$	15
$65 < s \leq 70$	25
$70 < s \leq 80$	36
$80 < s \leq 100$	24

(a) On the grid, draw a histogram for the information in the table.



(3)

(b) Work out an estimate for the number of cars with a speed of more than 85 km/h.

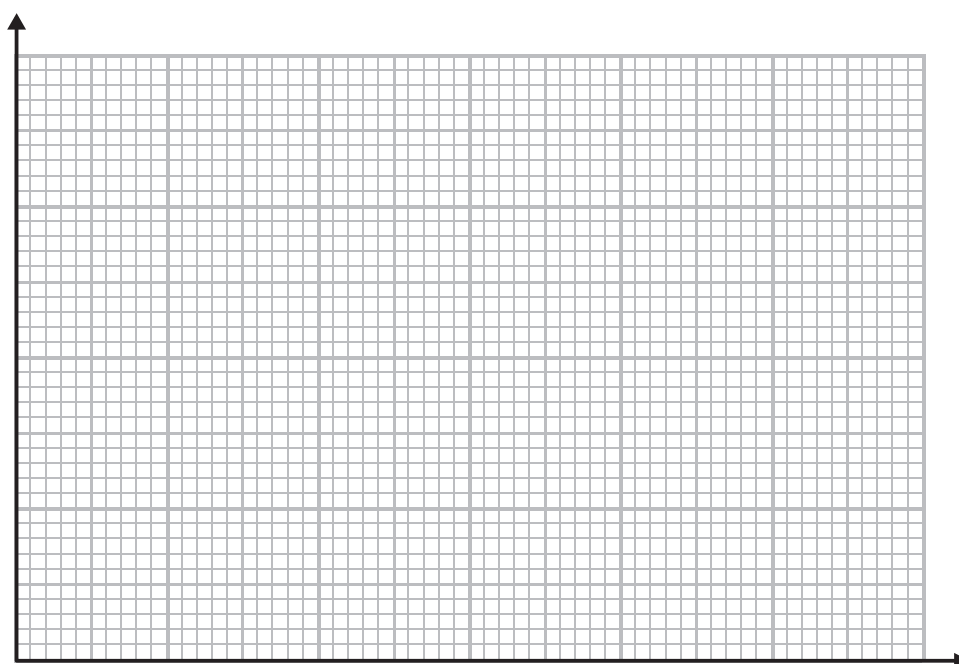
(2)



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 for Question 2 is 3 marks)

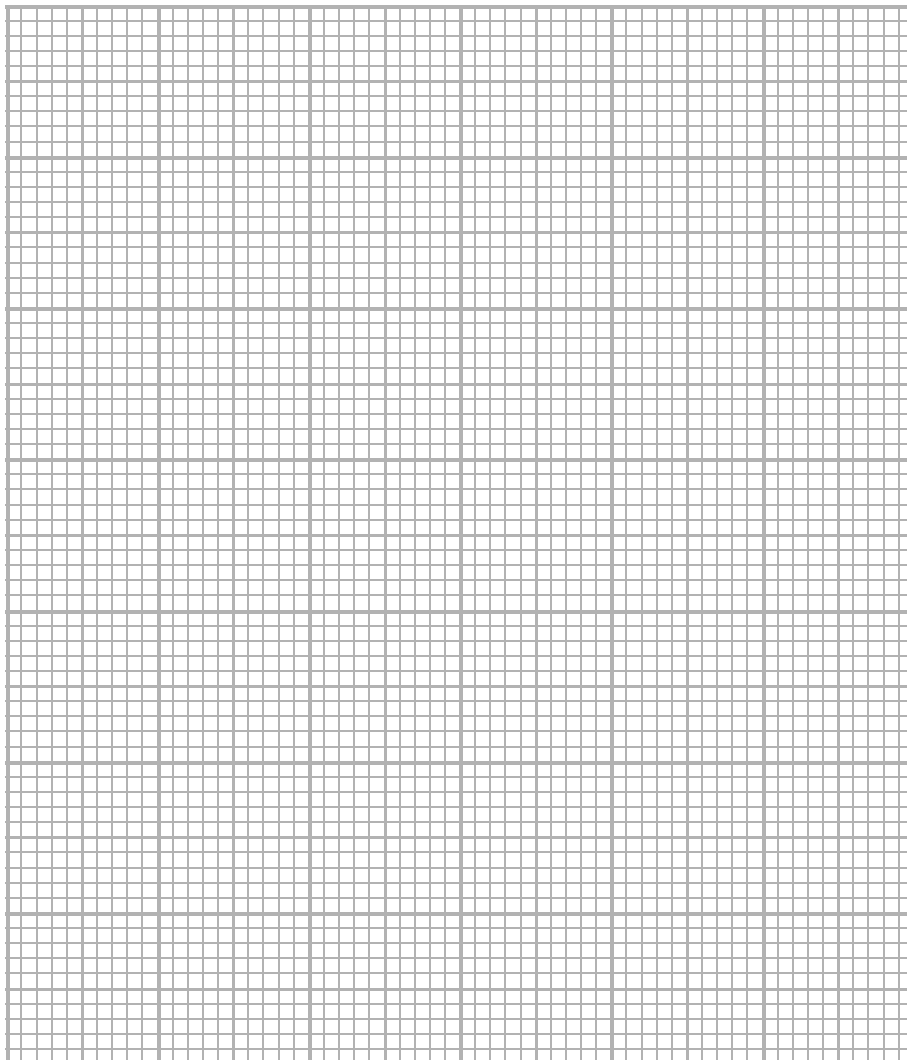


3 The table gives information about the ages of the population of a city.

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)

(Total for Question 3 is 9 marks)

