Chhetri Academy

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GCSE MATHS

Statistics

Edexcel 1MA1 | Subtopic collection Topic 59

Histograms

Higher tier

Past paper question booklet

52	2003-2025	Higher
question groups	available papers	tier

Before you begin

1. Show working and use units where appropriate.
2. Use extra paper if you need more space.
3. Print at actual size (100%) for measurement questions.

Name _____ **Date** _____

Whole questions are retained for context; some parts cover other points. Legacy sources are labelled.

19. The incomplete table and histogram give some information about the ages of the people who live in a village.

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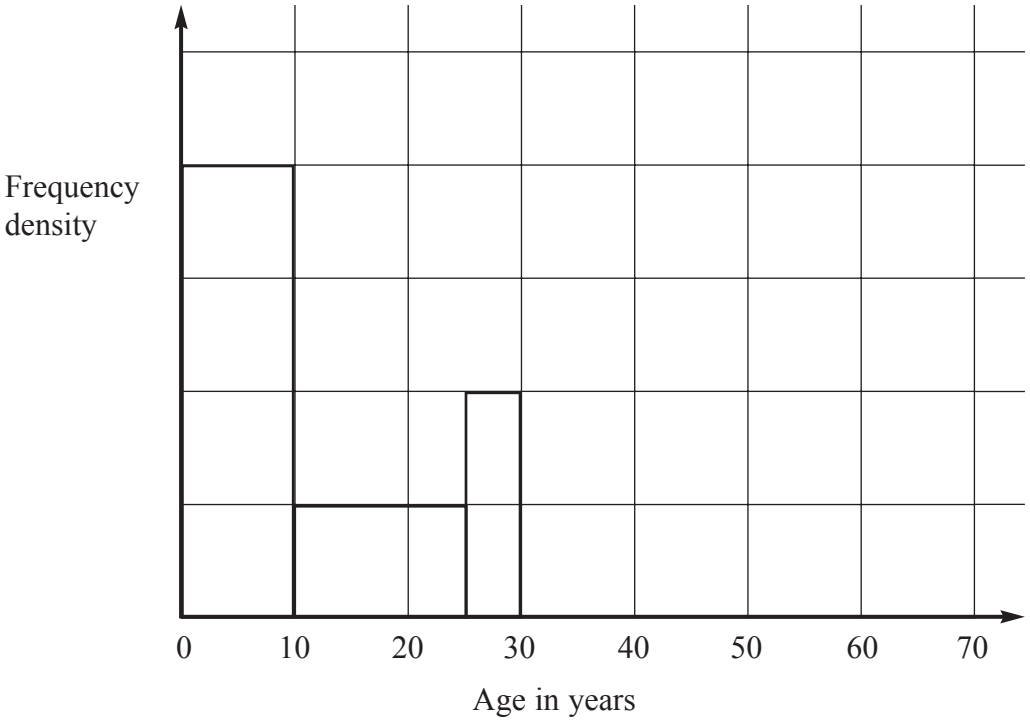


(a) Use the information in the histogram to complete the frequency table below.

Age (x) in years	Frequency
$0 < x \leqslant 10$	160
$10 < x \leqslant 25$	
$25 < x \leqslant 30$	
$30 < x \leqslant 40$	100
$40 < x \leqslant 70$	120

(2)

(b) Complete the histogram.

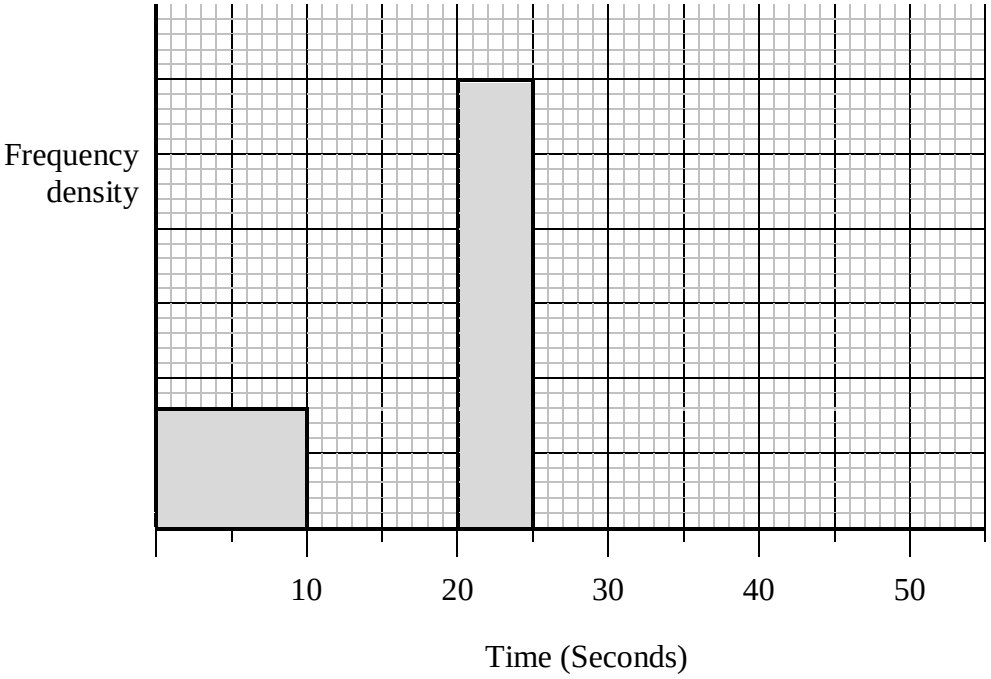
(2)

13. One Monday, Victoria measured the time, in seconds, that individual birds spent on her bird table.

She used this information to complete the frequency table.

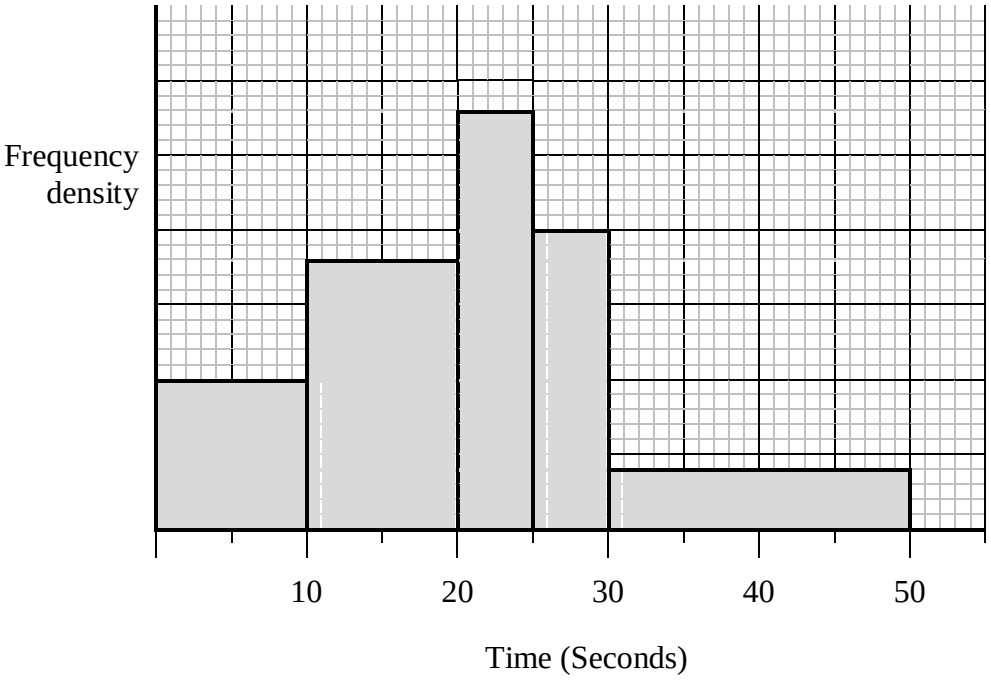
Time (t seconds)	Frequency
$0 < t \leq 10$	8
$10 < t \leq 20$	16
$20 < t \leq 25$	15
$25 < t \leq 30$	12
$30 < t \leq 50$	6

(a) Use the table to complete the histogram.



(3)

On Tuesday she conducted a similar survey and drew the following histogram from her results.

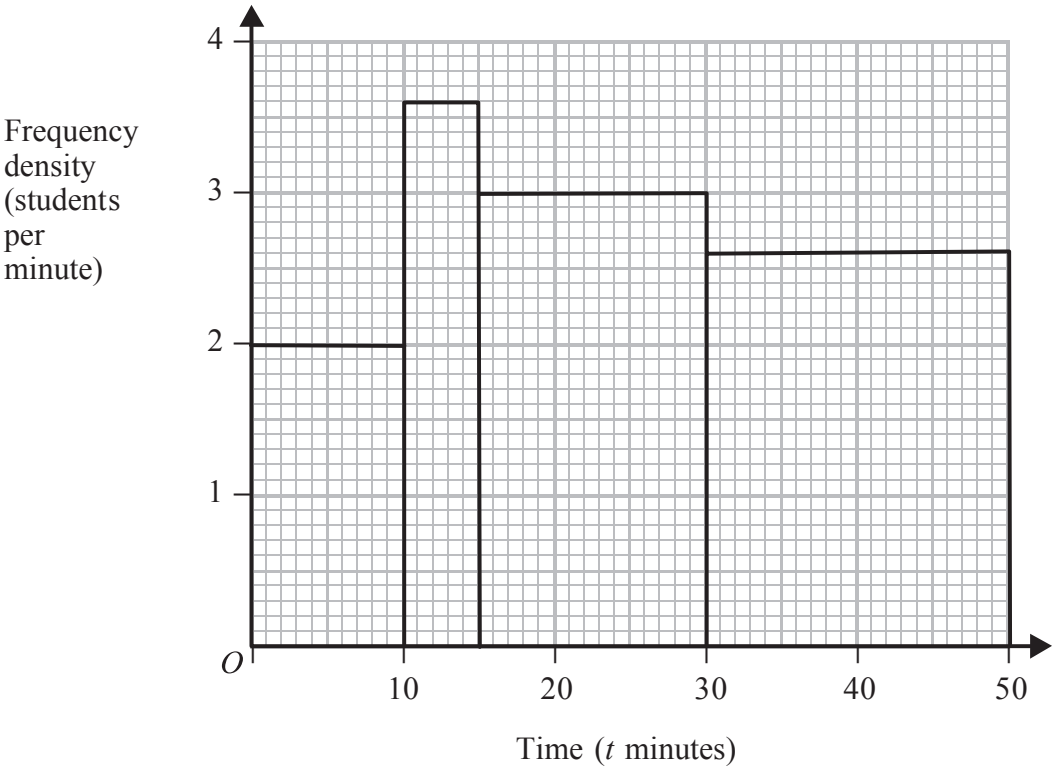


(b) Use the histogram for Tuesday to complete the table.

Time (t seconds)	Frequency
$0 < t \leq 10$	10
$10 < t \leq 20$	
$20 < t \leq 25$	
$25 < t \leq 30$	
$30 < t \leq 50$	

(2)

14. The histogram gives information about the times, in minutes, 135 students spent on the Internet last night.



Use the histogram to complete the table.

Time (t minutes)	Frequency
$0 < t \leqslant 10$	
$10 < t \leqslant 15$	
$15 < t \leqslant 30$	
$30 < t \leqslant 50$	
TOTAL	135

(2)

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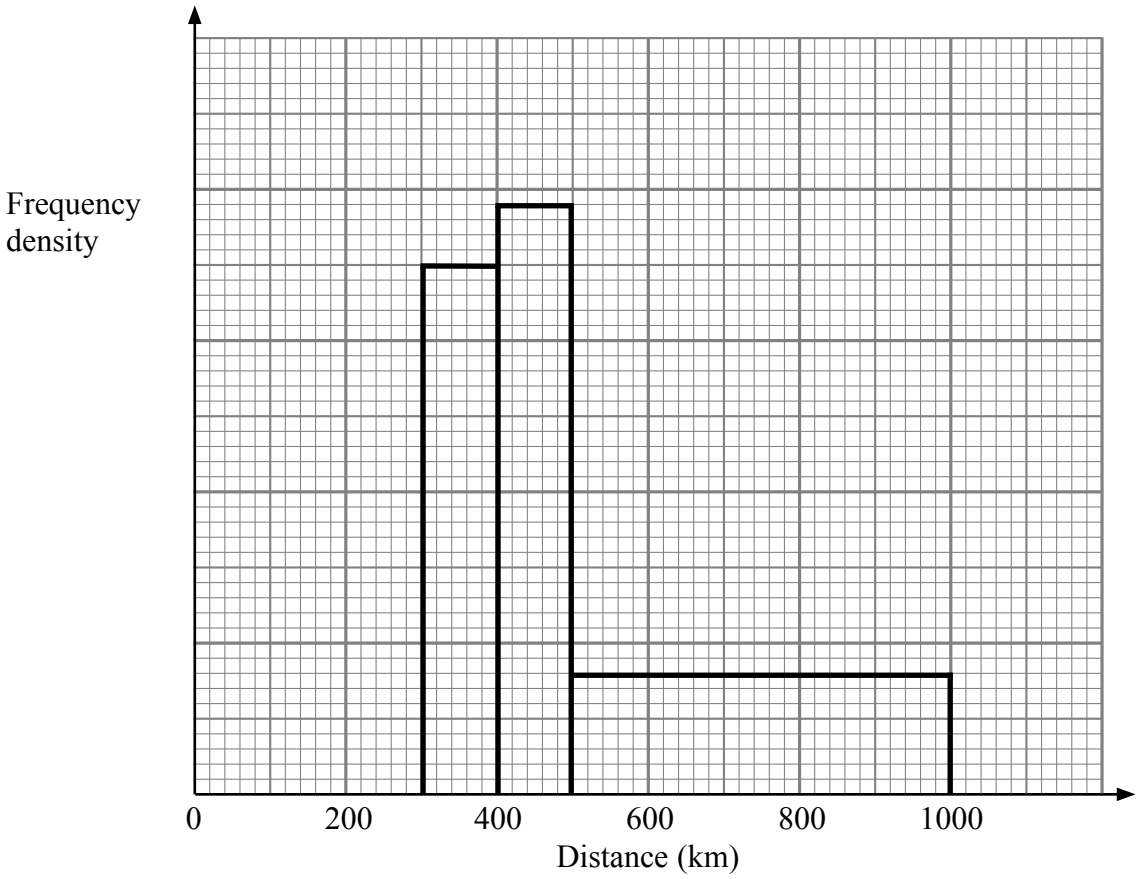
17. The incomplete table and histogram give some information about the distances walked by some students in a school in one year.



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

Distance (d) in km	Frequency
$0 < d \leqslant 300$	210
$300 < d \leqslant 400$	350
$400 < d \leqslant 500$	
$500 < d \leqslant 1000$	

(2)

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

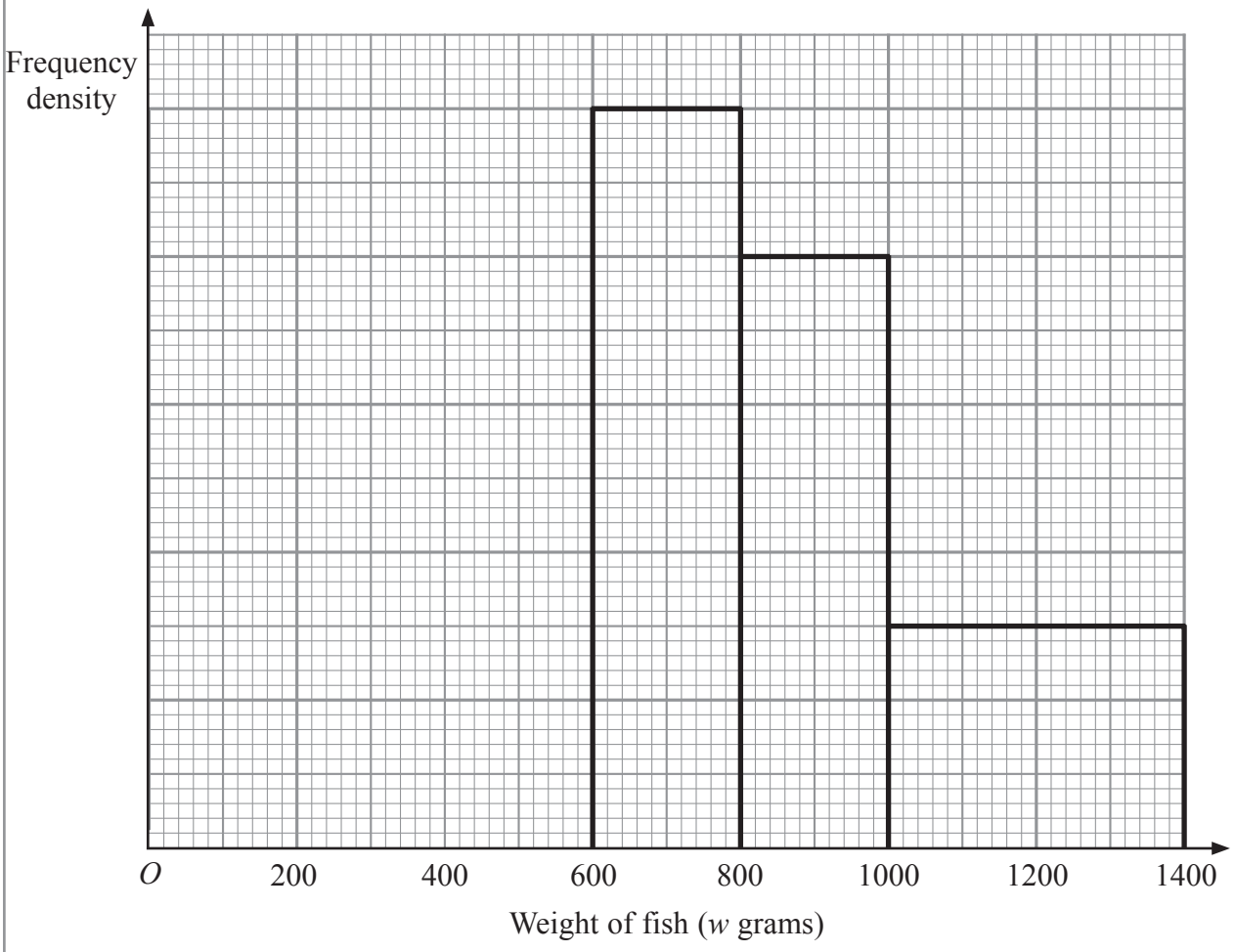
(1)

Q17

(Total 3 marks)

19. The unfinished table and histogram show information about the weight, w grams, of fish that Alan caught each day.

Weight (w grams)	Frequency
$0 < w \leqslant 400$	8
$400 < w \leqslant 600$	5
$600 < w \leqslant 800$	10
$800 < w \leqslant 1000$	
$1000 < w \leqslant 1400$	



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

(2)

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

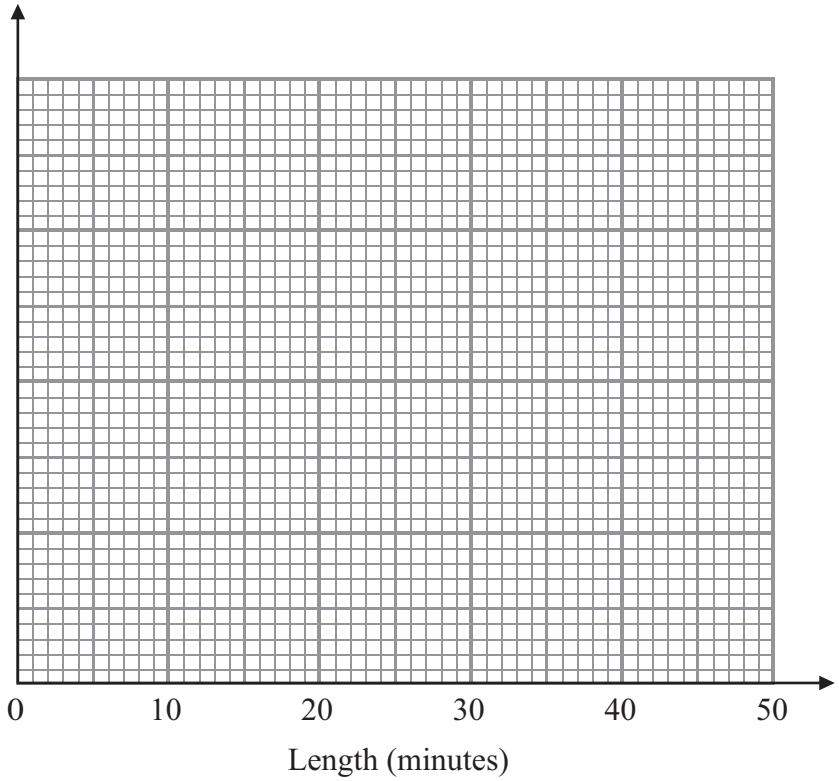
(2) **Q19**

(Total 4 marks)

22. A call centre receives 64 telephone calls one morning.
The table gives information about the lengths, in minutes, of these telephone calls.

Length (x) minutes	Frequency
$0 < x \leqslant 5$	4
$5 < x \leqslant 15$	10
$15 < x \leqslant 30$	24
$30 < x \leqslant 40$	20
$40 < x \leqslant 45$	6

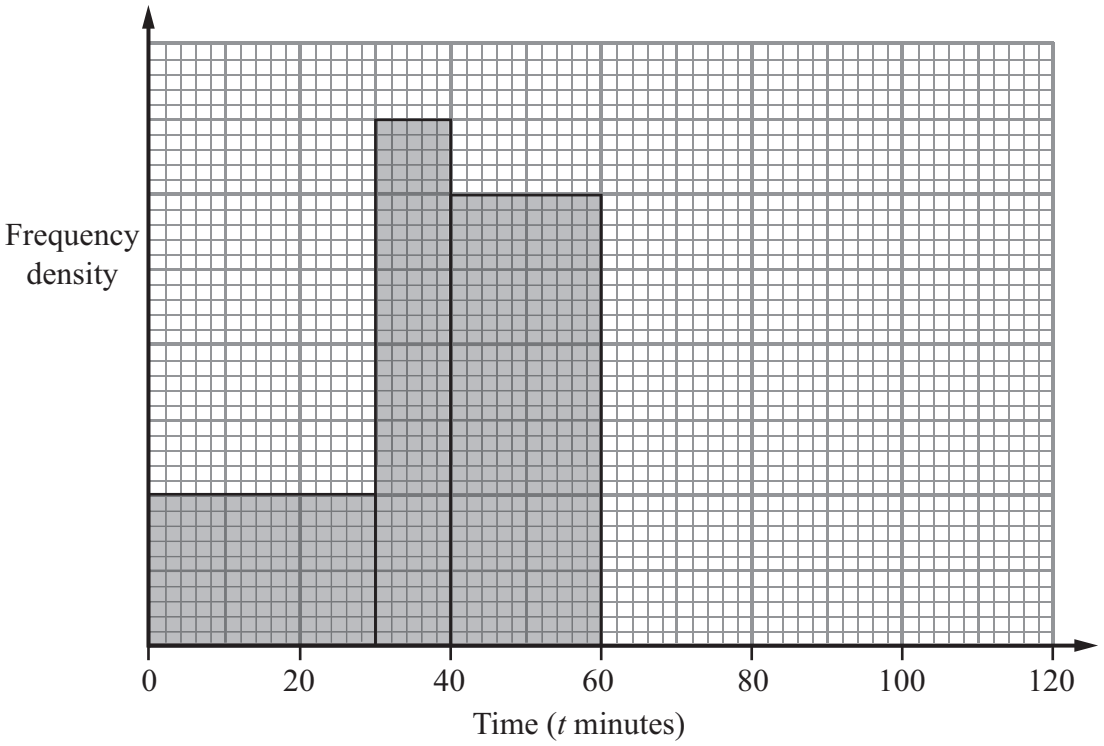
Draw a histogram for this information.