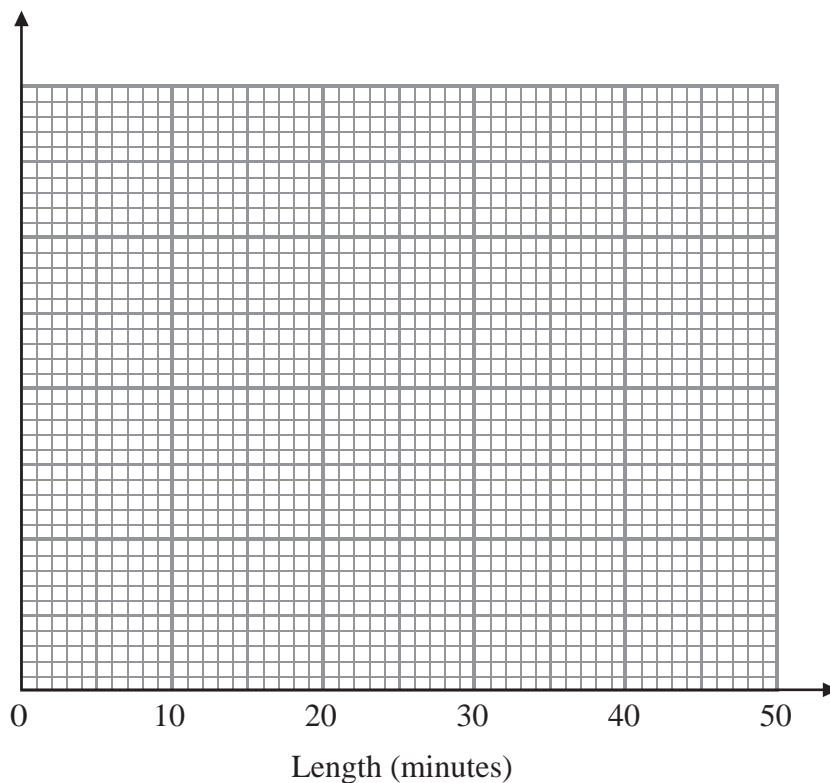


4 A pub has 64 customers one evening.

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.



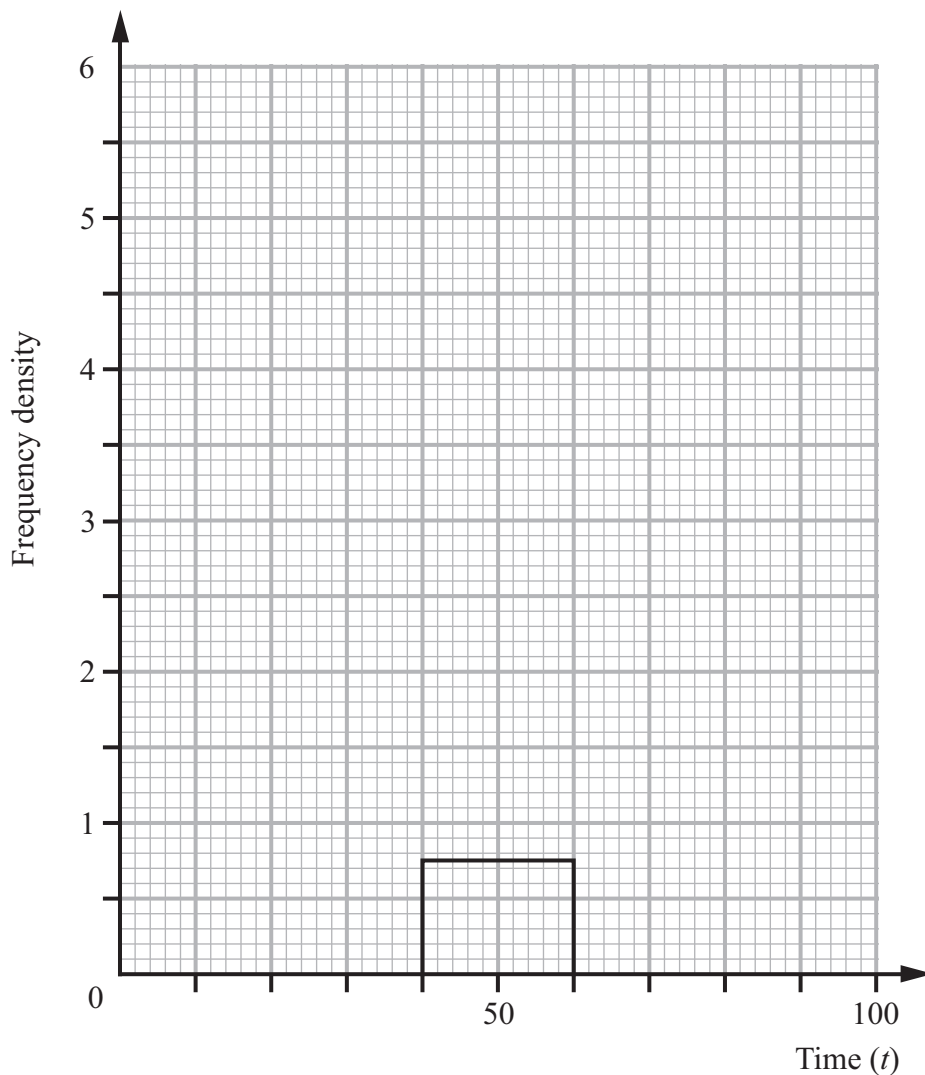
(Total for Question 4 is 4 marks)



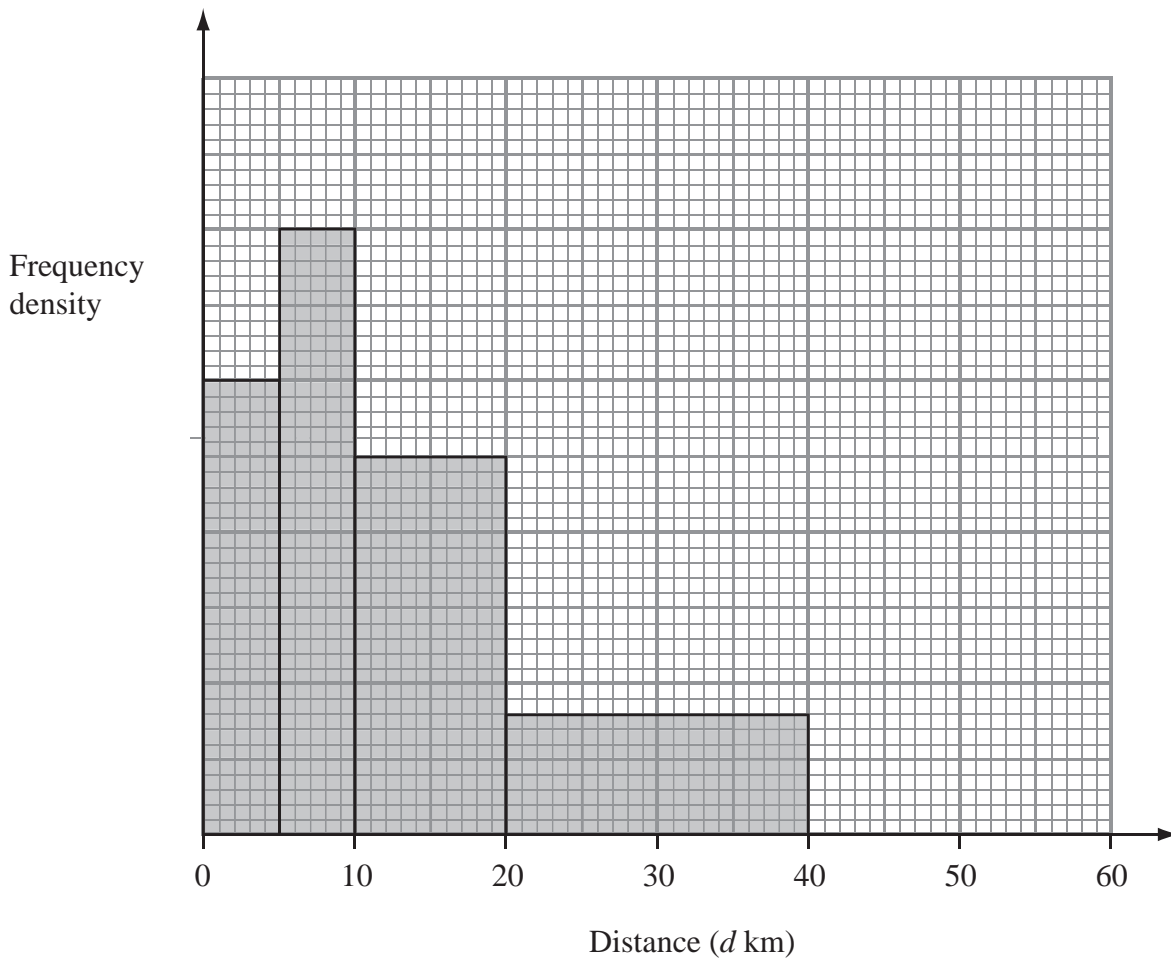
- 6 One hundred hikers went for a walk. The times taken by the hikers to complete the walk are summarised in the table.

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.

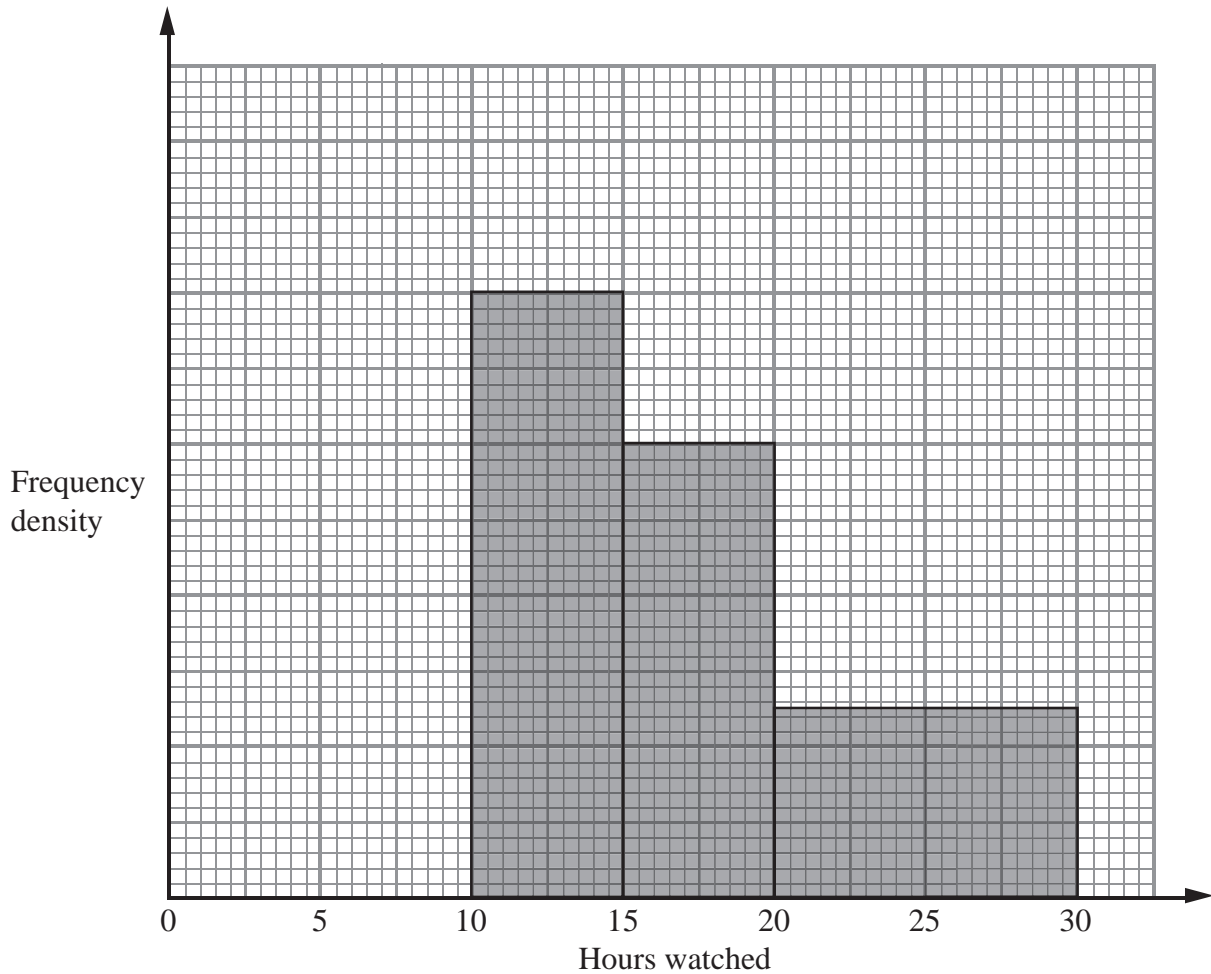
(1)