Q22

(Total 4 marks)

27. The incomplete histogram and table give some information about the times, in minutes, that cars were parked in a car park.



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

Time (t minutes)	Frequency
$0 < t \leqslant 30$	
$30 < t \leqslant 40$	35
$40 < t \leqslant 60$	
$60 < t \leqslant 80$	30
$80 < t \leqslant 120$	20

(2)

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

(2)

(Total 4 marks)

Q27

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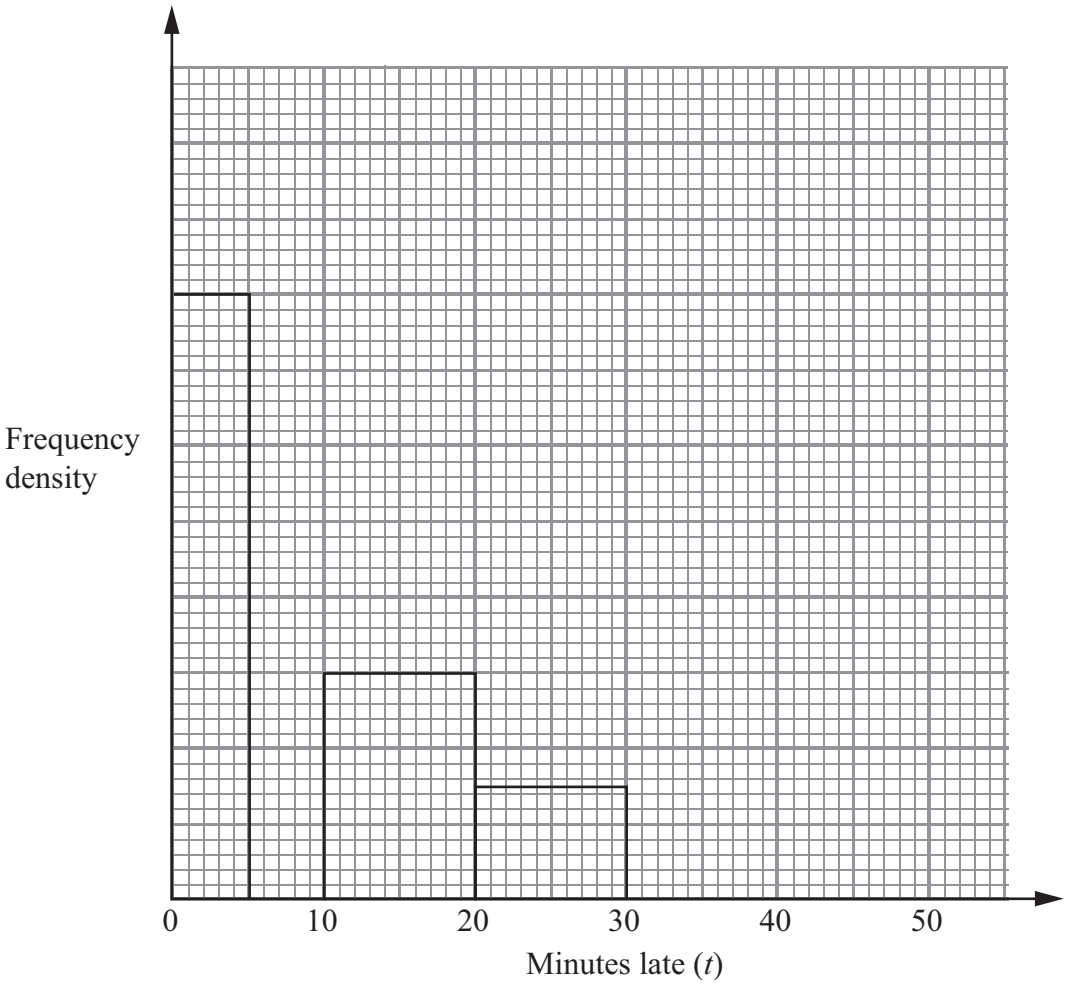
25. Some trains from Manchester to London were late.
The incomplete table and histogram gives some information about how late the trains were.

Minutes late (t)	Frequency
$0 < t \leqslant 5$	16
$5 < t \leqslant 10$	10
$10 < t \leqslant 20$	
$20 < t \leqslant 30$	
$30 < t \leqslant 50$	8



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

(2)

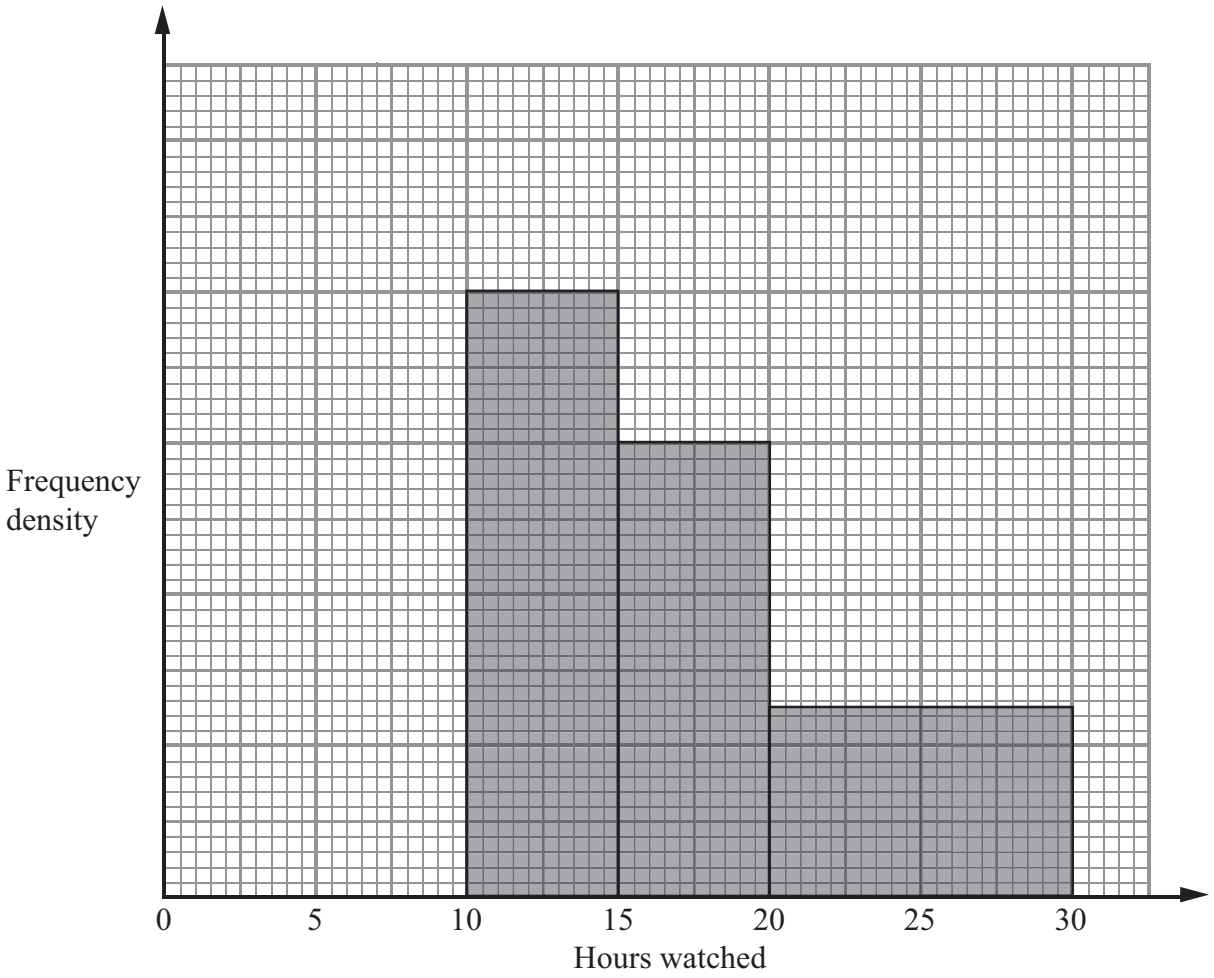
(b) Use the information in the table to complete the histogram.

(2) **Q25**

(Total 4 marks)

24. Tom asked the students in his class how many hours they watched television last week.

The incomplete histogram was drawn using his results.



Eight students watched television for between 10 and 15 hours.
Six students watched television 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 Tom asked.

.....

(2)

(Total 4 marks)

Q24

10 The table gives some information about the weights, in kg, of 50 suitcases at an airport check-in desk.

Weight (w kg)	Frequency
$0 < w \leqslant 10$	16
$10 < w \leqslant 15$	18
$15 < w \leqslant 20$	10
$20 < w \leqslant 35$	6

(a) Work out an estimate for the mean weight.

..... kg

(4)

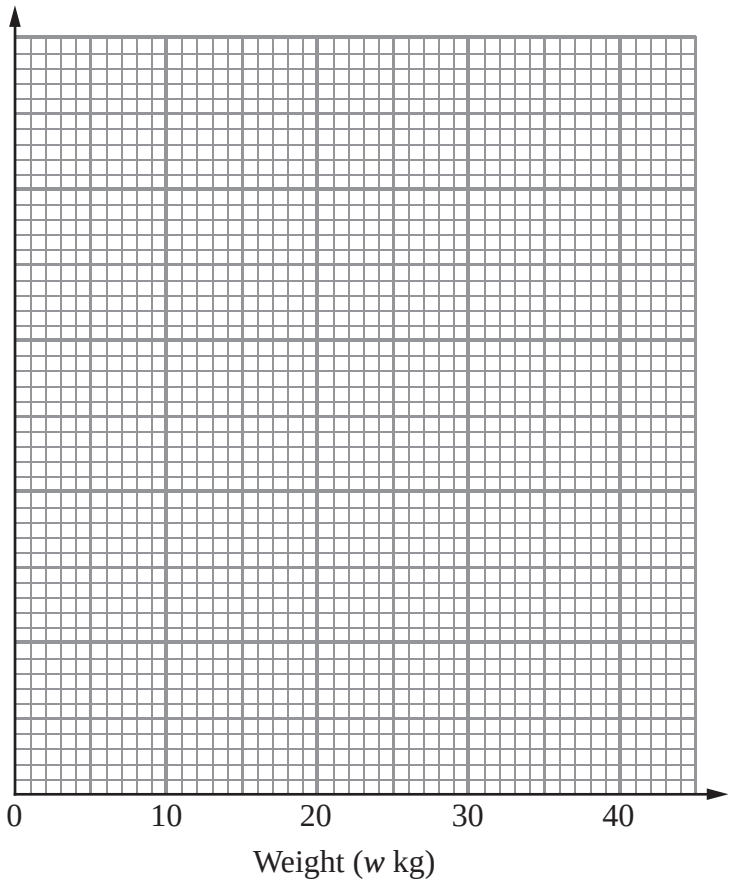
Passengers have to pay extra money for any suitcase that weighs more than 20 kg.
Two of the 50 suitcases are chosen at random.

(b) Work out the probability that both suitcases weigh more than 20 kg.

.....

(2)

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

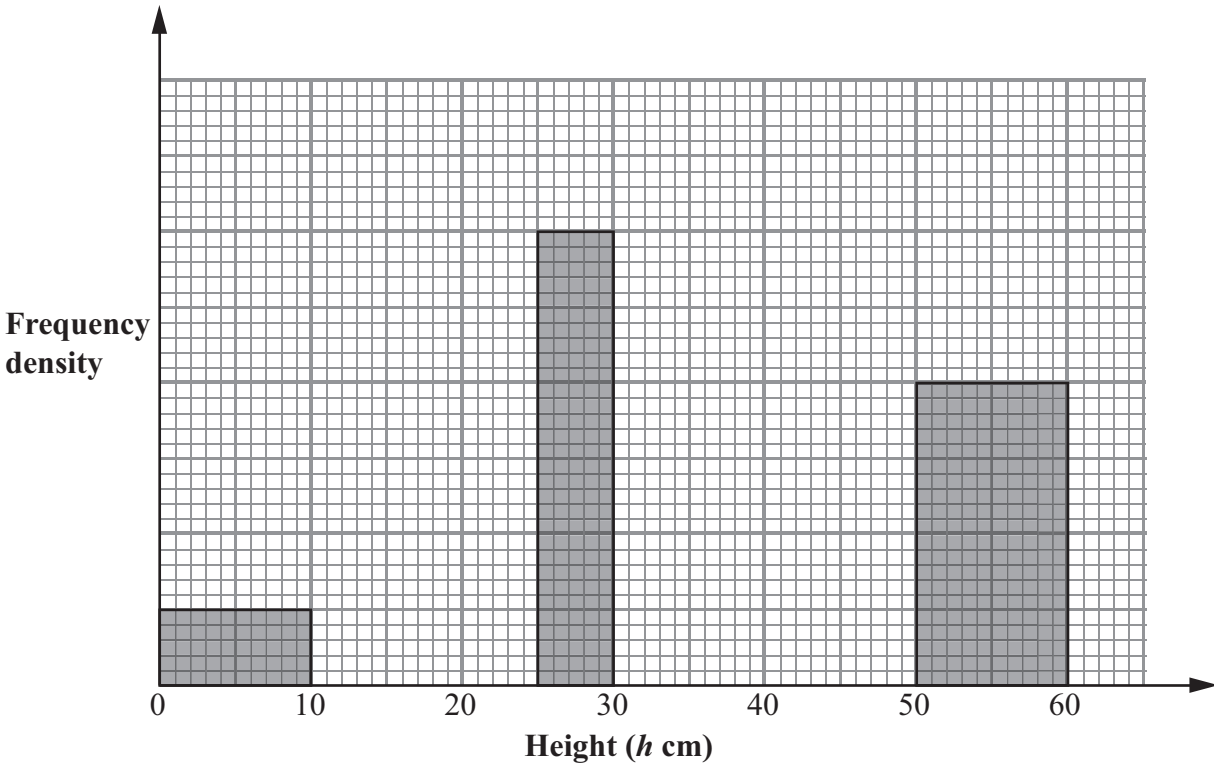


(3)

(Total for Question 10 is 9 marks)

14 The incomplete frequency table and histogram give some information about the heights, in centimetres, of some tomato plants.

Height (h cm)	Frequency
$0 < h \leqslant 10$	
$10 < h \leqslant 25$	30
$25 < h \leqslant 30$	
$30 < h \leqslant 50$	50
$50 < h \leqslant 60$	20



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

(2)

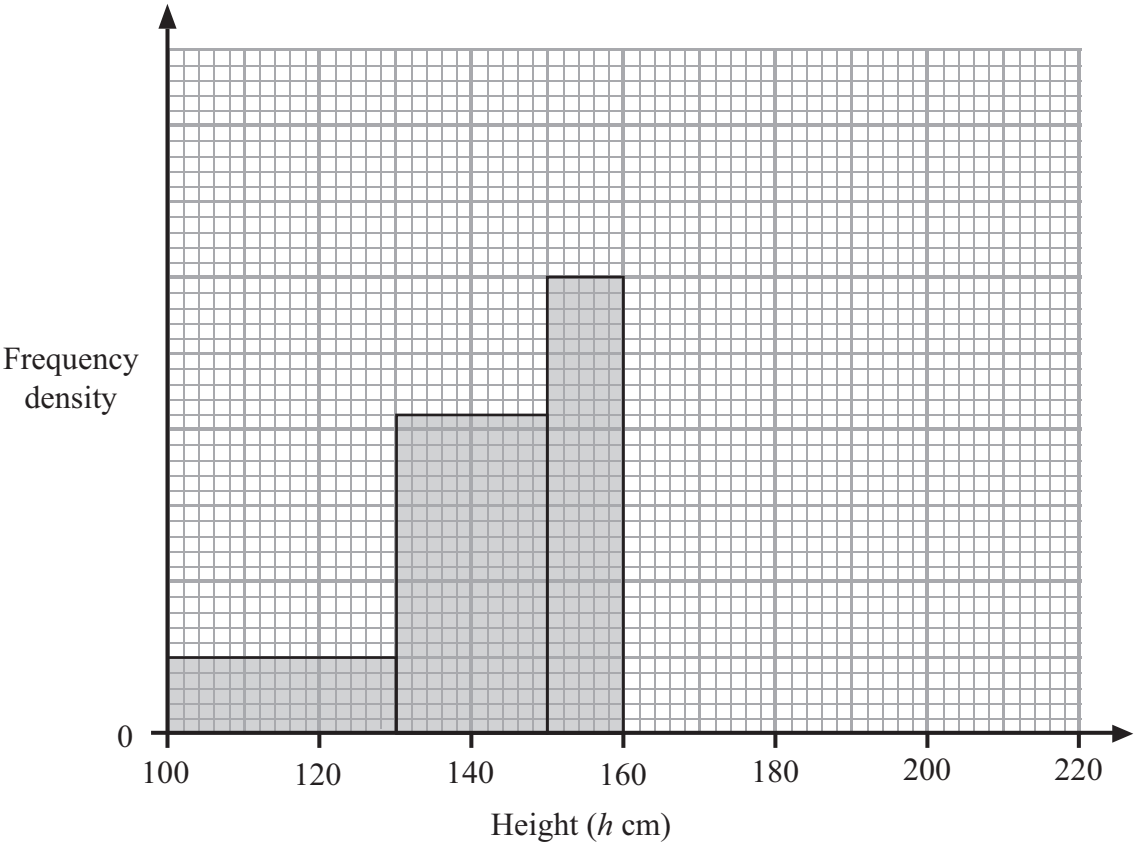
(b) Use the information in the table to complete the histogram.

(2)

(Total for Question 14 is 4 marks)

24. The incomplete table and histogram give some information about the heights (in cm) of some sunflowers.

Height (h cm)	Frequency
$100 < h \leqslant 130$	30
$130 < h \leqslant 150$	
$150 < h \leqslant 160$	
$160 < h \leqslant 180$	40
$180 < h \leqslant 210$	18



(a) Use the histogram to complete the table.

(2)

(b) Use the table to complete the histogram.

(2) **Q24**

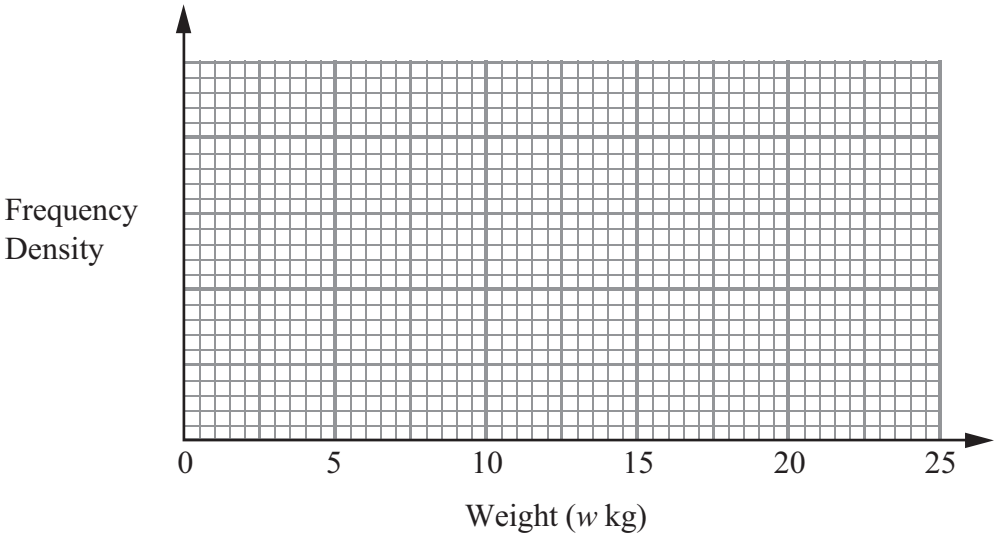
(Total 4 marks)

11 Tommy grows tomatoes.

The table shows some information about the weight, w kg, of tomatoes produced by each tomato plant.

Weight (w kg)	$5 < w \leqslant 10$	$10 < w \leqslant 12$	$12 < w \leqslant 16$	$16 < w \leqslant 20$	$20 < w \leqslant 25$
Number of tomato plants	8	15	24	16	10

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



(3)

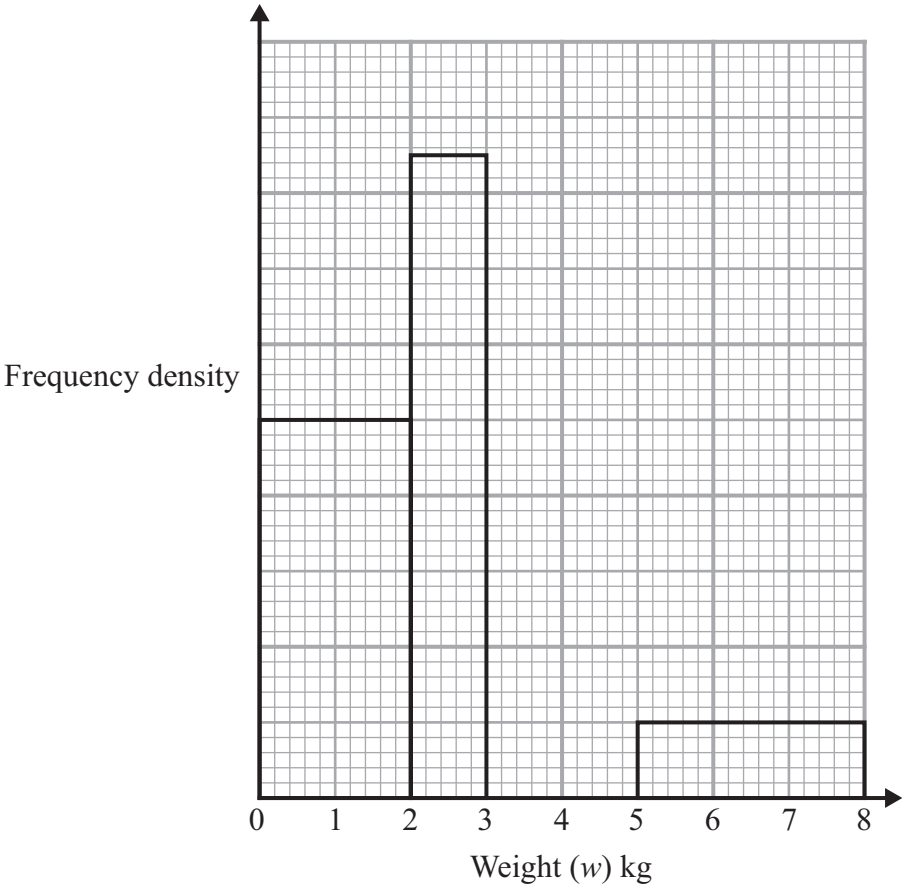
(b) Work out an estimate for the number of tomato plants that produced more than 15 kg of tomatoes.