(Total for Question 7 is 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.

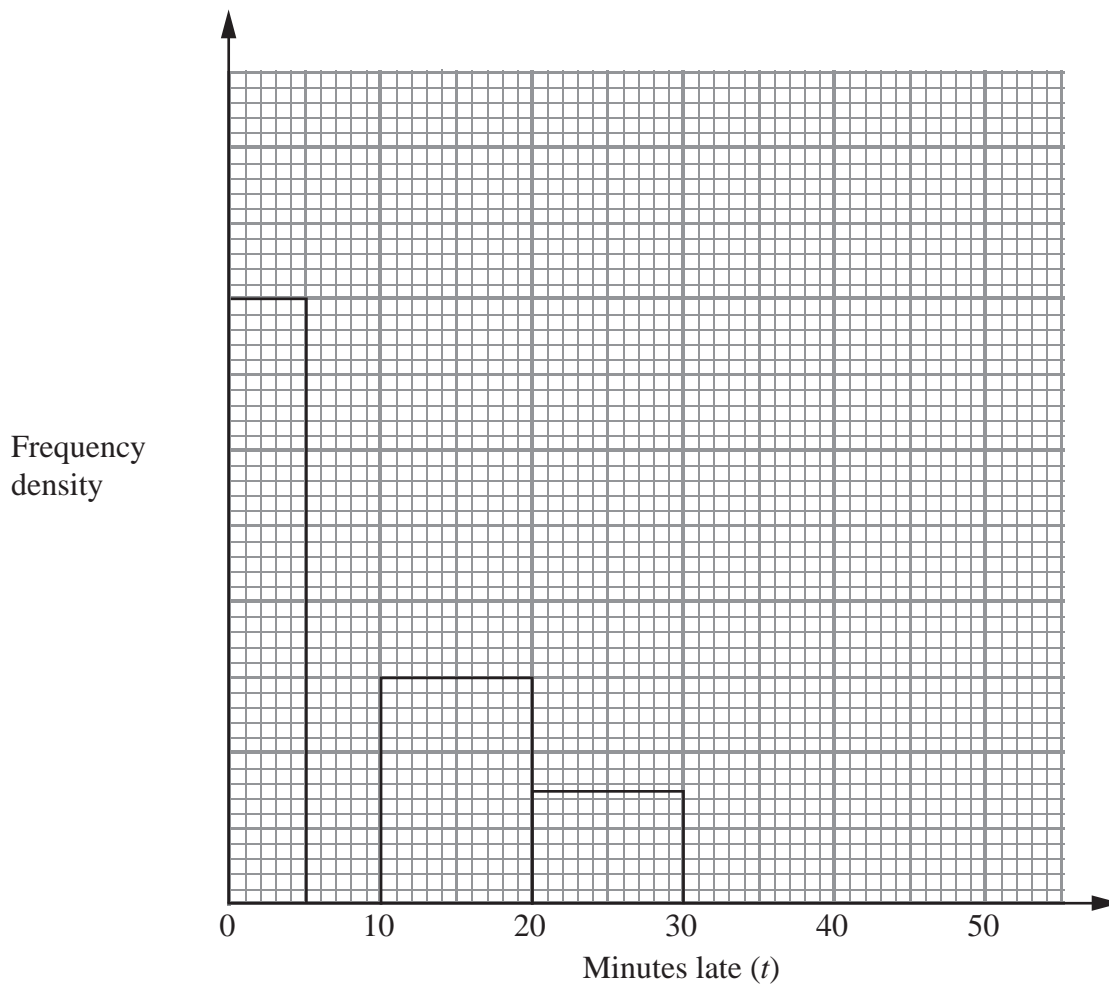
.....
(Total for Question 8 is 4 marks)

(2)



- 9 Some trains from London to Birmingham were late.
The incomplete table and histogram gives some information about how late the trains were.