.....

(2)

(Total for Question 11 is 5 marks)

21. The table and histogram give some information about the weights of parcels received at a post office during one day.



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

Weight (w) kg	Frequency
$0 < w \leqslant 2$	40
$2 < w \leqslant 3$	
$3 < w \leqslant 4$	24
$4 < w \leqslant 5$	18
$5 < w \leqslant 8$	

(2)

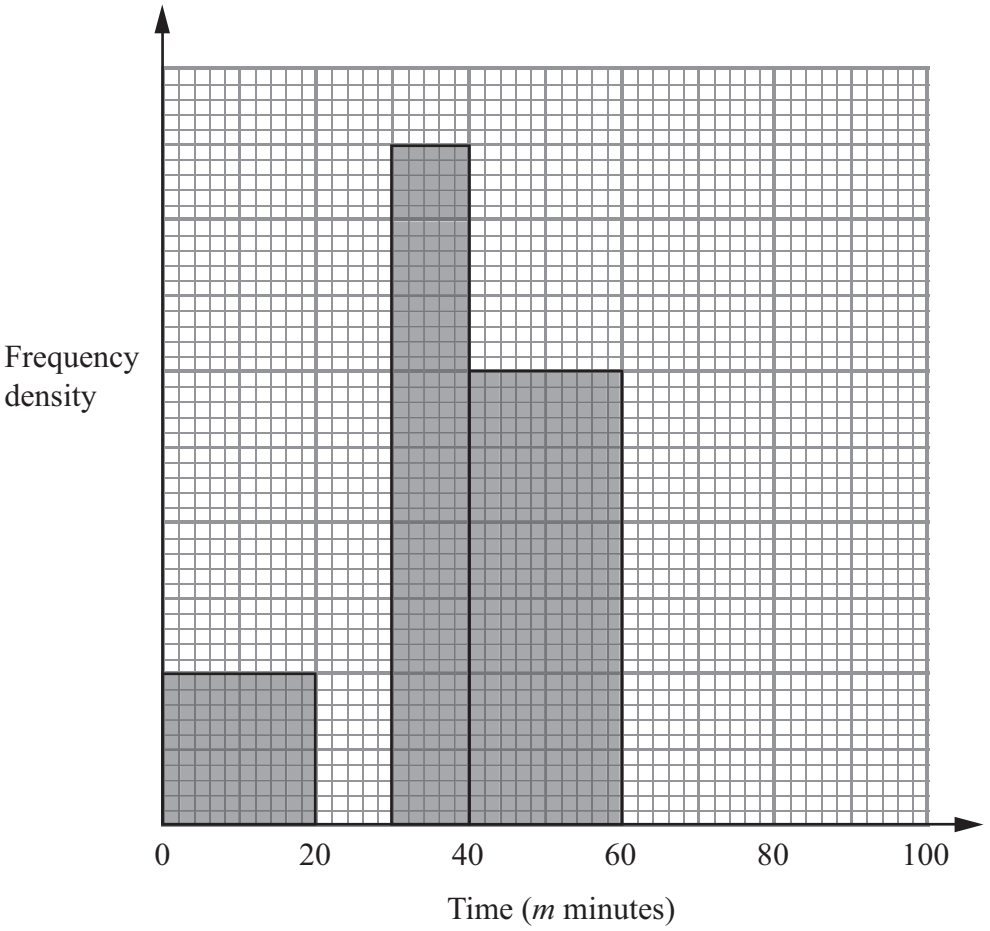
(b) Use the table to complete the histogram.

(2) **Q21**

(Total 4 marks)

12 The table and the histogram show some information about the time, in minutes, taken by a group of students to travel to college in one week.

Time (m minutes)	Frequency
$0 < m \leqslant 20$	20
$20 < m \leqslant 30$	30
$30 < m \leqslant 40$	
$40 < m \leqslant 60$	
$60 < m \leqslant 100$	48



(a) Use the histogram to complete the table.

(2)

(b) Use the table to complete the histogram.

(2)

(c) Work out an estimate for the median time.

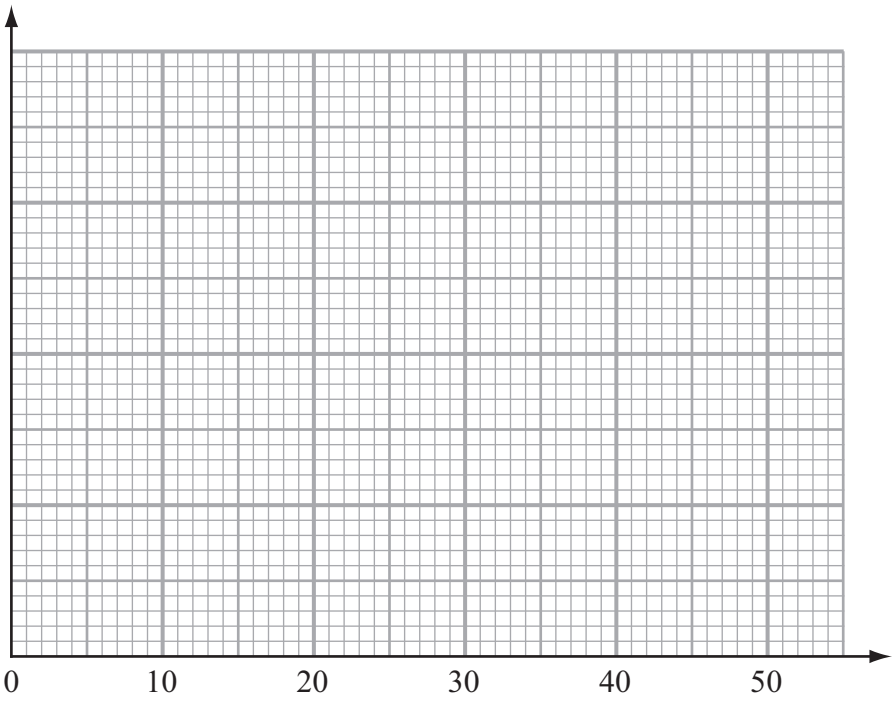
..... minutes
(2)

(Total for Question 12 is 6 marks)

12 The table gives some information about the distances, in miles, that some men travelled to work.

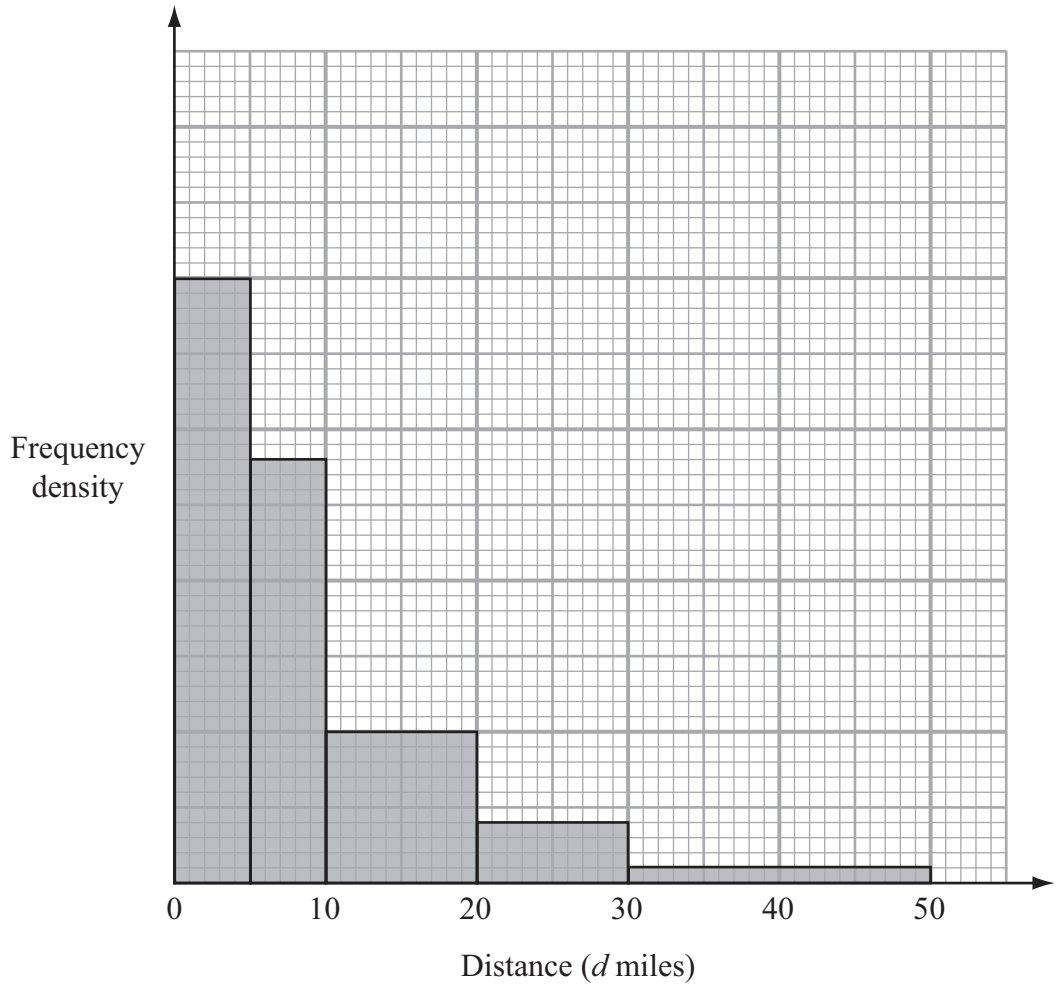
Distance (d miles)	Frequency
$0 < d \leqslant 5$	15
$5 < d \leqslant 10$	17
$10 < d \leqslant 20$	10
$20 < d \leqslant 30$	6
$30 < d \leqslant 50$	2

(a) Draw a histogram for the information in the table.



(3)

The histogram below shows information about the distances, in miles, that some women travelled to work.



x women travelled between 10 and 20 miles to work.

(b) Find an expression, in terms of x, for the total number of women represented by the histogram.

.....

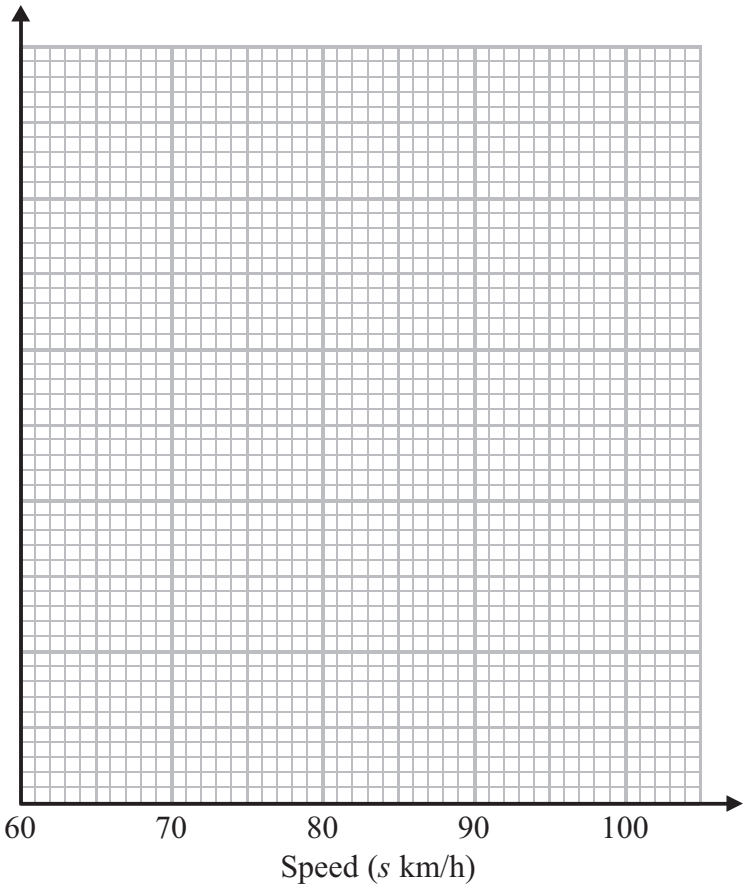
(2)

(Total for Question 12 is 5 marks)

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

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

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



(3)

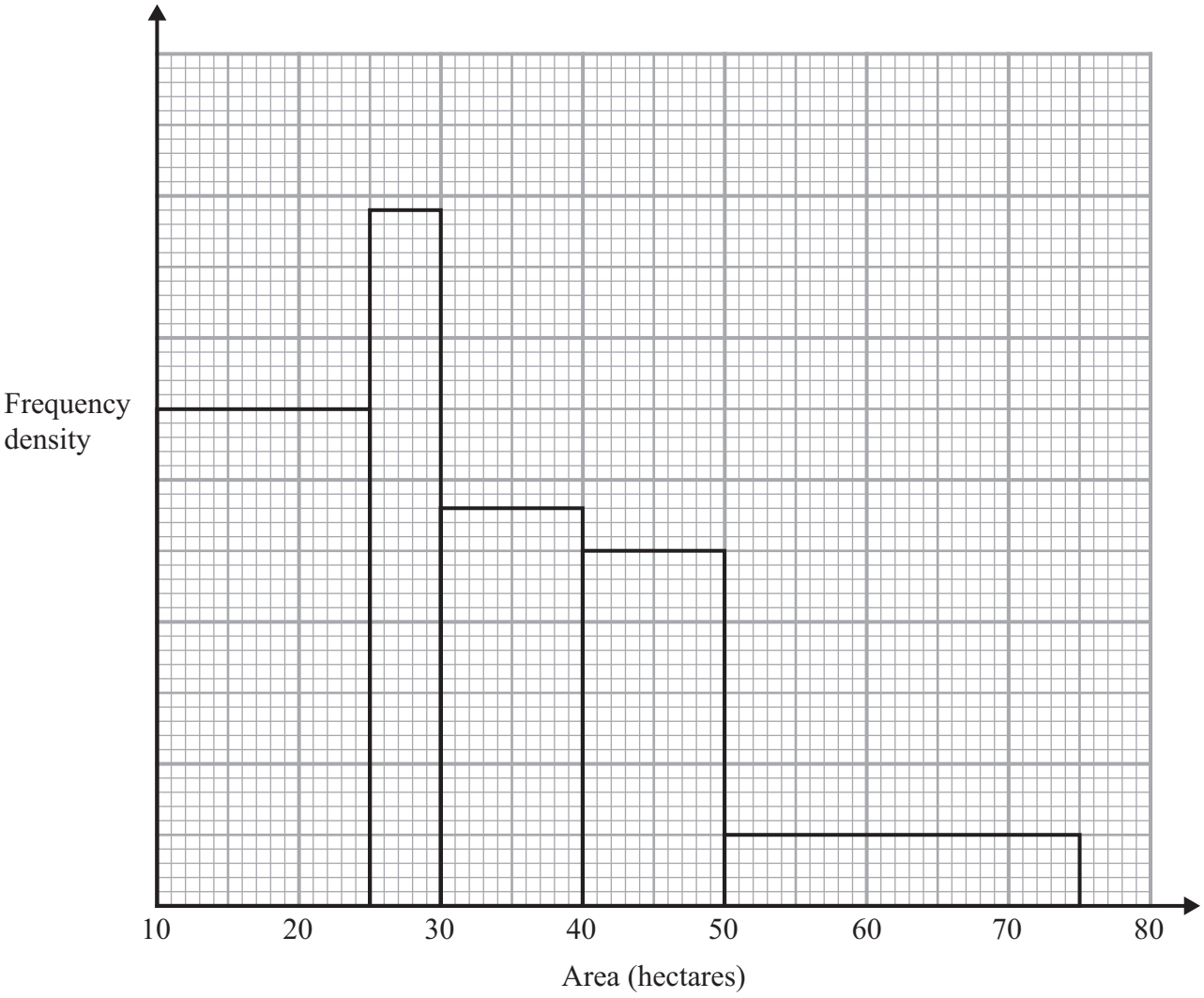
(b) Work out an estimate for the number of cars with a speed of more than 85 km/h.

.....

(2)

(Total for Question 22 is 5 marks)

13 The histogram gives information about the areas of 285 farms.



Work out an estimate for the number of these farms with an area greater than 38 hectares.

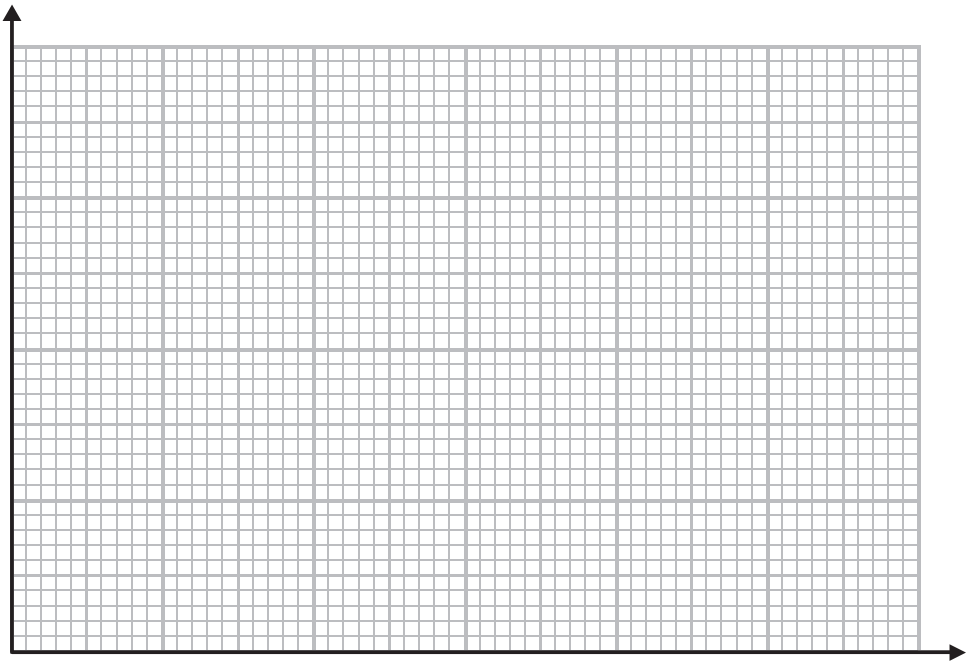
.....

(Total for Question 13 is 3 marks)

24 The table gives information about the heights, h metres, of trees in a wood.

Height (h metres)	Frequency
$0 < h \leqslant 2$	7
$2 < h \leqslant 4$	14
$4 < h \leqslant 8$	18
$8 < h \leqslant 16$	24
$16 < h \leqslant 20$	10

Draw a histogram to show this information.



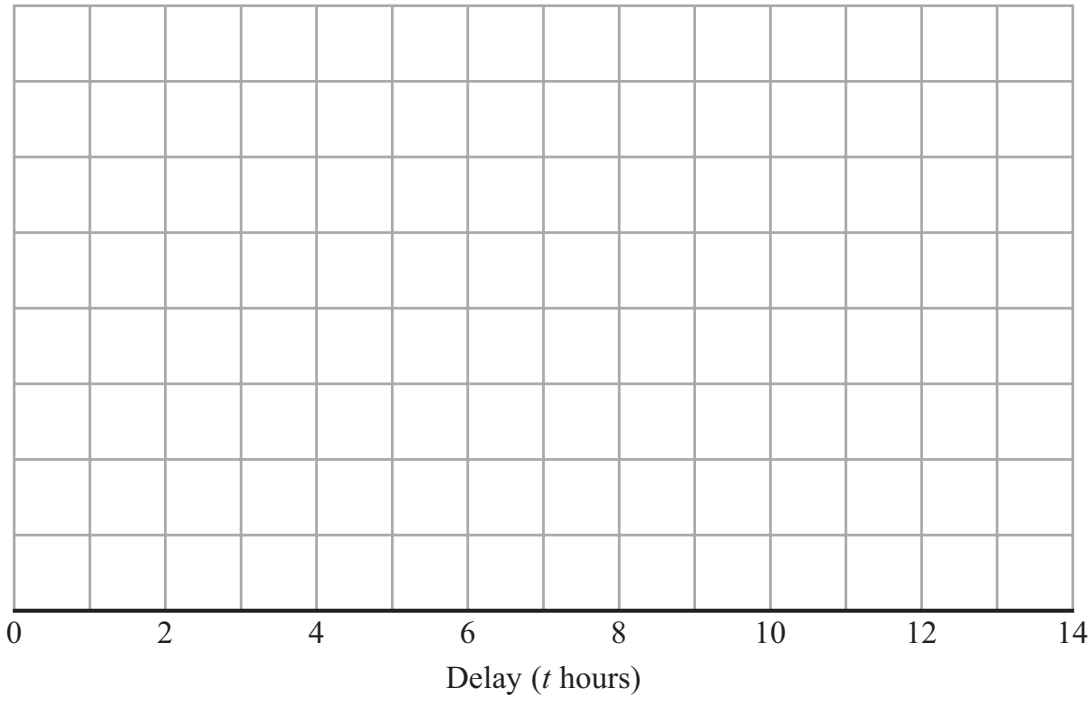
(Total for Question 24 is 3 marks)

15 During one week in January, the flights from an airport were delayed.

The table shows information about the flight delays on Monday.

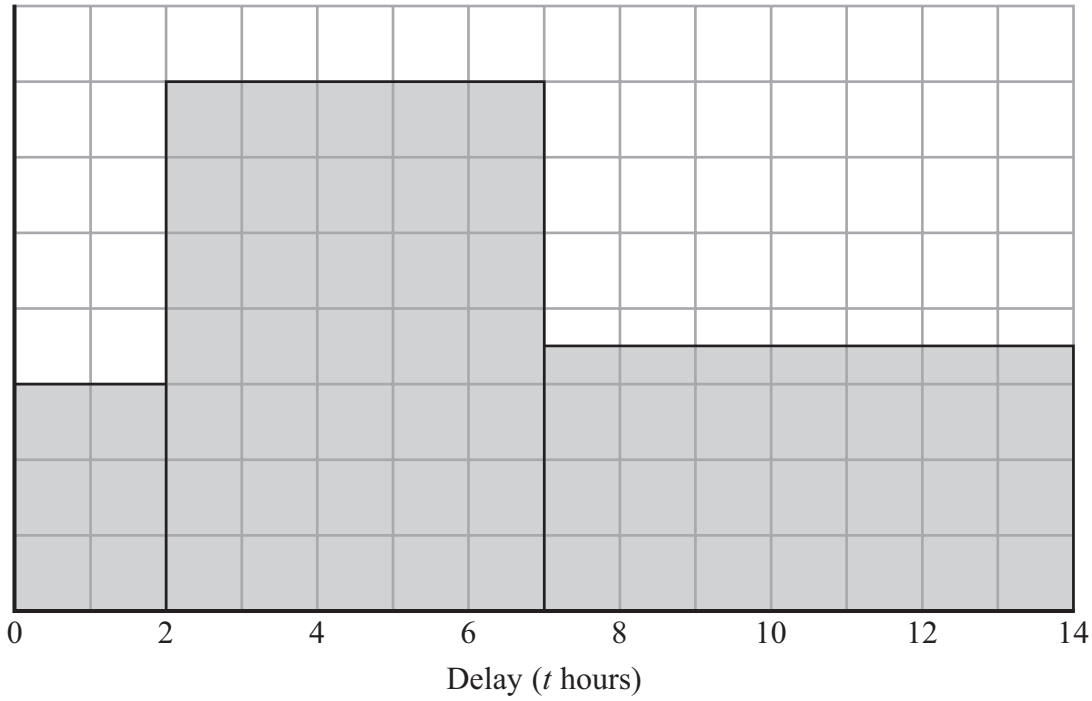
Delay (t hours)	Frequency
$0 < t \leqslant 2$	4
$2 < t \leqslant 7$	60
$7 < t \leqslant 11$	40
$11 < t \leqslant 13$	6

(a) Draw a histogram for the information given in the table.



(3)

The histogram below shows information about the flight delays on Tuesday.



12 flights were delayed for up to 2 hours.

Avi says

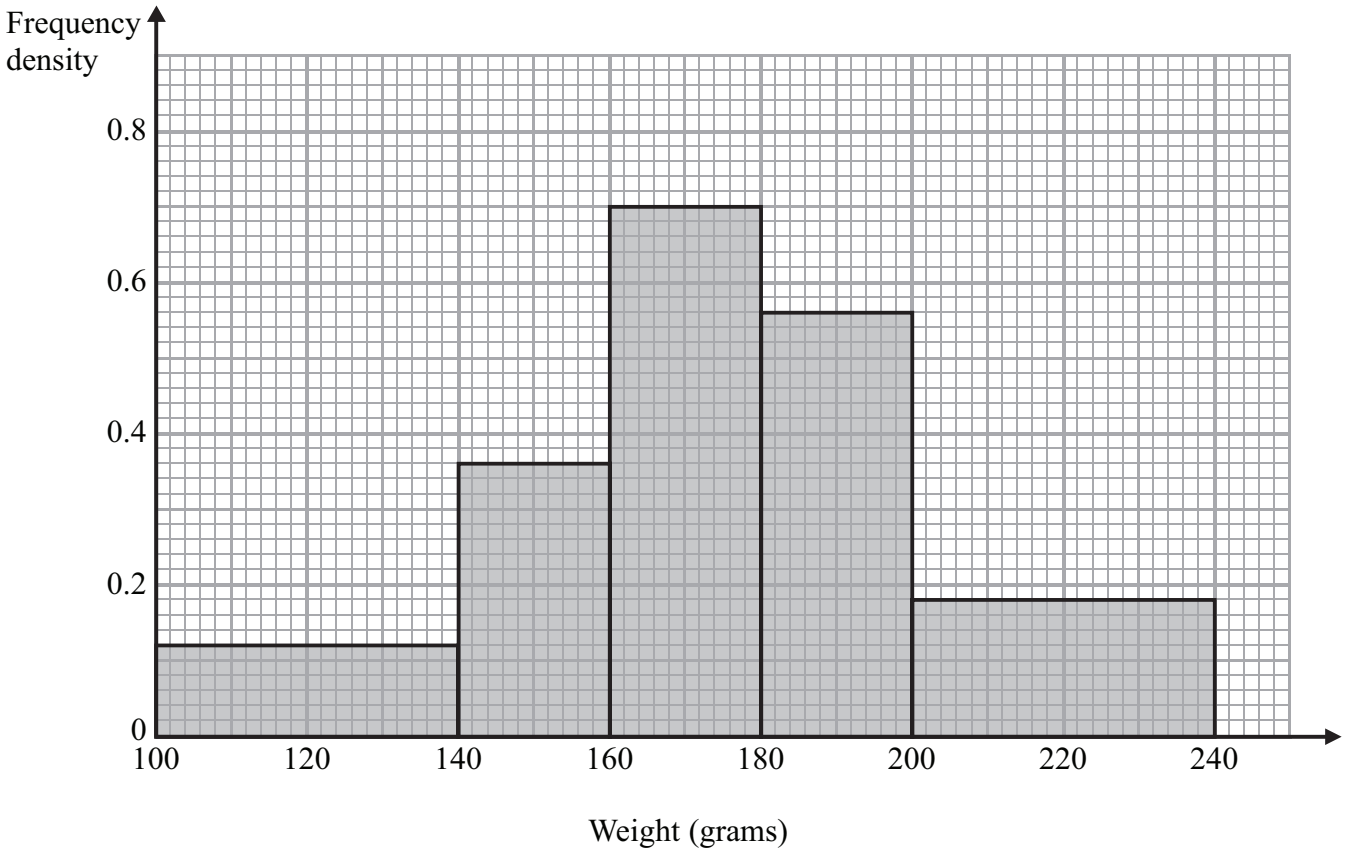
> "A greater number of flights were delayed for more than 7 hours on Monday than for more than 7 hours on Tuesday."

(b) Is Avi correct?
You must explain your answer.

(2)

(Total for Question 15 is 5 marks)

21 The histogram shows some information about the weights of a sample of apples.



Work out the proportion of apples in the sample with a weight between 140 grams and 200 grams.

.....

(Total for Question 21 is 4 marks)

13 The table shows some information about the weights of oranges.

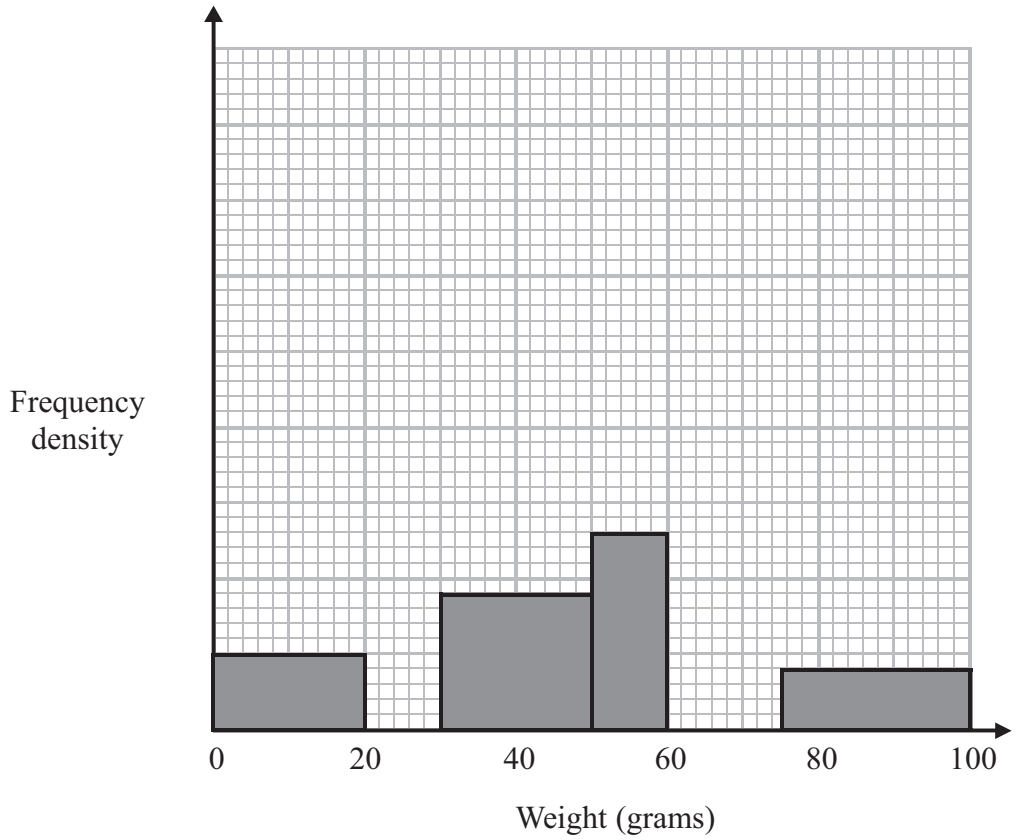
Weight (w grams)	Frequency
$0 < w \leqslant 20$	
$20 < w \leqslant 30$	15
$30 < w \leqslant 50$	
$50 < w \leqslant 60$	13
$60 < w \leqslant 75$	15
$75 < w \leqslant 100$	10

(a) Use the histogram to complete the table.

(2)

(b) Use the table to complete the histogram.

(2)



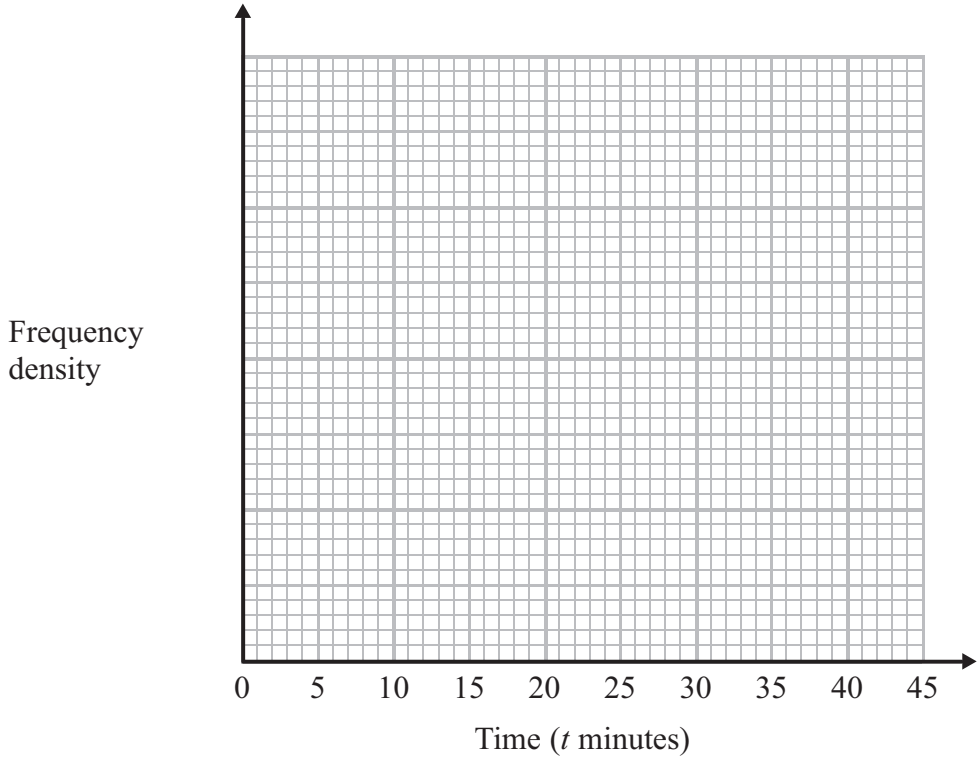
(Total for Question 13 is 4 marks)

24 Bill works for a computer service centre.

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

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

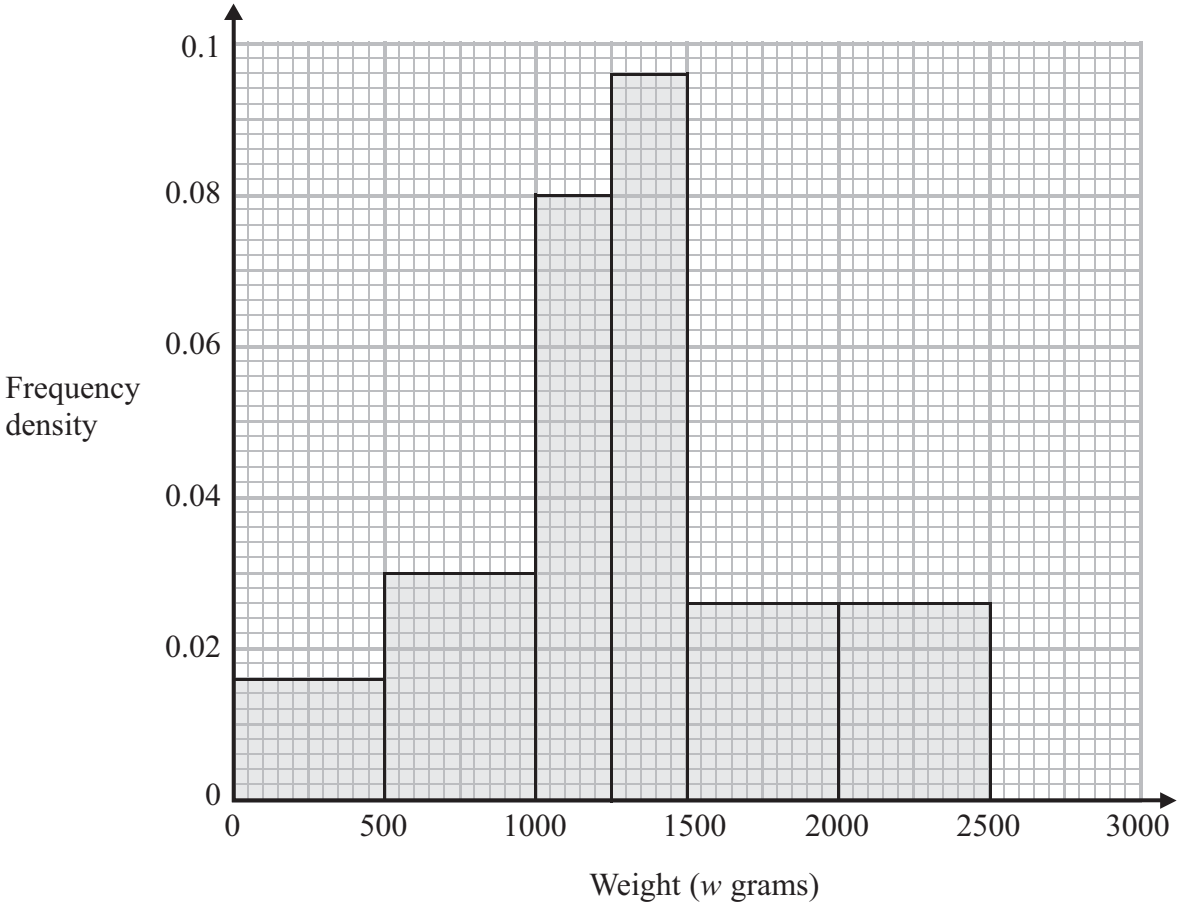
On the grid, draw a histogram to show this information.



(Total for Question 24 is 3 marks)

14 Jim went on a fishing holiday.

The histogram shows some information about the weights of the fish he caught.



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

Weight (w grams)	Frequency
$0 < w \leqslant 500$	8
$500 < w \leqslant 1000$	
$1000 < w \leqslant 1250$	
$1250 < w \leqslant 1500$	
$1500 < w \leqslant 2500$	

(2)

Jim kept all the fish he caught with a weight greater than 2000 g.

(b) Find the ratio of the number of fish Jim kept to the total number of fish he caught.

.....

(2)

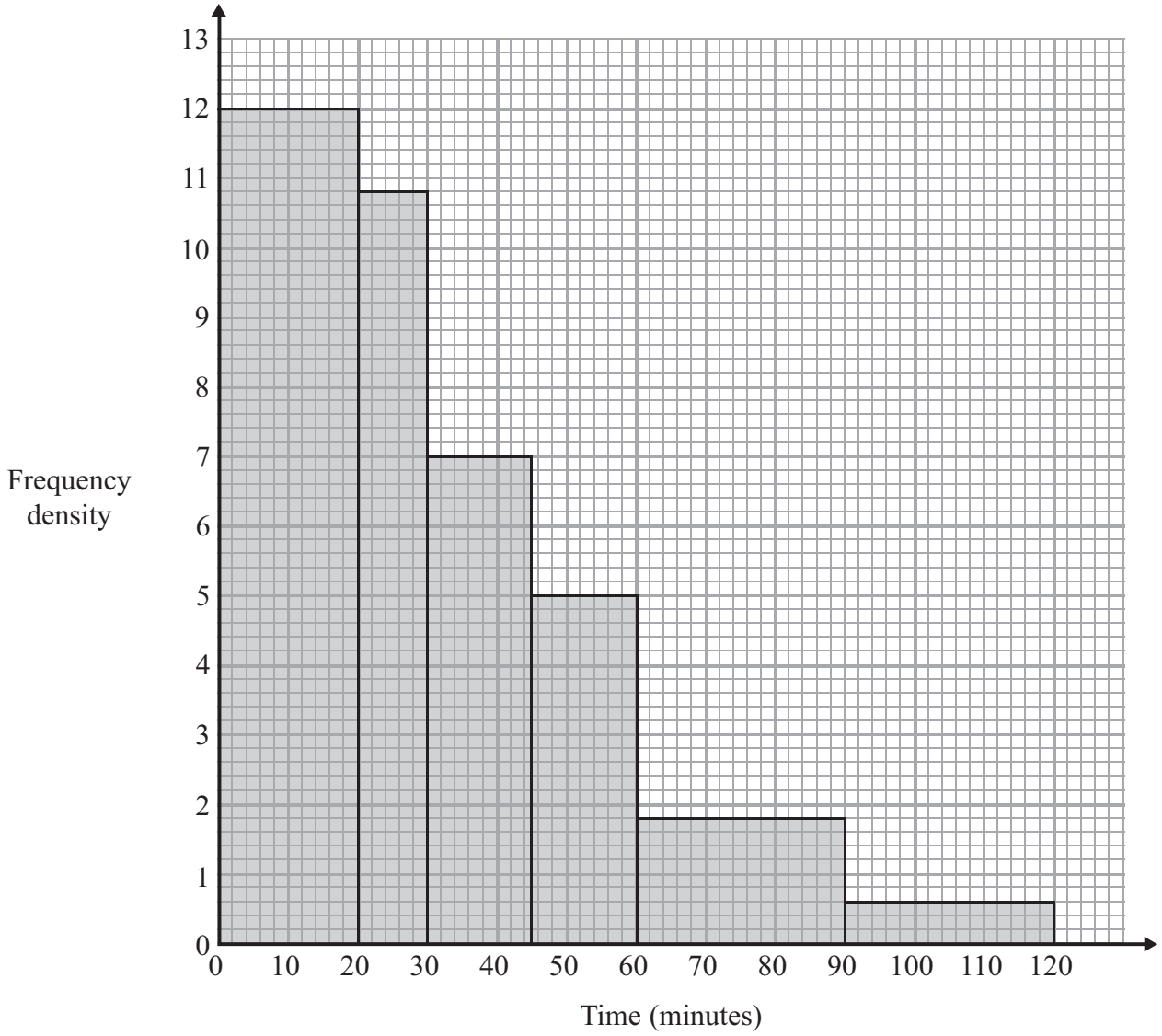
(c) Use the histogram to find an estimate of the median.

..... g

(2)

(Total for Question 14 is 6 marks)

27 The histogram shows information about the times, in minutes, that some passengers had to wait at an airport.



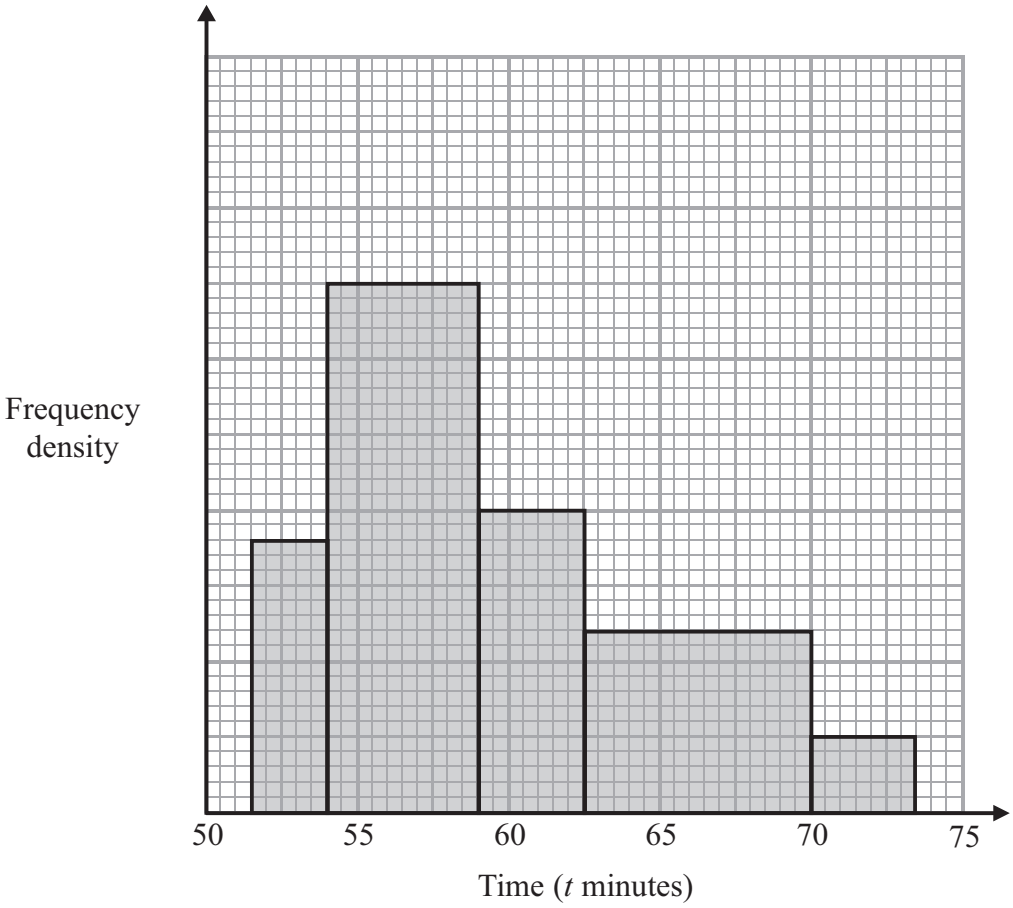
Work out the percentage of the passengers who had to wait for more than one hour.