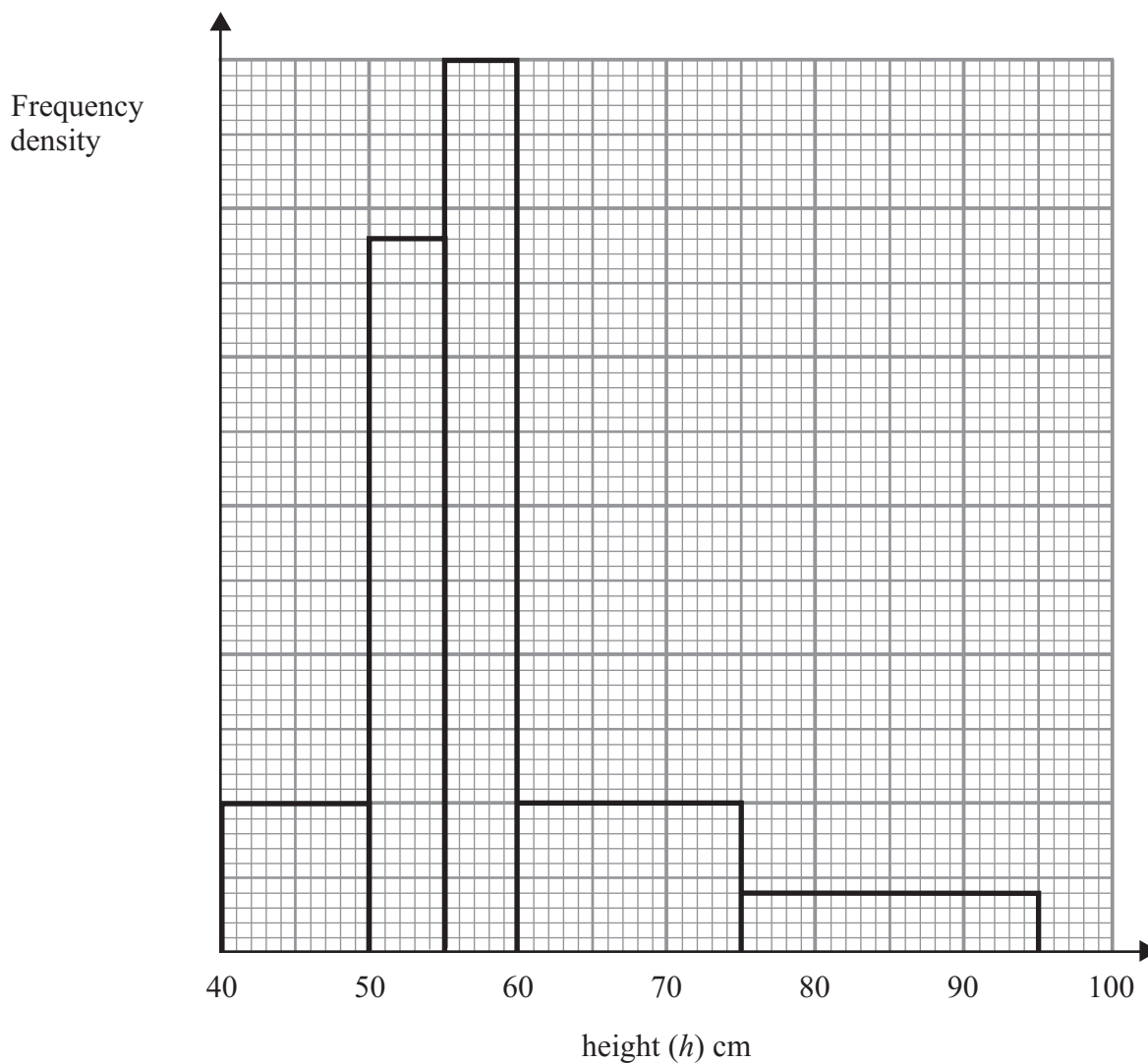
Minutes late (t)	Frequency
$0 < t \leq 5$	16
$5 < t \leq 10$	10
$10 < t \leq 20$	
$20 < t \leq 30$	
$30 < t \leq 50$	6



- (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.

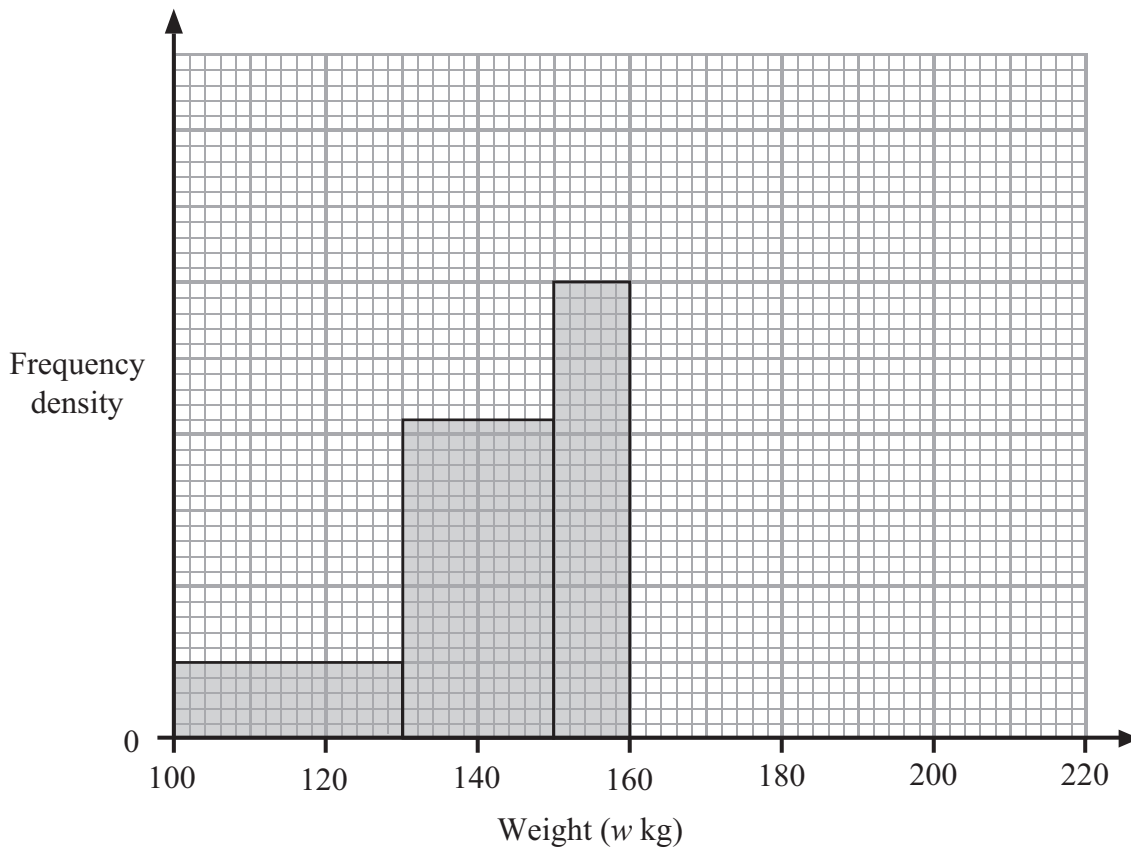
Height (h) cm	Frequency
$40 \leq h < 50$	10
$50 \leq h < 55$	
$55 \leq h < 60$	
$60 \leq h < 75$	15
$75 \leq h < 95$	8