.....

(Total for Question 27 is 3 marks)

15 Ulrika recorded the times some people took to run a race.

The histogram gives information about these times.



25% of the people took a time less than T minutes.

Work out an estimate for T.

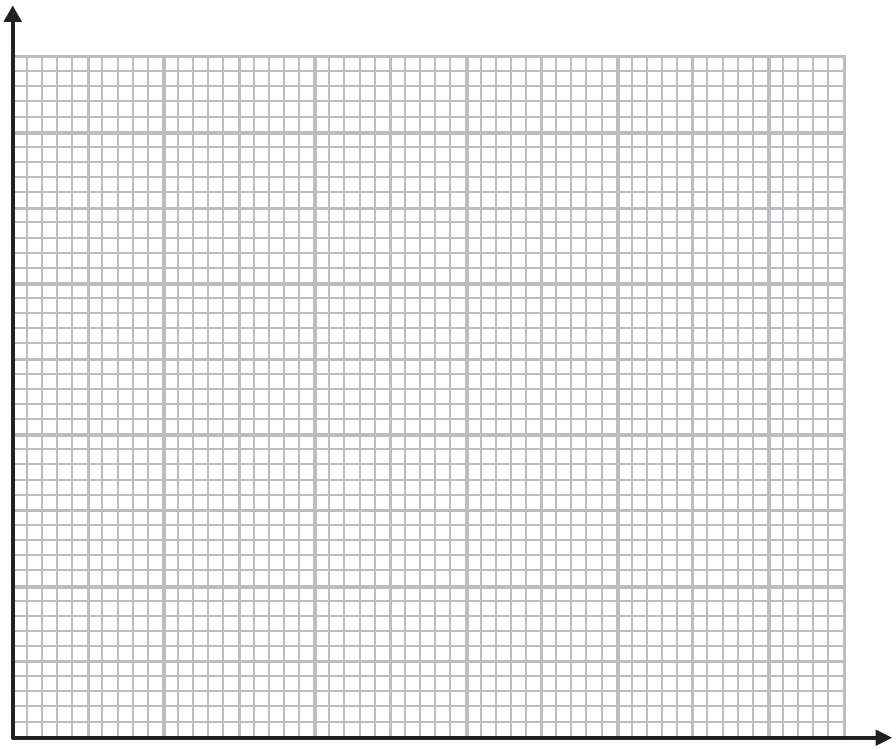
..... minutes

(Total for Question 15 is 3 marks)

16 The table shows some information about the total rainfall, in millimetres, recorded at 85 weather stations one month.

Rainfall (mm)	Frequency
$0 < x \leqslant 20$	16
$20 < x \leqslant 30$	27
$30 < x \leqslant 45$	36
$45 < x \leqslant 50$	6

(a) Draw a histogram for this information.



(3)

(b) One of the weather stations is selected at random.
Work out the probability that the rainfall recorded was over 40 mm.

.....

(3)

(Total for Question 16 is 6 marks)

18 The table gives some information about the lengths of time, in hours, that some adults watched TV last week.

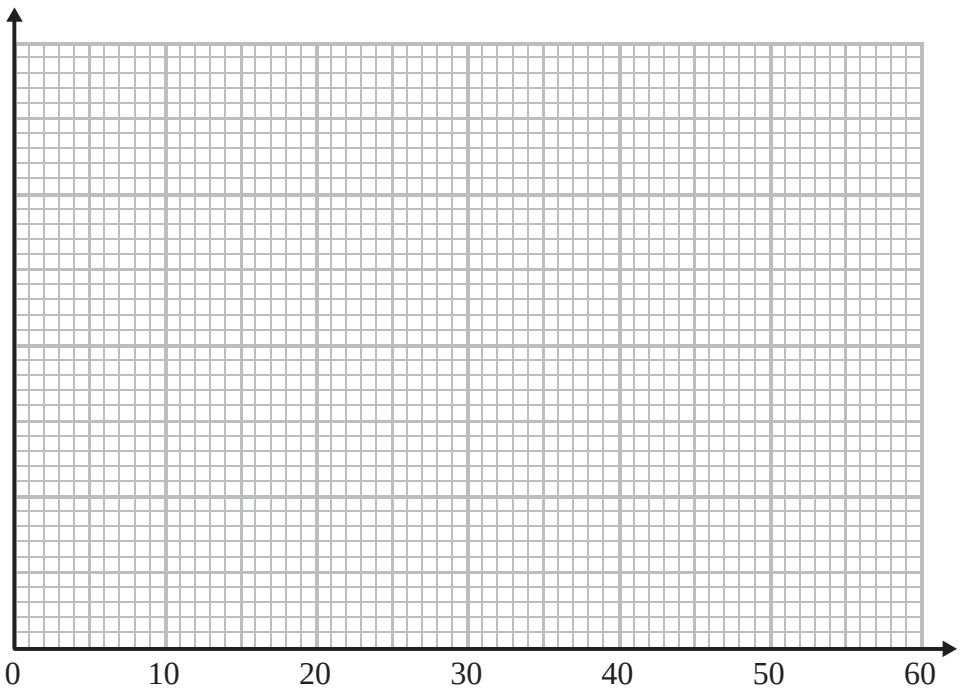
Length of time (t hours)	Frequency
$0 \leqslant t < 10$	8
$10 \leqslant t < 15$	15
$15 \leqslant t < 20$	11
$20 \leqslant t < 30$	10
$30 \leqslant t < 50$	6

(a) Work out an estimate for the mean length of time.

..... hours

(4)

(b) Draw a histogram for the information in the table.



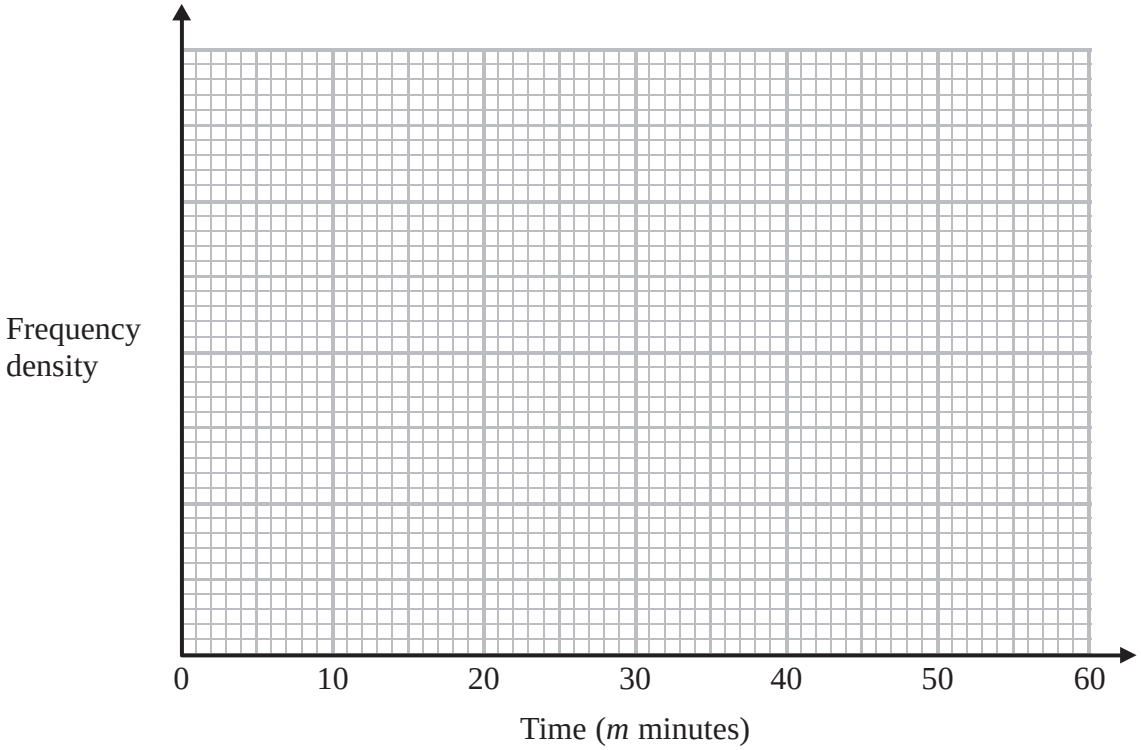
(3)

(Total for Question 18 is 7 marks)

16 The table shows information about the times, in minutes, that 84 customers spent in a cafe.

Time (m minutes)	**Frequency**
$0 < m \leqslant 5$	6
$5 < m \leqslant 15$	21
$15 < m \leqslant 30$	33
$30 < m \leqslant 40$	16
$40 < m \leqslant 60$	8

(a) Draw a histogram for the information in the table.



(3)

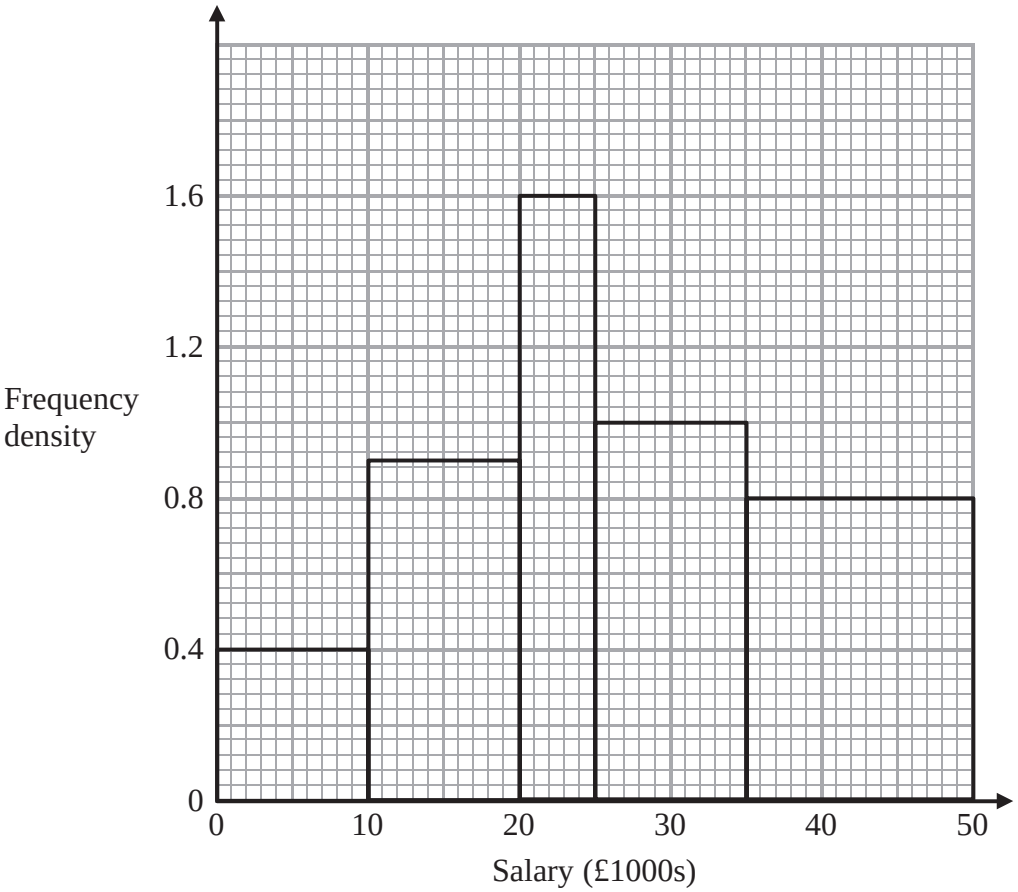
(b) Work out an estimate for the number of customers who spent 20 minutes or less in the cafe.

.....

(2)

(Total for Question 16 is 5 marks)

26 The histogram shows some information about the salaries of a sample of people.



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

Salary (p) in £1000s	Frequency
$0 < p \leqslant 10$	4
$10 < p \leqslant 20$	
$20 < p \leqslant 25$	
$25 < p \leqslant 35$	
$35 < p \leqslant 50$	

(2)

(b) Work out the proportion of people in the sample who have a salary greater than £40 000

.....

(2)

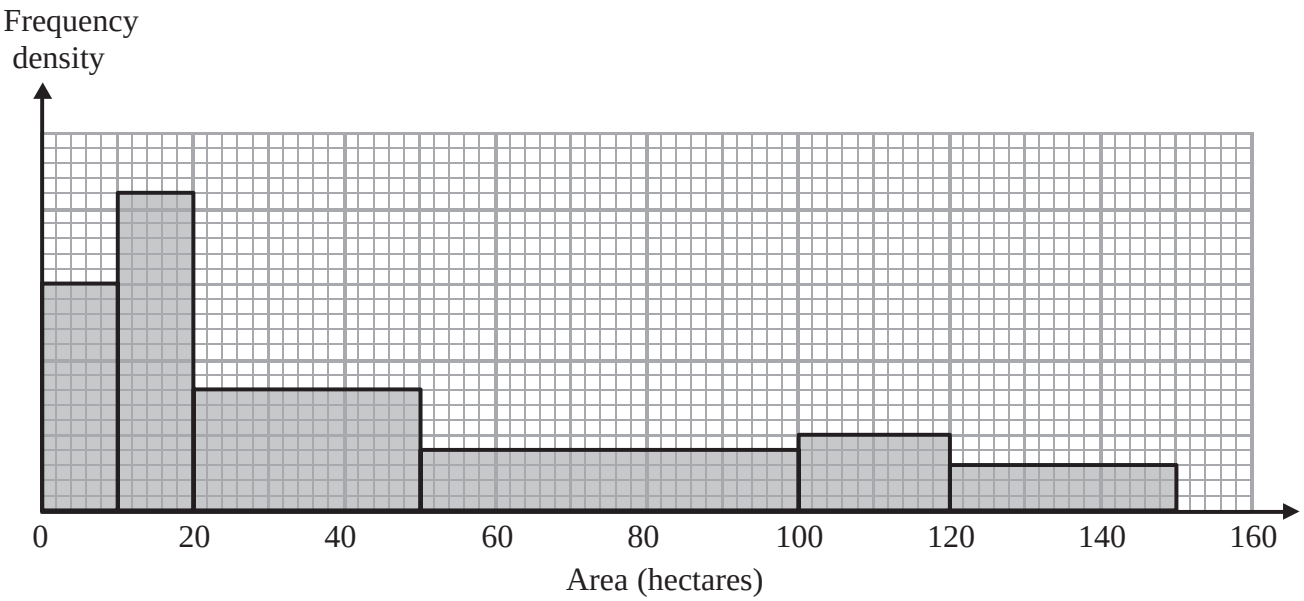
(c) Find an estimate for the median salary.

£.....

(2)

(Total for Question 26 is 6 marks)

13 The histogram shows information about the areas of some farms.



90 of the farms have an area of 10 hectares or less.

60% of the farms with an area of 100 hectares or less are arable farms.

$\frac{1}{2}$ of the farms with an area of more than 100 hectares are arable farms.

Work out an estimate for the total number of arable farms.

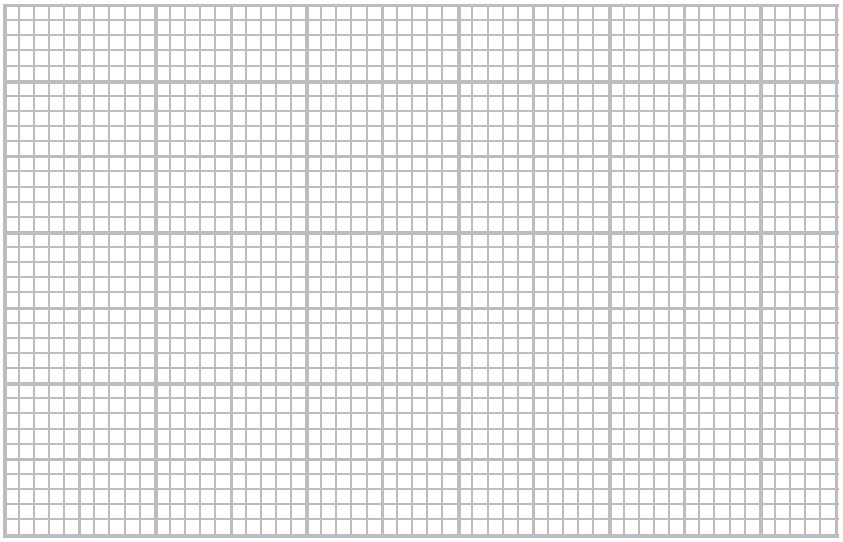
.....

(Total for Question 13 is 5 marks)

15 The table shows some information about the length of time some birds were on a bird table.

Time (t seconds)	Frequency
$0 < t \leqslant 10$	8
$10 < t \leqslant 20$	16
$20 < t \leqslant 25$	15
$25 < t \leqslant 30$	12
$30 < t \leqslant 50$	6

Draw a histogram for the information in the table.

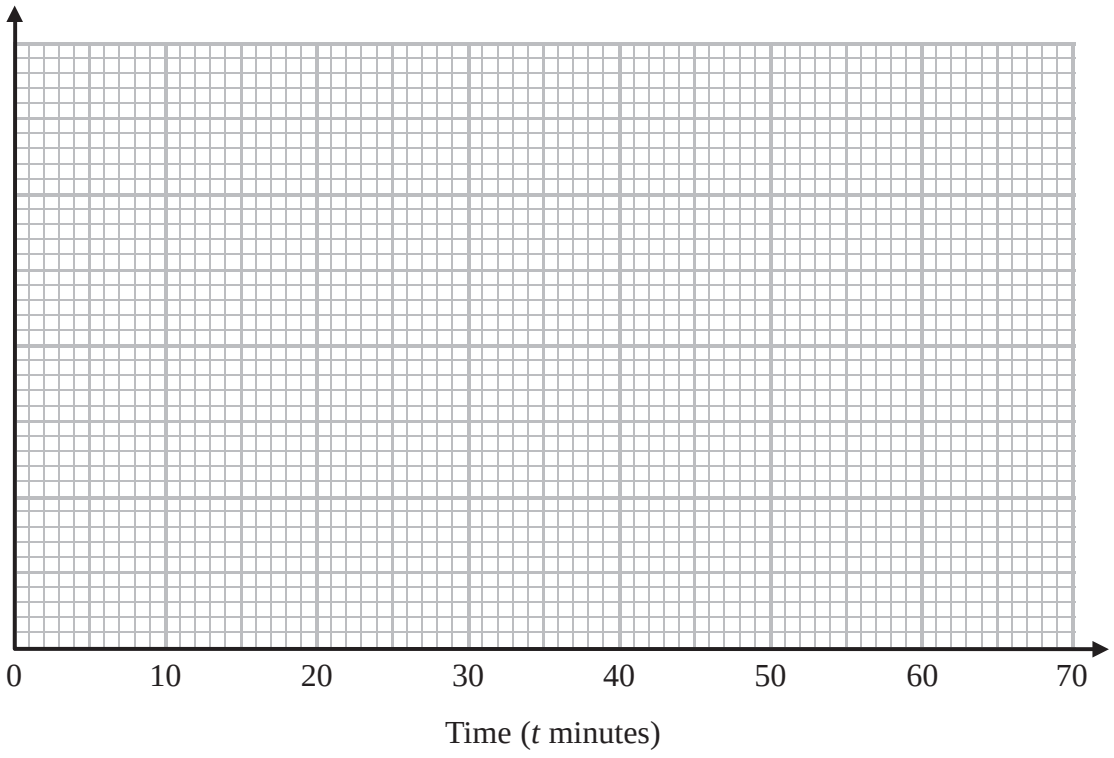


(Total for Question 15 is 3 marks)

23 The table gives information about the lengths of time some people were in a supermarket.

Time (t minutes)	Frequency
$0 < t \leqslant 5$	8
$5 < t \leqslant 15$	32
$15 < t \leqslant 30$	36
$30 < t \leqslant 40$	18
$40 < t \leqslant 60$	6

Draw a histogram for the information in the table.



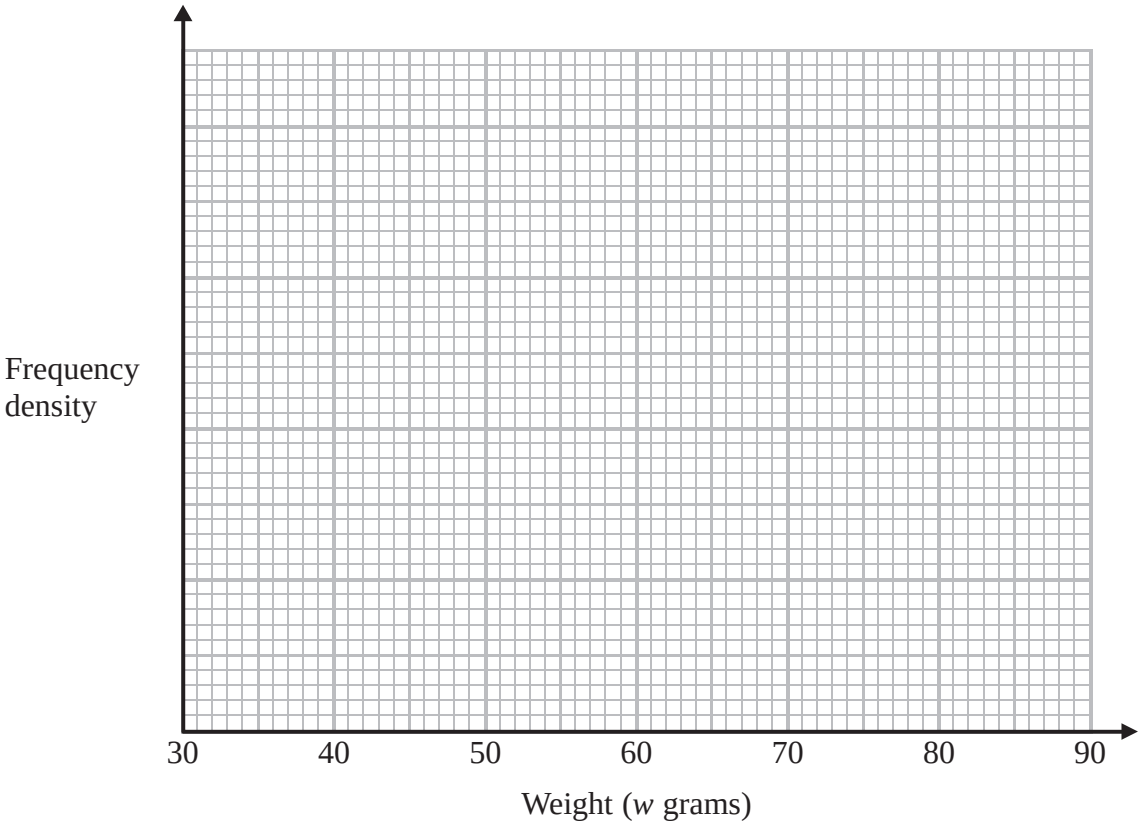
(Total for Question 23 is 3 marks)

15 Billy keeps chickens.

The table shows information about the weights, in grams, of eggs produced by the chickens.

Weight (w grams)	$30 < w \leqslant 50$	$50 < w \leqslant 60$	$60 < w \leqslant 70$	$70 < w \leqslant 85$
Number of eggs	12	20	17	6

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



(3)

Medium eggs weigh between 53 grams and 63 grams.

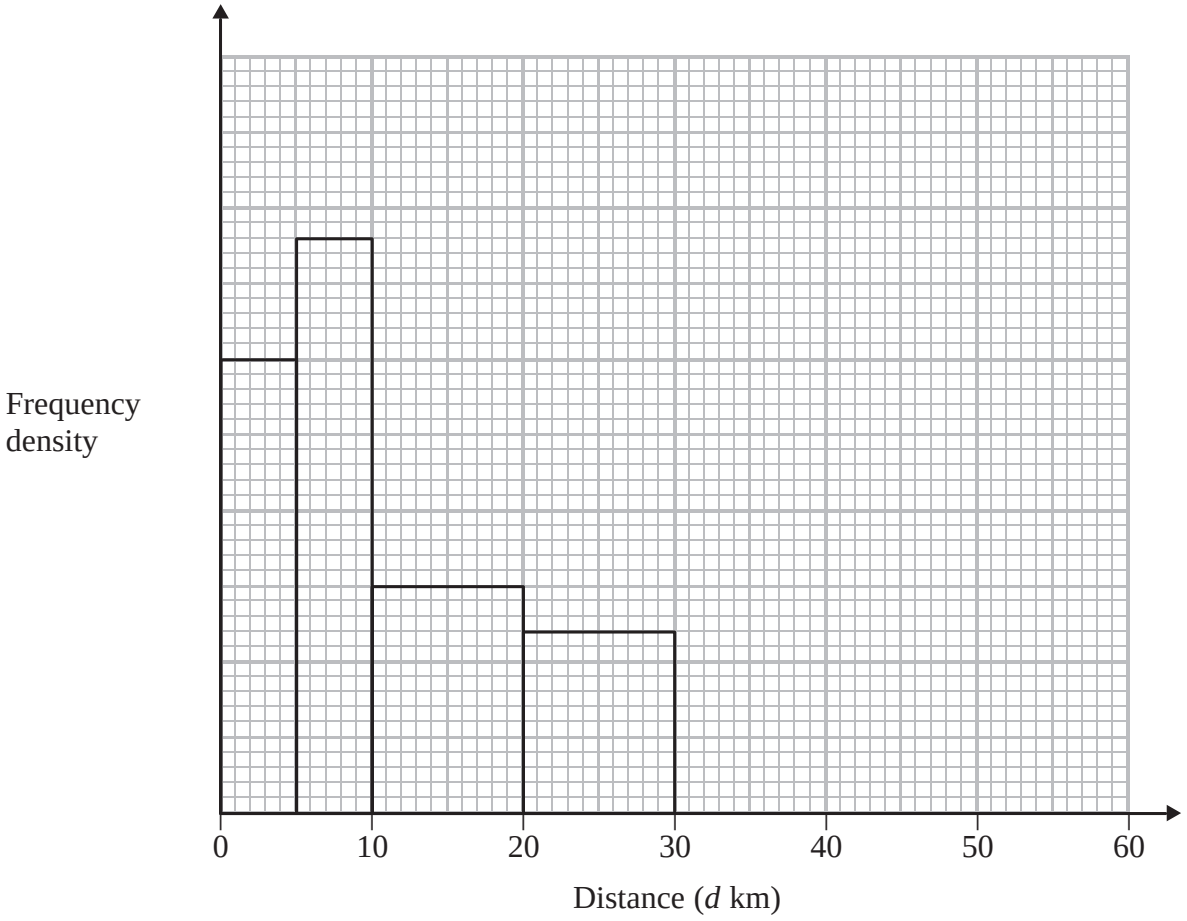
(b) Work out an estimate for the number of medium eggs produced.

.....

(3)

(Total for Question 15 is 6 marks)

23 The incomplete histogram and table give some information about the distances some people travel to work.



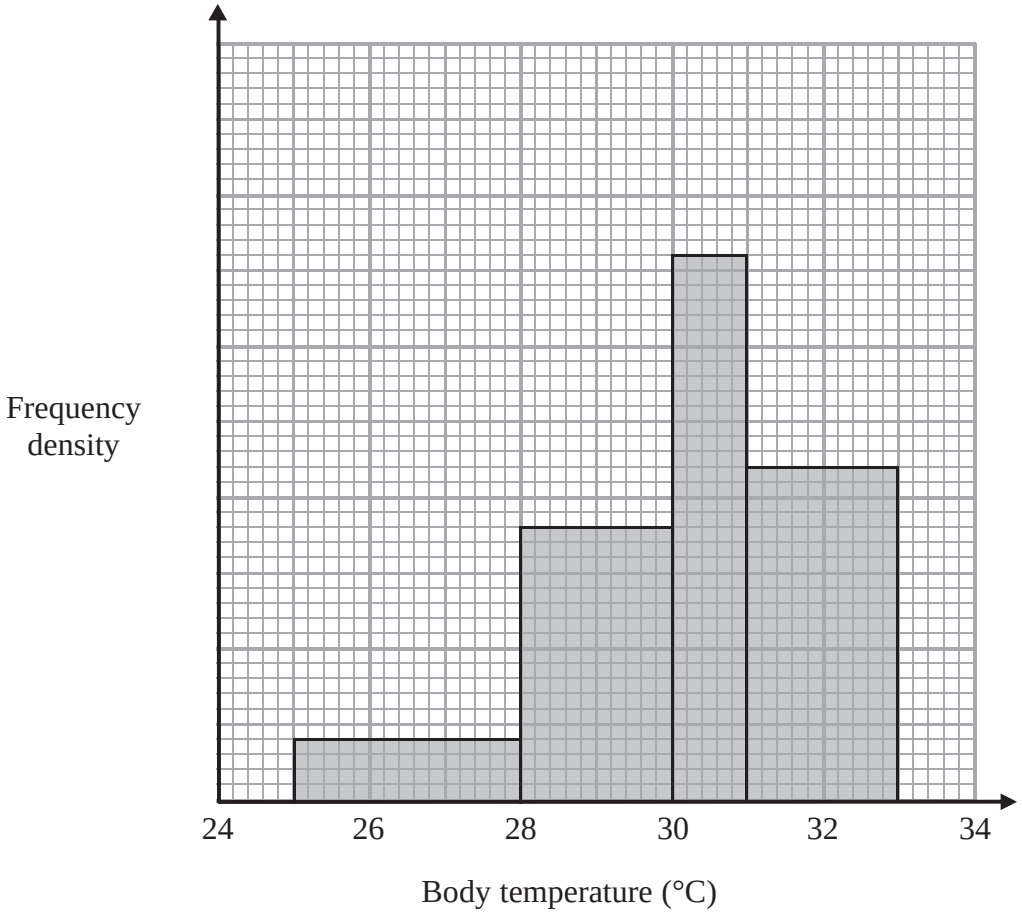
(i) Use the information in the histogram to complete the frequency table.

Distance (d km)	Frequency
$0 < d \leqslant 5$	30
$5 < d \leqslant 10$	
$10 < d \leqslant 20$	
$20 < d \leqslant 30$	24
$30 < d \leqslant 50$	16

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

(Total for Question 23 is 3 marks)

15 The histogram gives information about the body temperatures of 320 lizards at 2 pm one day.

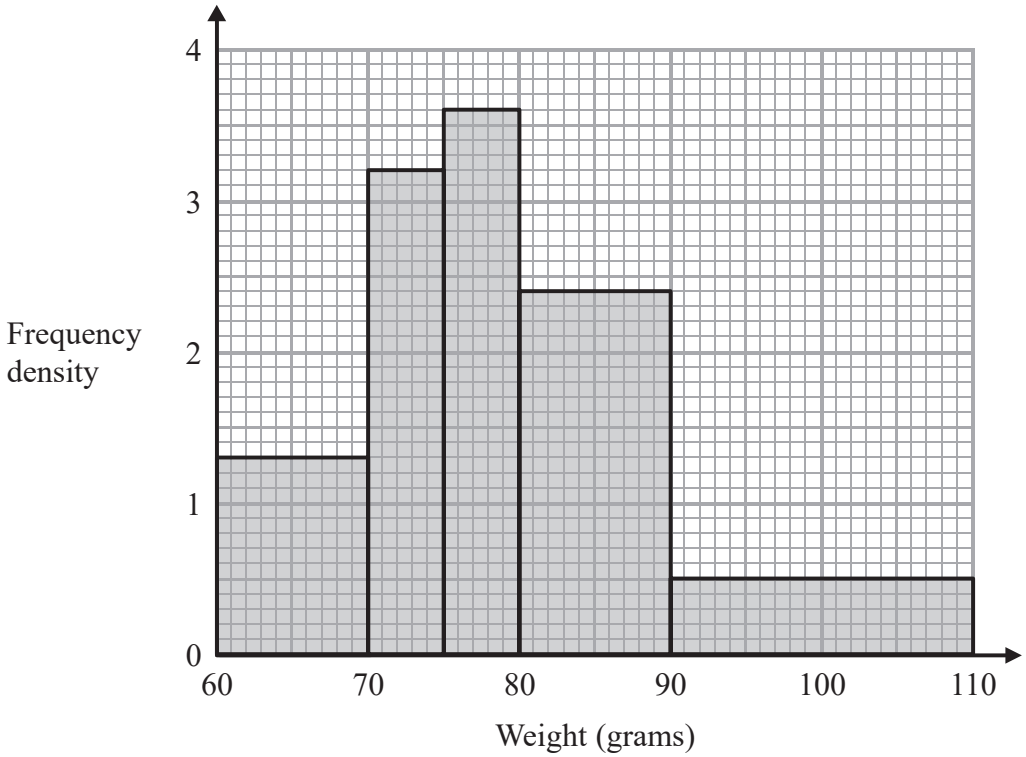


Work out how many of these lizards had a body temperature greater than 30°C.

.....

(Total for Question 15 is 3 marks)

23 The histogram shows information about the weights, in grams, of some plums.

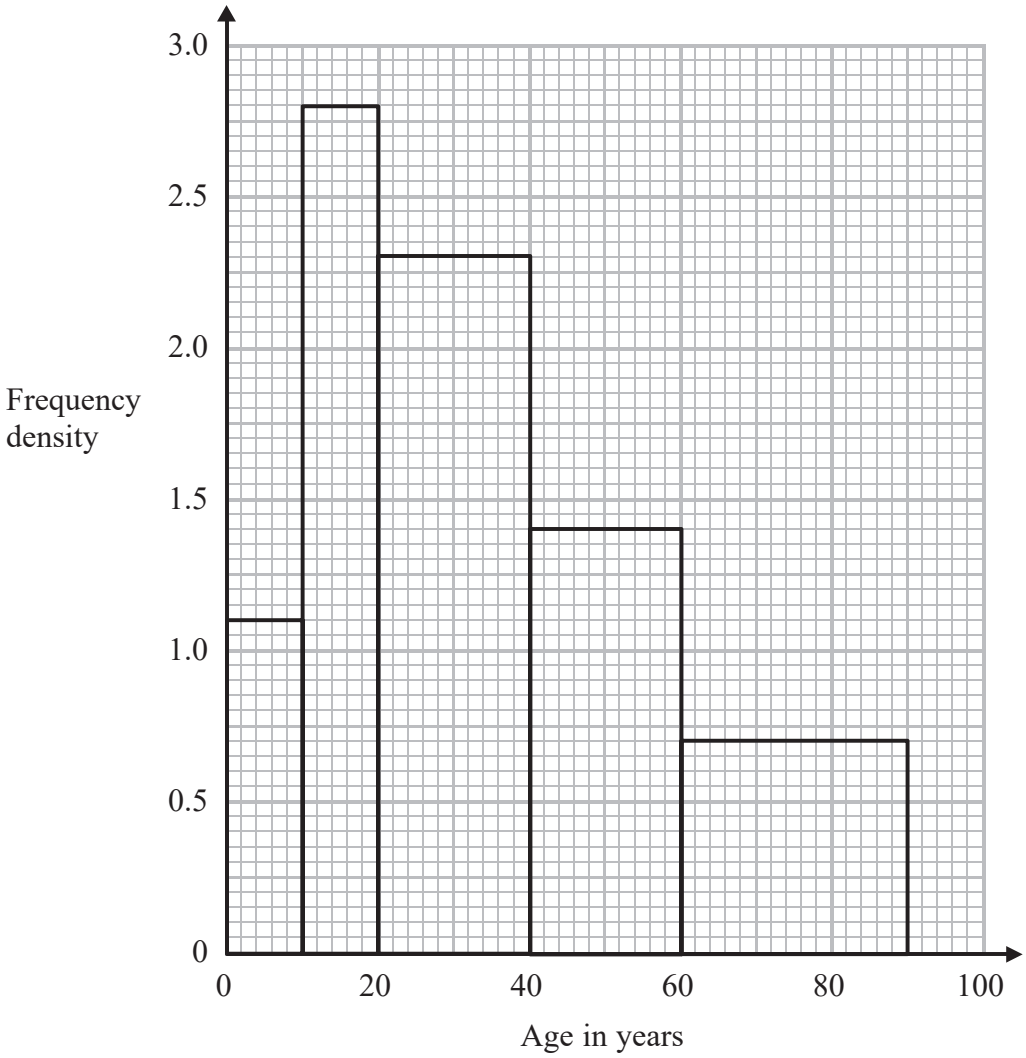


Work out an estimate for the proportion of these plums with a weight of less than 100 grams.

.....

(Total for Question 23 is 3 marks)

13 The histogram shows some information about the ages of the 134 members of a sports club.



20% of the members of the sports club who are over 50 years of age are female.

Work out an estimate for the number of female members who are over 50 years of age.

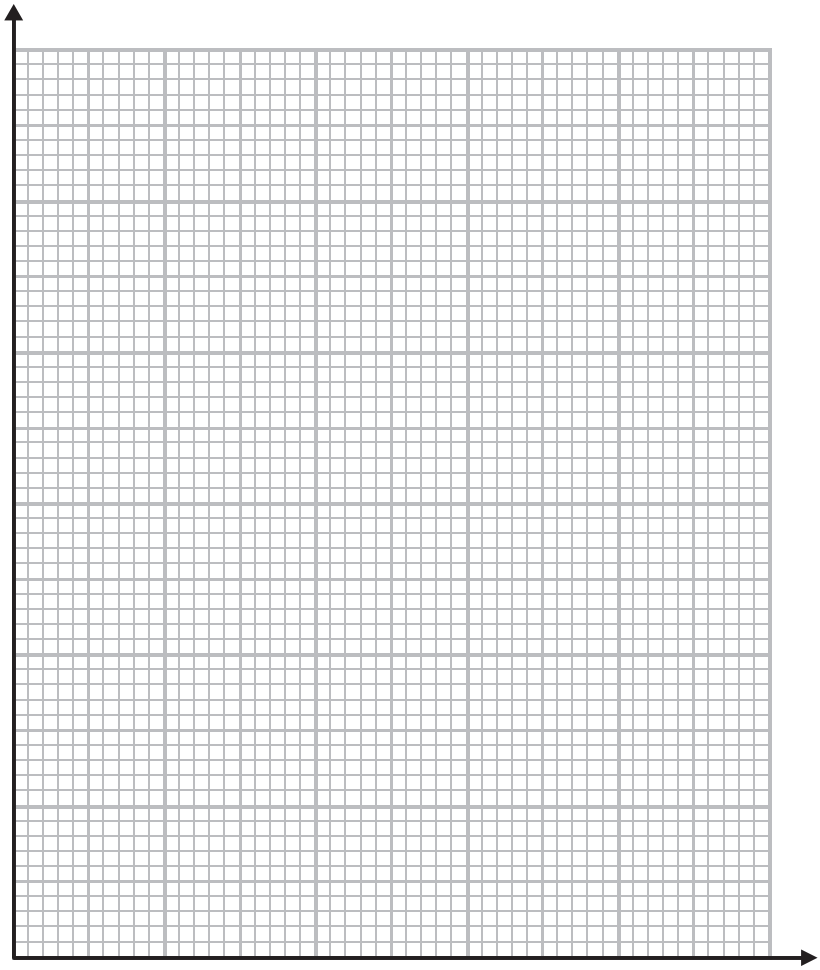
.....

(Total for Question 13 is 3 marks)

17 The table gives information about the heights of 150 students.

Height (h cm)	Frequency
$140 < h \leqslant 150$	15
$150 < h \leqslant 155$	30
$155 < h \leqslant 160$	51
$160 < h \leqslant 165$	36
$165 < h \leqslant 180$	18

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



(3)

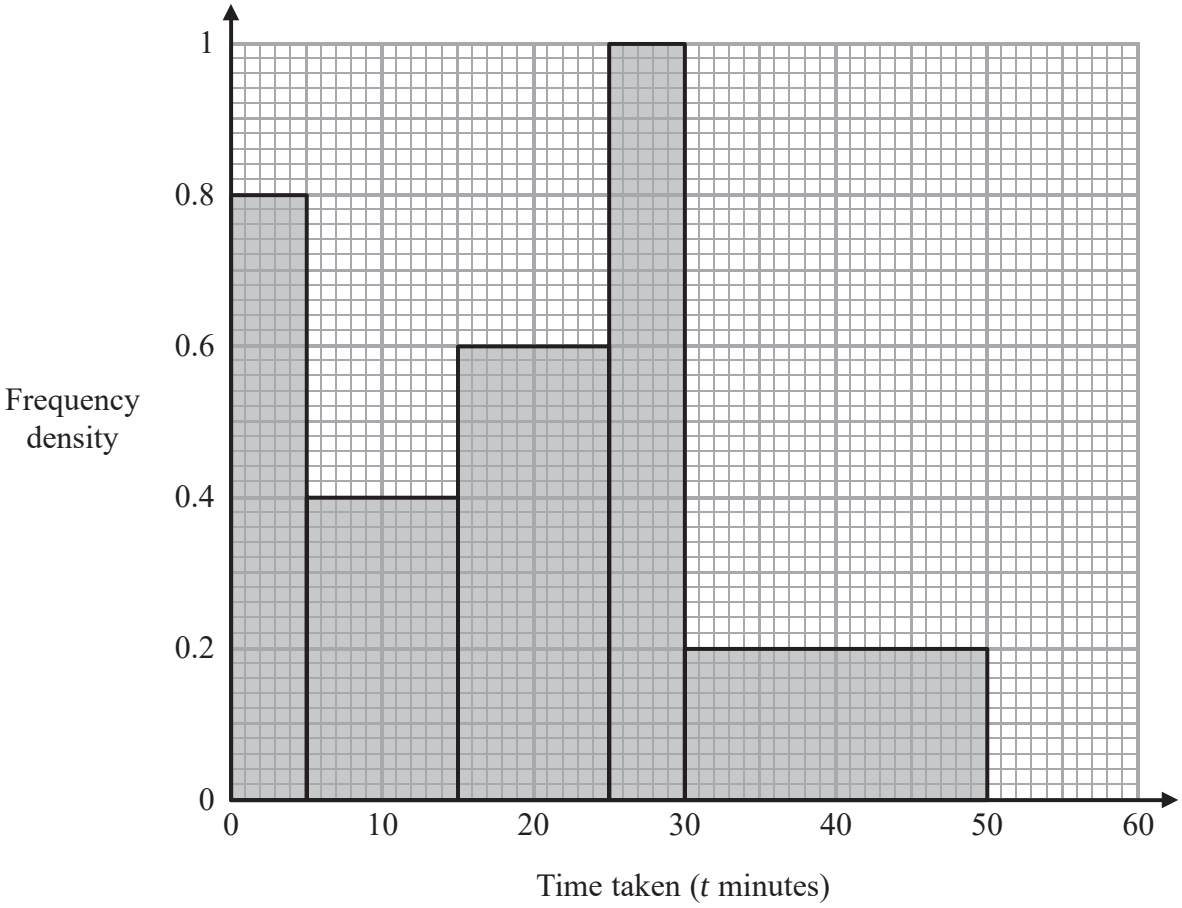
(b) Work out an estimate for the fraction of the students who have a height between 150 cm and 170 cm.

.....

(2)

(Total for Question 17 is 5 marks)

17 The histogram shows information about the times taken by some students to finish a puzzle.



(a) Complete the frequency table for this information.

Time taken (t minutes)	Frequency
$0 < t \leqslant 5$	4
$5 < t \leqslant 15$	
$15 < t \leqslant 25$	
$25 < t \leqslant 30$	
$30 < t \leqslant 50$	

(2)

(b) Find an estimate for the lower quartile of the times taken to finish the puzzle.

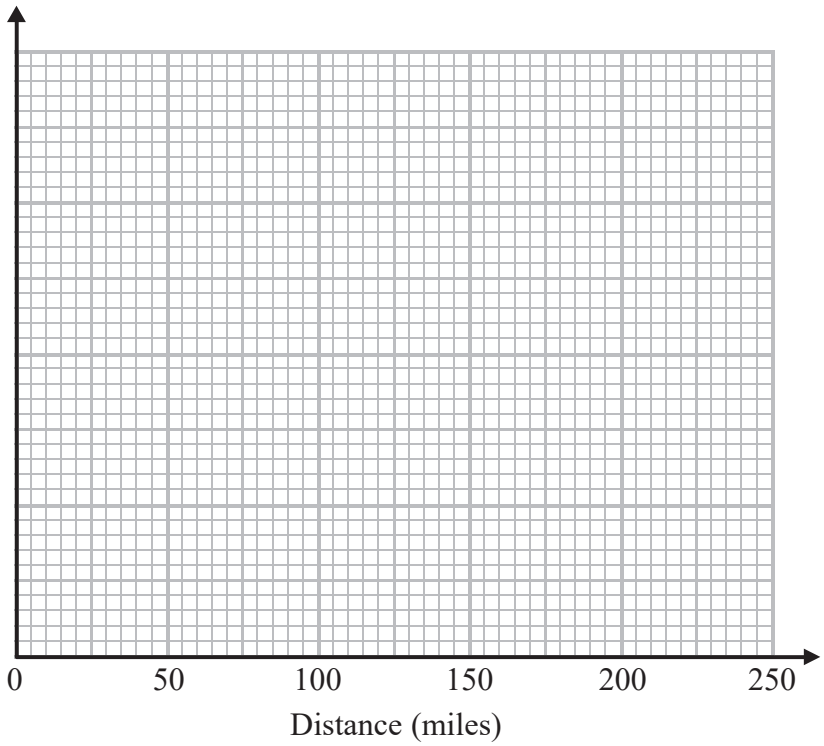
..... minutes
(2)

(Total for Question 17 is 4 marks)

17 The table shows information about the distances 570 students travelled to a university open day.

Distance (d miles)	Frequency
$0 < d \leqslant 20$	120
$20 < d \leqslant 50$	90
$50 < d \leqslant 80$	120
$80 < d \leqslant 150$	140
$150 < d \leqslant 200$	100

(a) Draw a histogram for the information in the table.