(Total for Question 10 is 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)



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
$20 < t \leq 25$	
$25 < t \leq 40$	

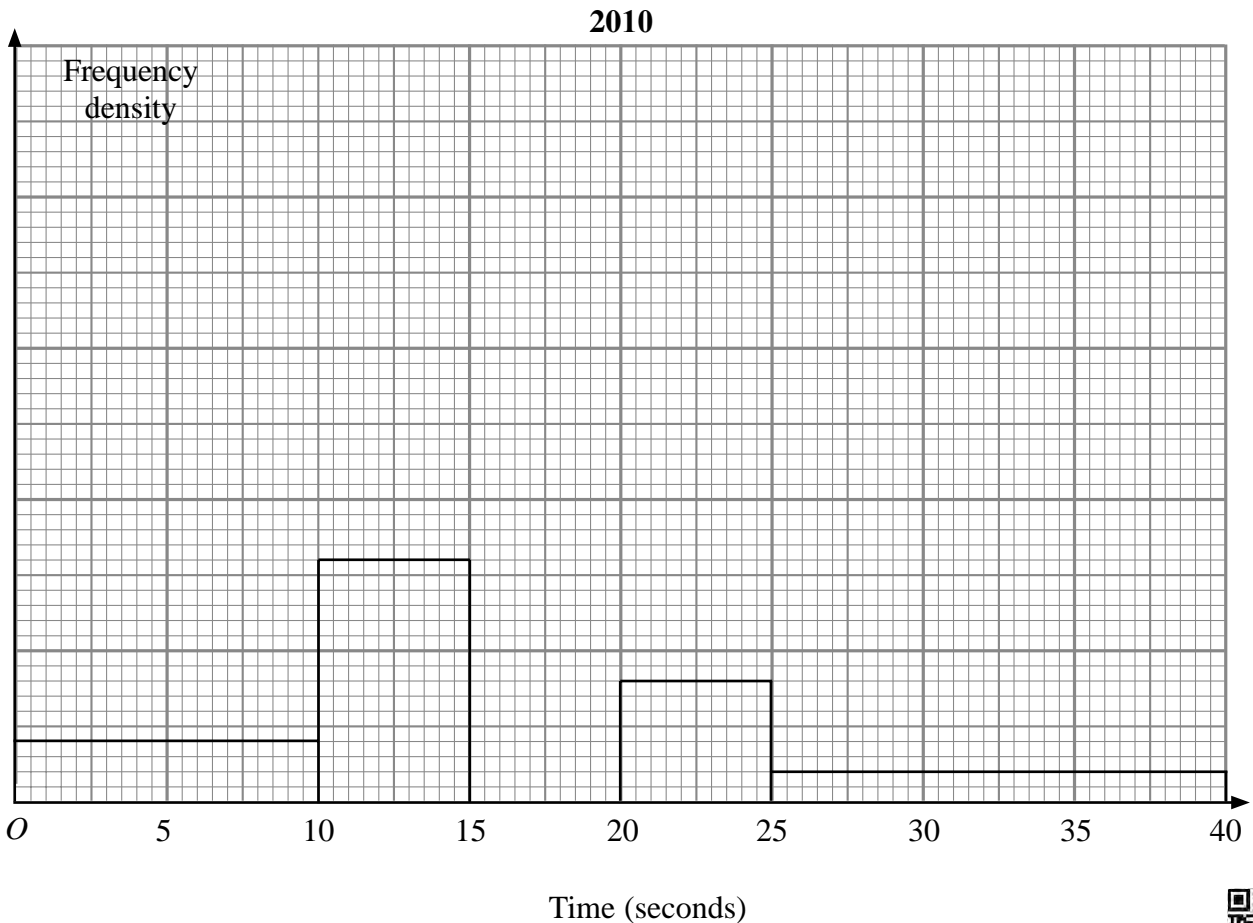
None of the adults took more than 40 seconds to drink the water

(a) Use the table to complete the histogram.