(3)

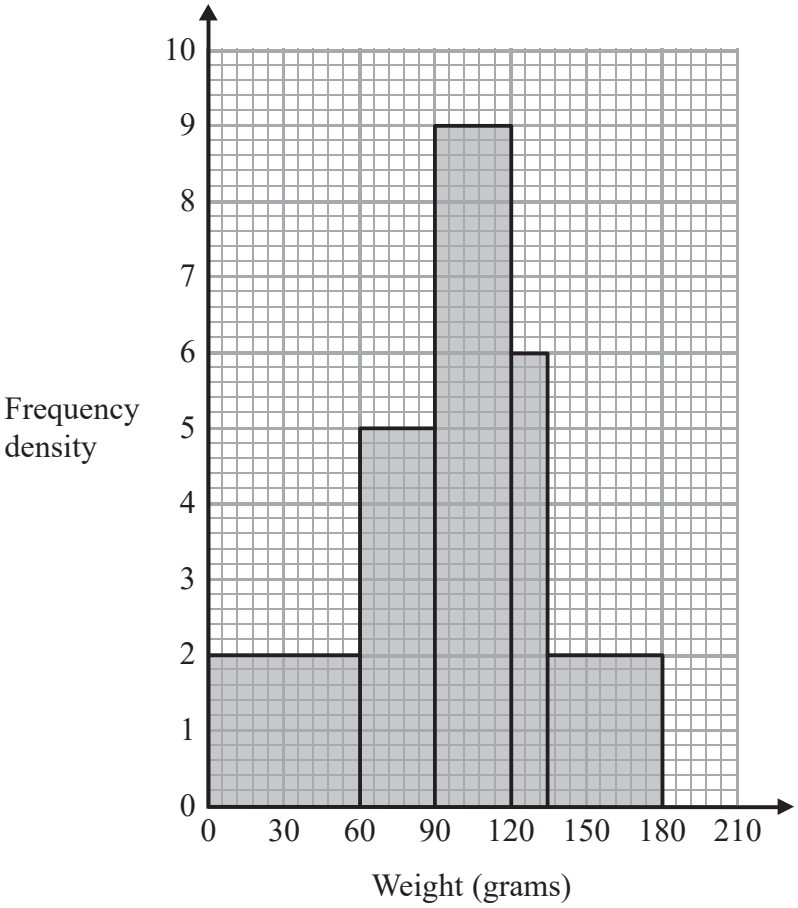
(b) Estimate the median distance.

..... miles

(2)

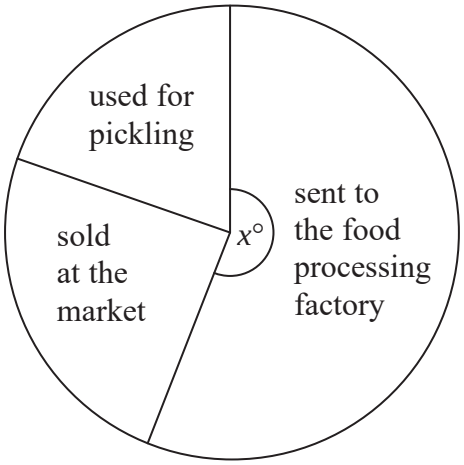
(Total for Question 17 is 5 marks)

21 The histogram gives information about the distribution of the weights of some onions grown by a farmer.



Onions less than 60 grams in weight are used for pickling.
Onions greater than 120 grams in weight are sold at the market.
The rest of the onions are sent to a food processing factory.

A pie chart is drawn using the information opposite to show what the farmer does with the onions he grows.



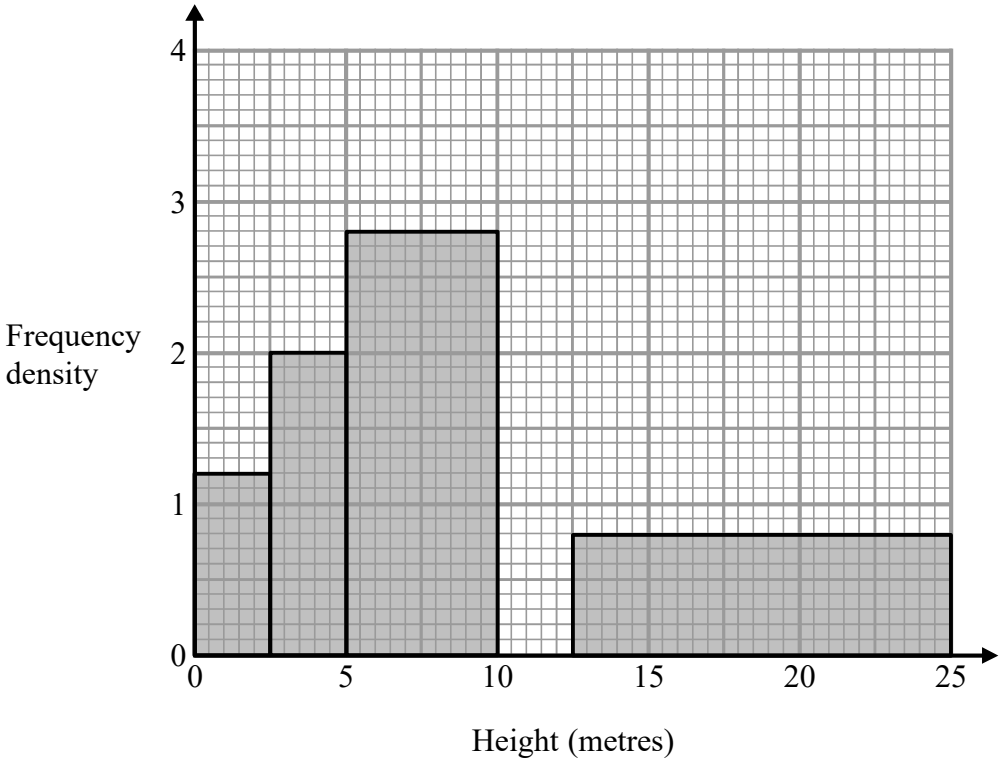
The angle of the sector for the onions sent to the food processing factory is $x°$.

Work out the value of x.

$x =$ .....

(Total for Question 21 is 4 marks)

18 The histogram gives information about the heights, in metres, of the trees in a park.
The histogram is incomplete.

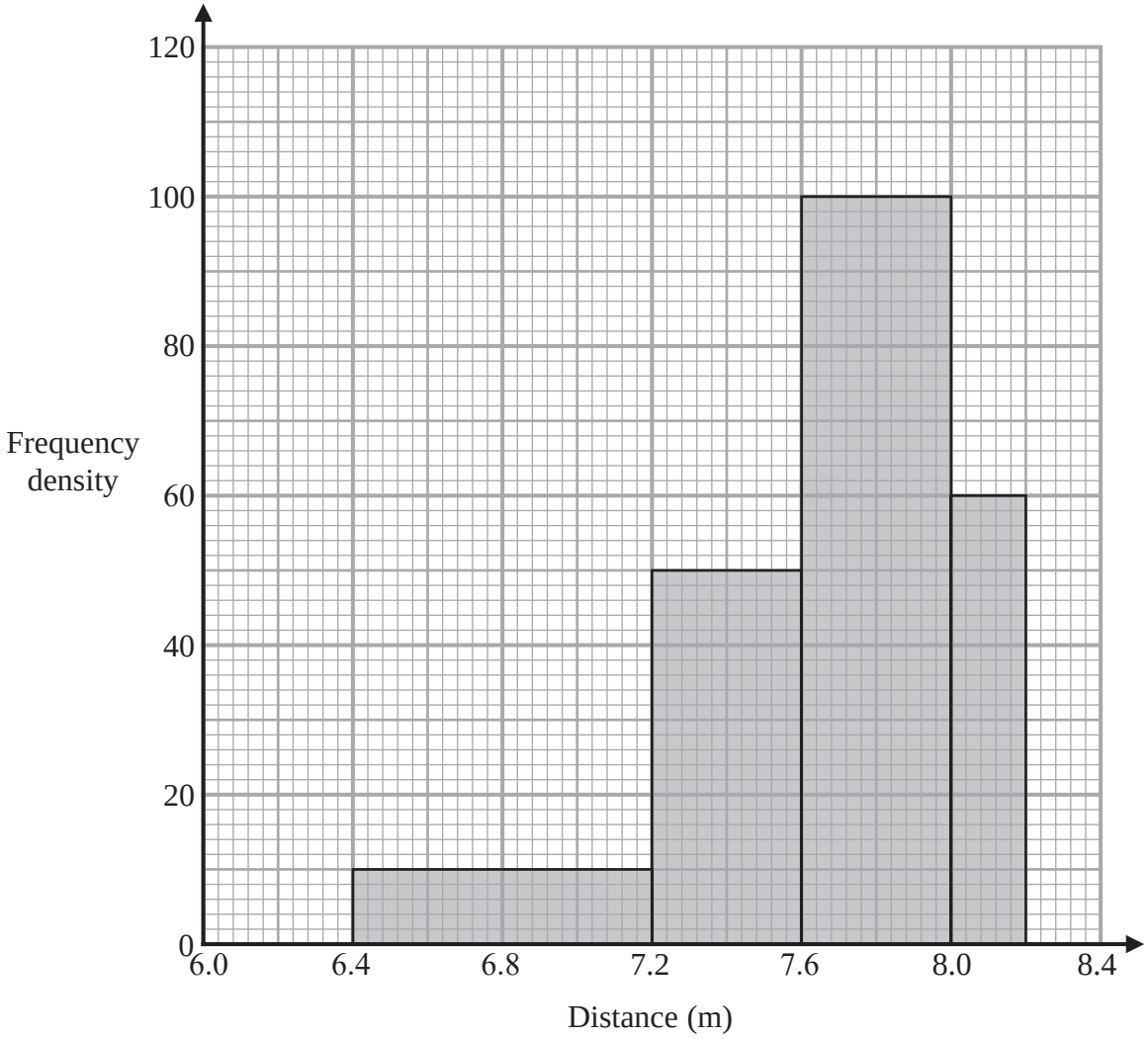


20% of the trees in the park have a height between 10 metres and 12.5 metres.
None of the trees in the park have a height greater than 25 metres.

Complete the histogram.

(Total for Question 18 is 3 marks)

17 The histogram gives information about the distances 80 competitors jumped in a long jump competition.



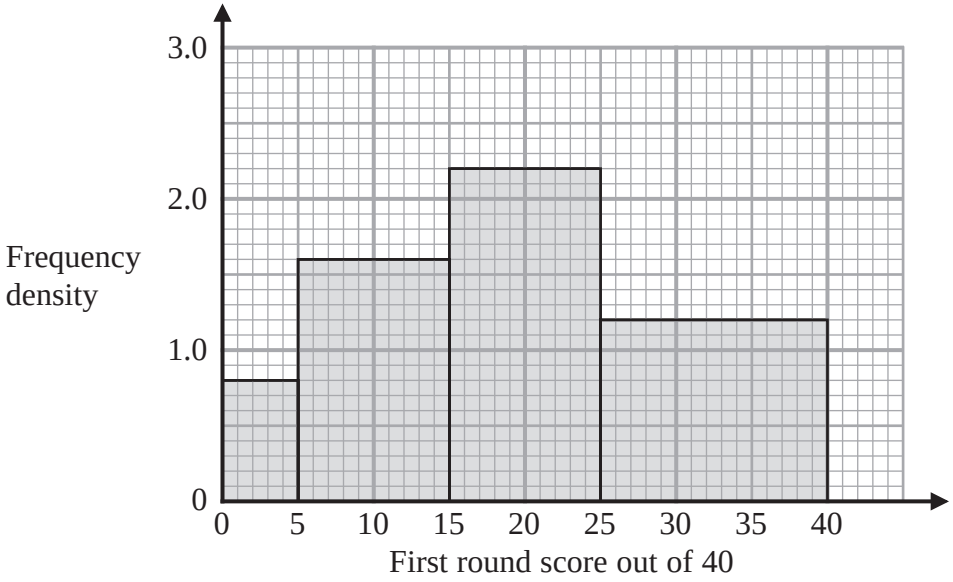
Calculate an estimate for the mean distance.

..... m

(Total for Question 17 is 4 marks)

17 Some people took part in the first round of a competition.

The histogram gives information about the scores of these people in the first round.



20% of the people got a score high enough for them to qualify for the second round.

Work out an estimate for the score needed to qualify for the second round.
You must show all your working.

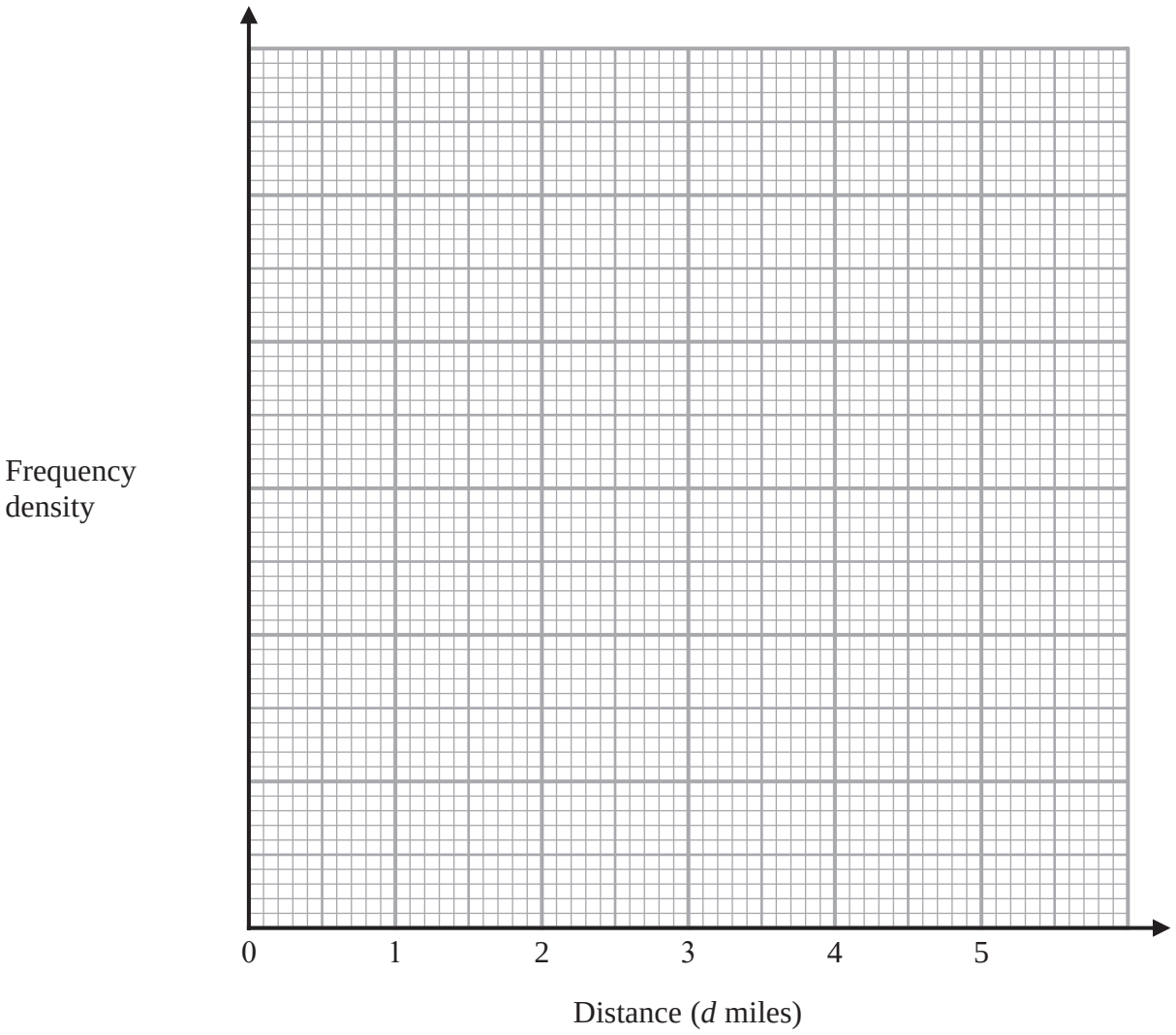
.....

(Total for Question 17 is 4 marks)

17 The table gives information about the distances, in miles, that some Year 10 students live from school.

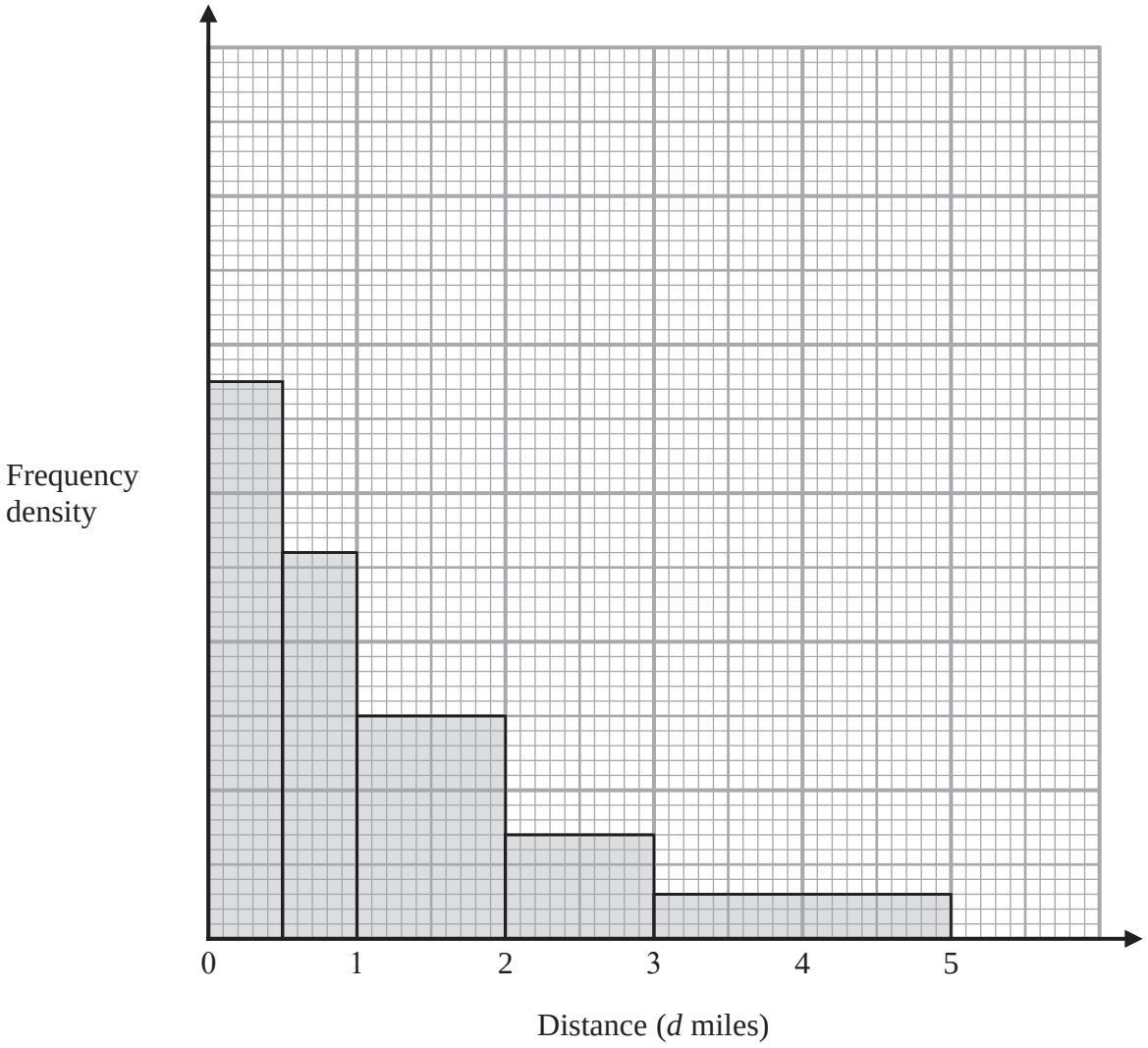
Distance (d miles)	Frequency
$0 < d \leqslant 1.0$	90
$1.0 < d \leqslant 1.5$	48
$1.5 < d \leqslant 2.0$	22
$2.0 < d \leqslant 3.0$	8
$3.0 < d \leqslant 5.0$	12

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



(3)

The histogram below shows information about the distances, in miles, that some Year 11 students live from school.



The number of Year 11 students who live between 1 and 2 miles from school is n.

(b) Find an expression, in terms of n, for the number of Year 11 students who live between 3 and 5 miles from school.

.....

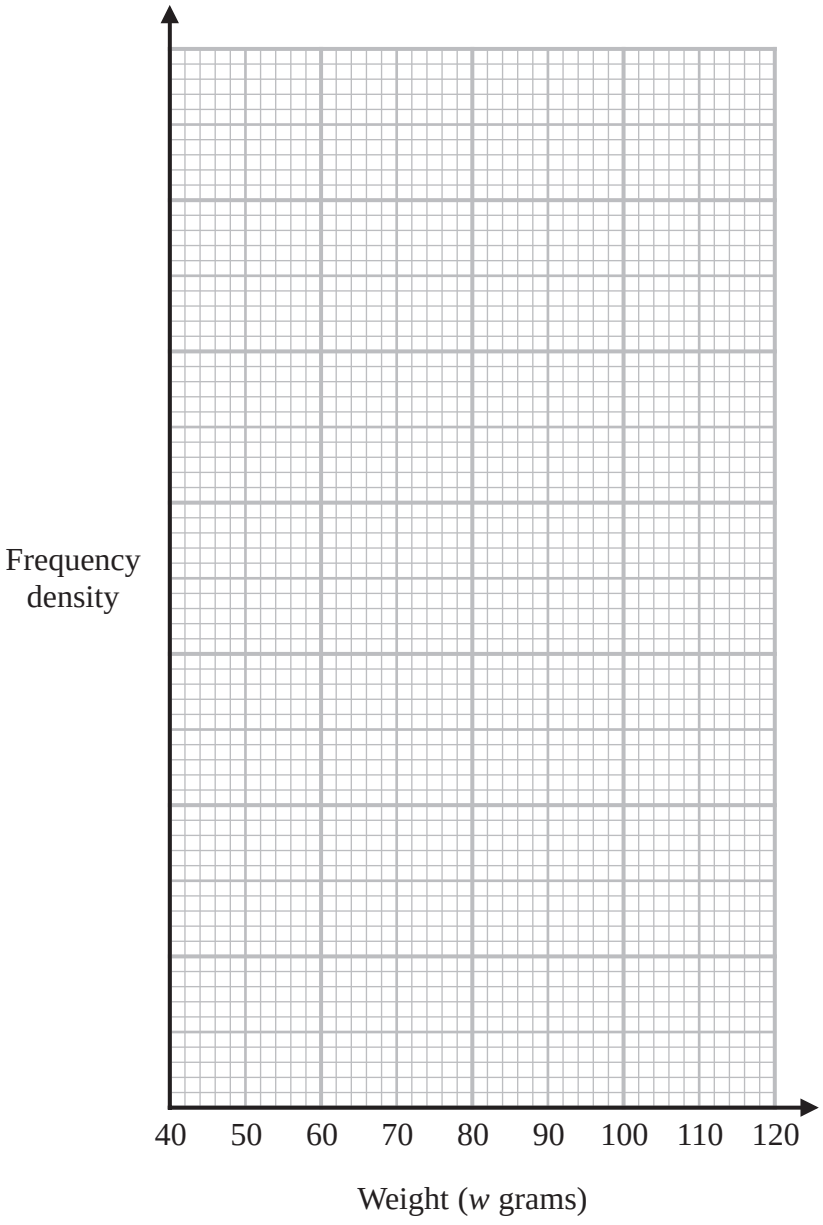
(2)

(Total for Question 17 is 5 marks)

14 The table shows information about the weights, in grams, of some potatoes.

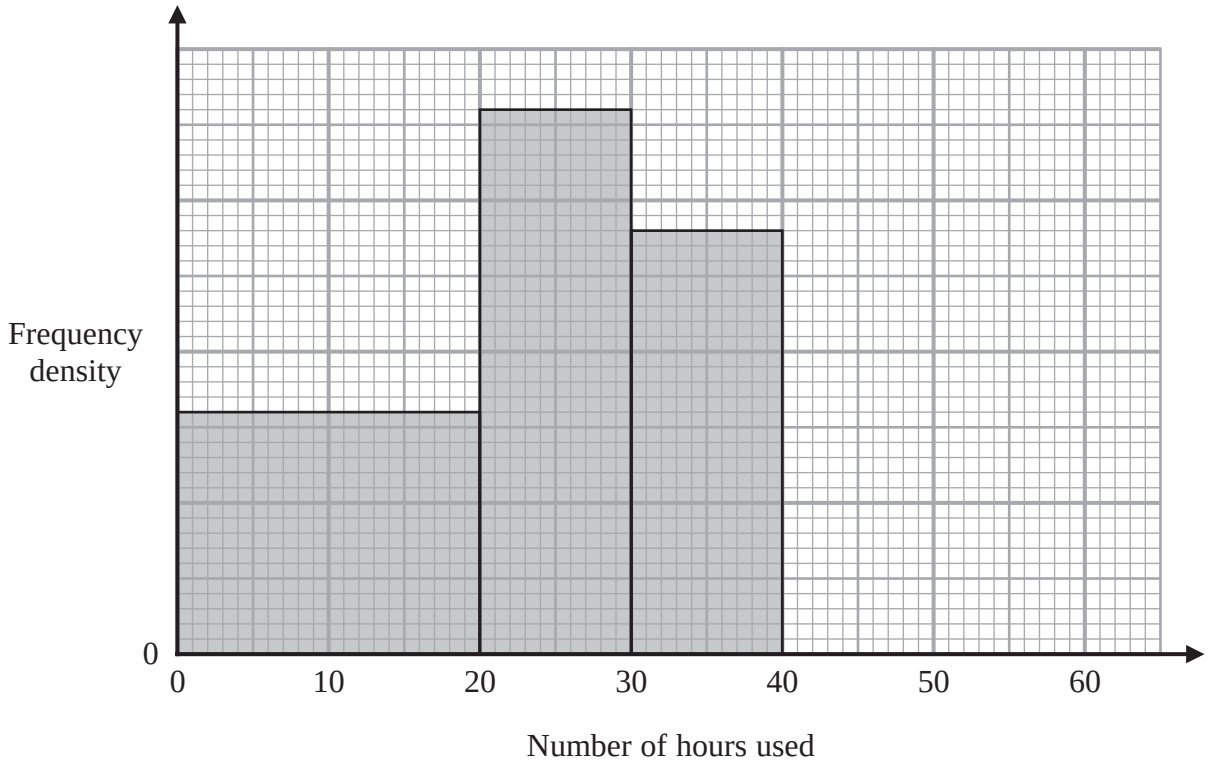
Weight (w grams)	Number of potatoes
$50 < w \leqslant 70$	20
$70 < w \leqslant 80$	50
$80 < w \leqslant 90$	60
$90 < w \leqslant 110$	30

On the grid, draw a histogram for this information.



(Total for Question 14 is 3 marks)

16 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.

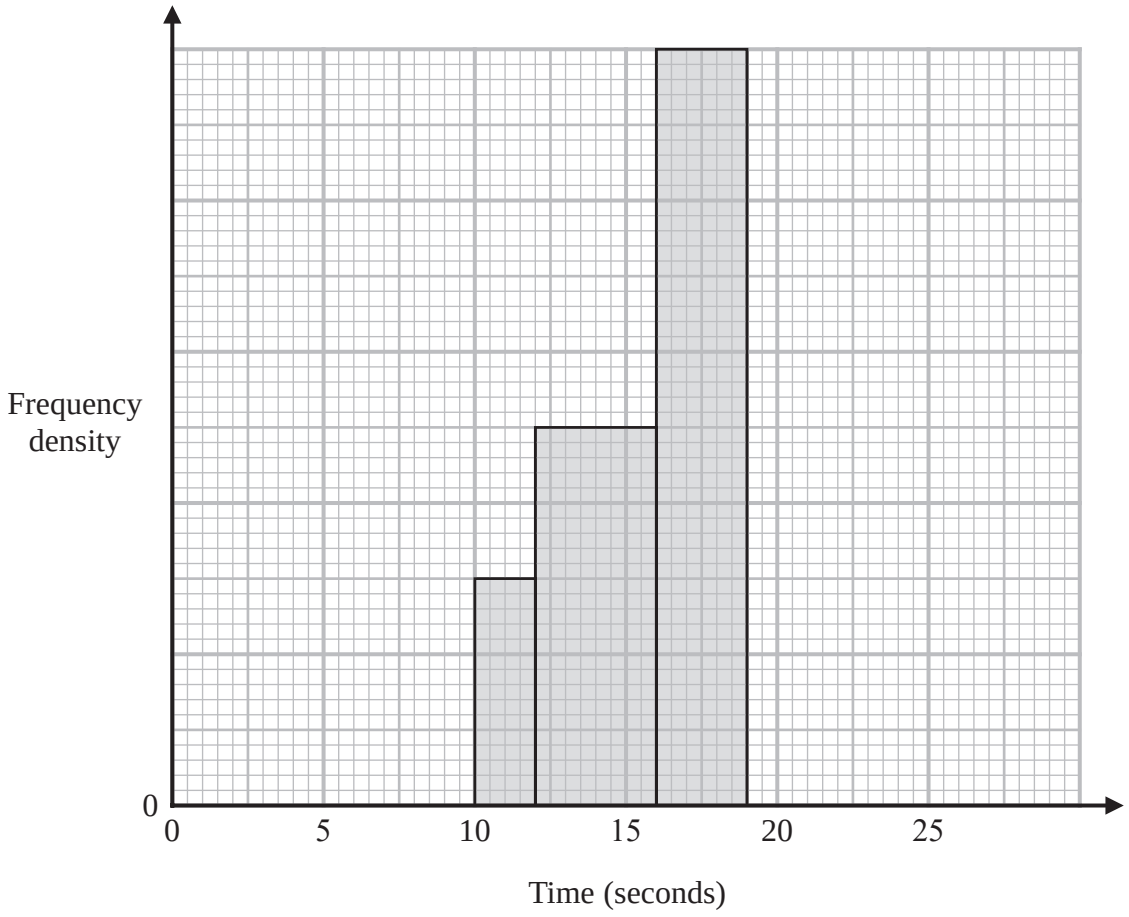
.....

(2)

(Total for Question 16 is 4 marks)

15 The incomplete table and the incomplete histogram give information about the times taken by some students to run a race.

Time (t seconds)	Frequency
$10 < t \leqslant 12$	
$12 < t \leqslant 16$	10
$16 < t \leqslant 19$	15
$19 < t \leqslant 21$	9
$21 < t \leqslant 26$	7



None of these students had a time for the race such that $t \leqslant 10$ or $t > 26$

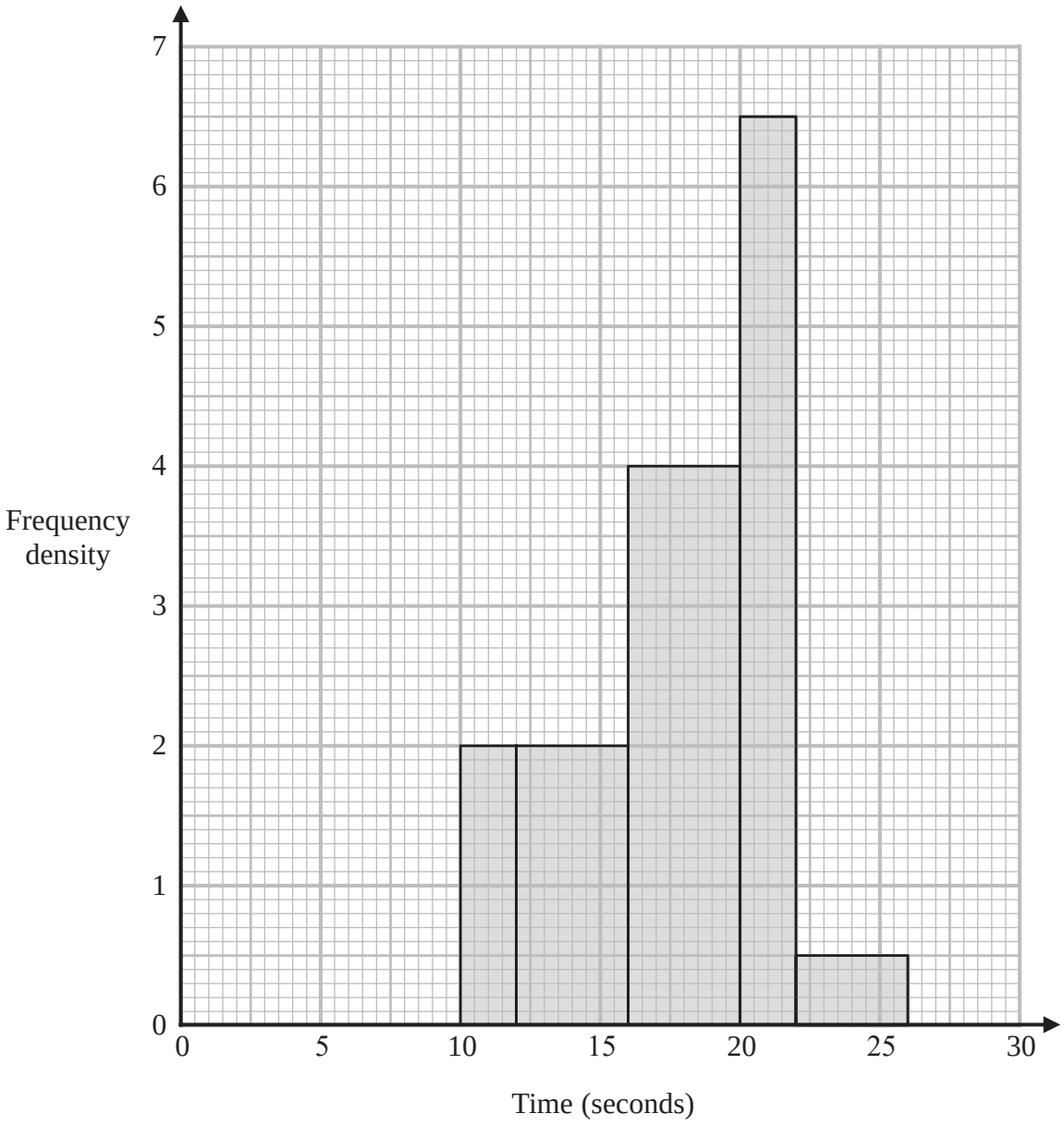
(a) Use the histogram to complete the table.

(1)

(b) Use the table to complete the histogram.

(2)

The histogram below gives information about the times taken by 43 students to run a different race.



(c) Work out an estimate for the median of the times taken by these 43 students to run the race.

..... seconds

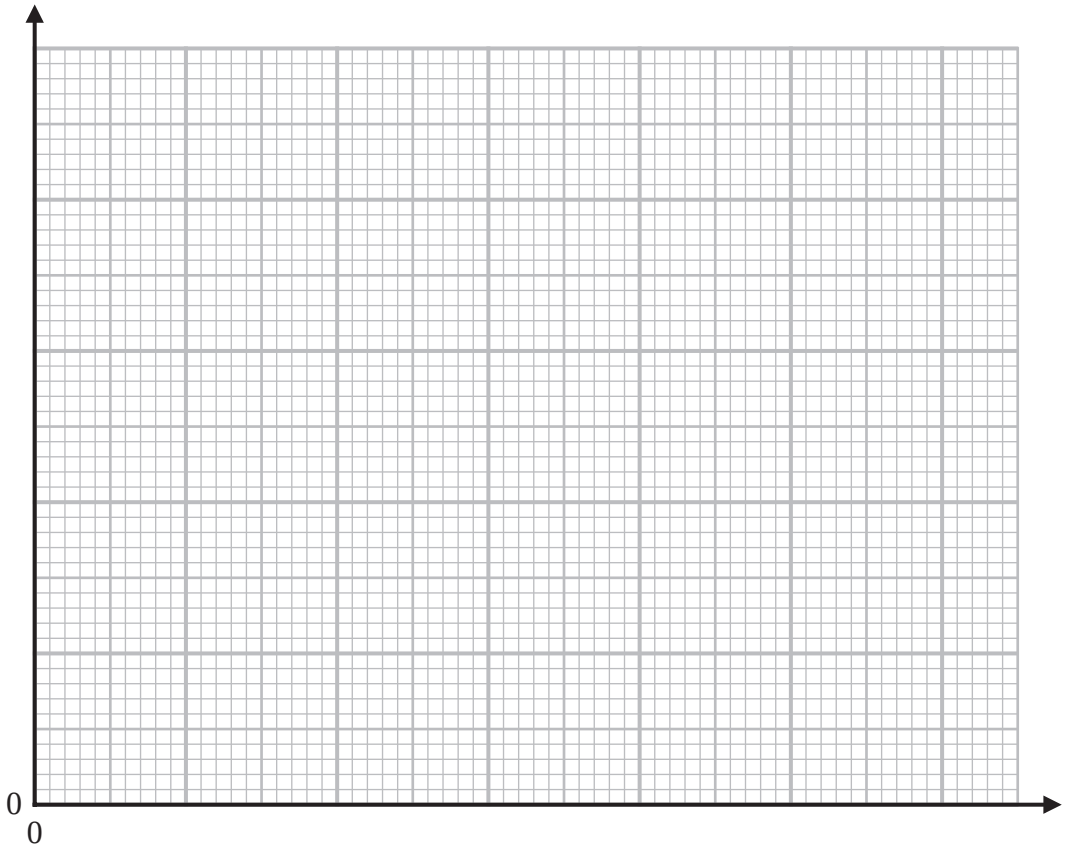
(3)

(Total for Question 15 is 6 marks)

13 The table gives information about the amount of time that each of 150 people were in a shop.

Time (t minutes)	Frequency
$0 < t \leqslant 10$	20
$10 < t \leqslant 30$	70
$30 < t \leqslant 35$	22
$35 < t \leqslant 50$	30
$50 < t \leqslant 60$	8

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



(3)

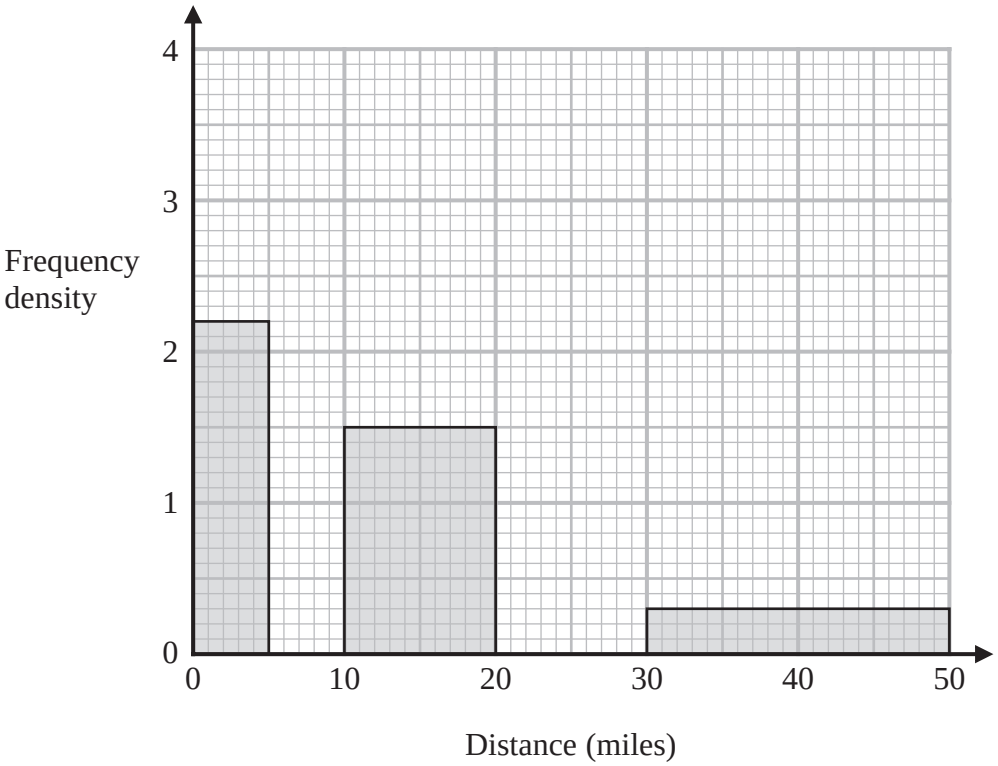
(b) Work out an estimate for the fraction of these 150 people who were in the shop for between 20 minutes and 40 minutes.

.....

(2)

(Total for Question 13 is 5 marks)

16 The histogram gives information about the distances that 60 teachers travelled to school on Monday.
The histogram is incomplete.



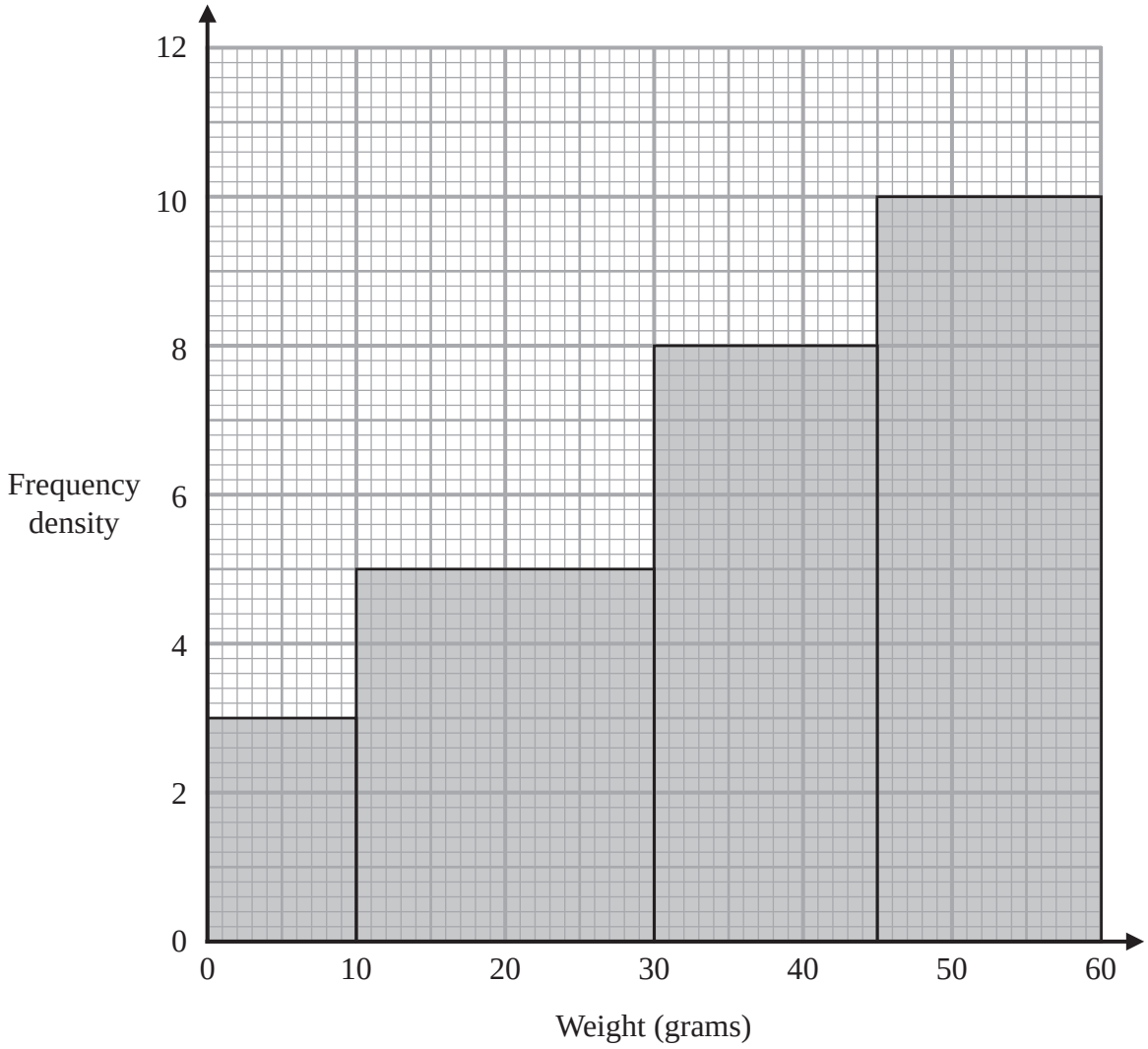
11 of the teachers travelled between 0 miles and 5 miles.
None of the teachers travelled a distance greater than 50 miles.

The number of teachers who travelled between 5 miles and 10 miles is the same as the number of teachers who travelled between 20 miles and 30 miles.

Complete the histogram.

(Total for Question 16 is 4 marks)

15 The histogram gives information about the weights, in grams, of some biscuits.



One of these biscuits is taken at random.

Work out an estimate for the probability that the biscuit will have a weight between 20 grams and 40 grams.

.....

(Total for Question 15 is 4 marks)