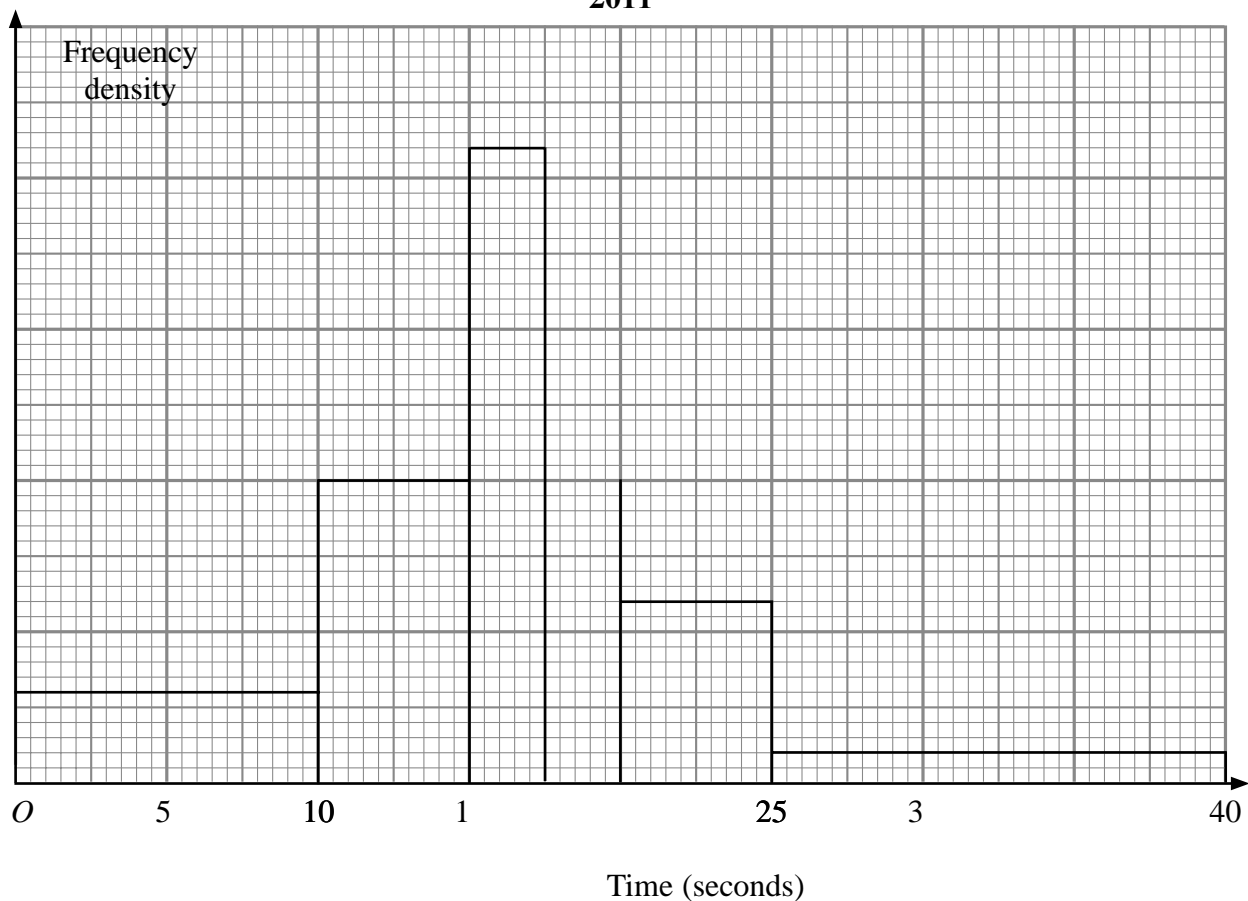
(2)

(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 for Question 12 is 7 marks)

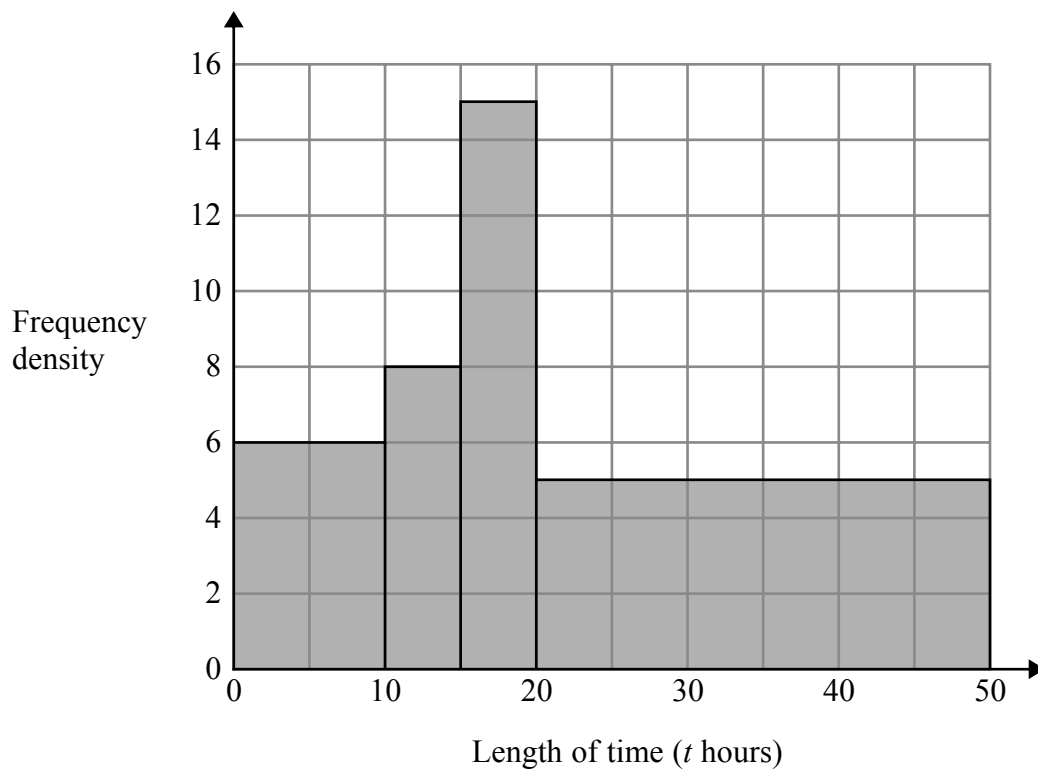


13 David recorded the lengths of time, in hours, that some adults watched TV last week.

The table shows information about his results.

Length of time (t hours)	Frequency
$0 \leq t < 10$	6
$10 \leq t < 15$	8
$15 \leq t < 20$	15
$20 \leq t < 40$	5

David made some mistakes when he drew a histogram for this information.



Write down **two** mistakes David made.

1

.....

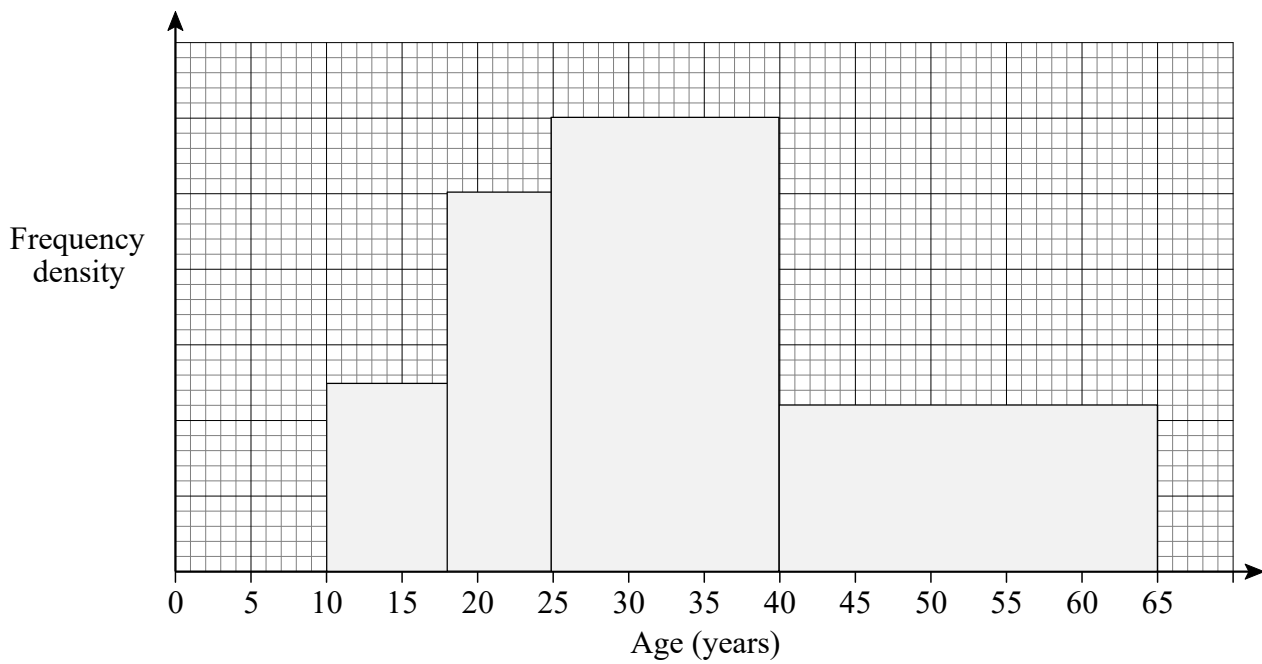
2

.....

(Total for Question 13 is 2 marks)



14 The histogram shows the ages, in years, of members of a chess club.



There are 22 members with ages in the range $40 \leq \text{age} < 65$

Work out the number of members with ages in the range $25 \leq \text{age} < 40$

Answer _____

(4)

(Total for Question 14 is 4 marks)

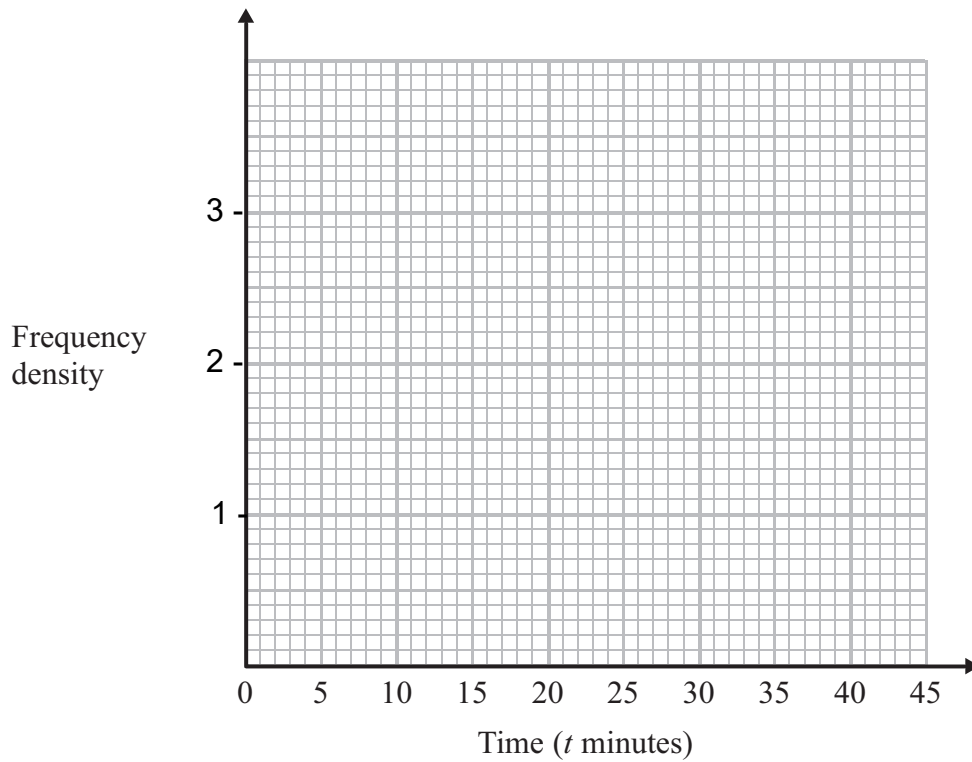


15 Joe works for a computer service centre.

The table shows some information about the length of time, t minutes, of the phone calls Joe had.

Time (t minutes)	$0 < t \leq 10$	$10 < t \leq 15$	$15 < t \leq 20$	$20 < t \leq 30$	$30 < t \leq 45$
Number of calls	12	15	13	18	3

On the grid, draw a histogram to show this information.



(Total for Question 15 is 3 marks)

