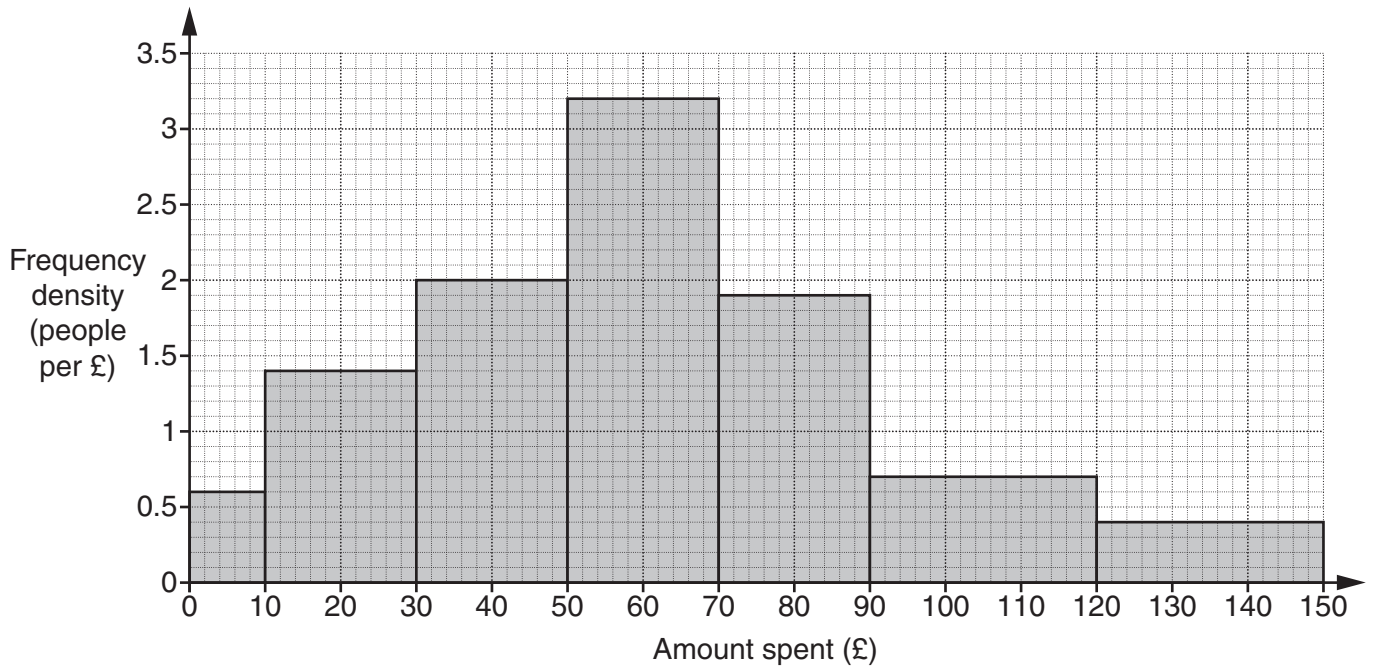


1 This histogram shows the distribution of the amounts spent on fuel at a petrol station one day.



(a) Estimate how many people spent over £100.

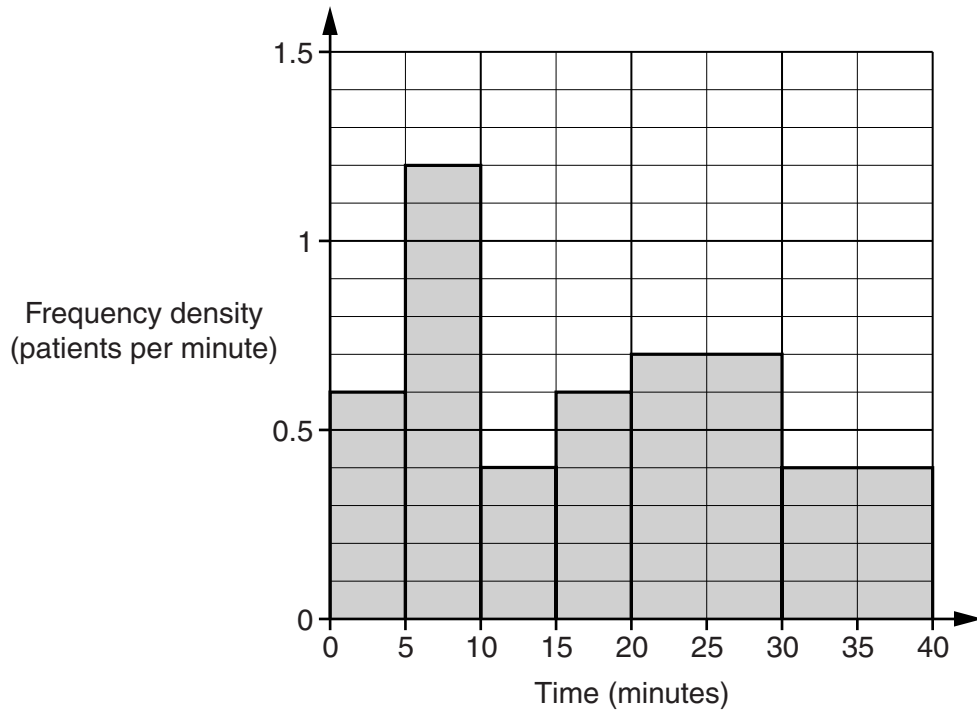
(a) [2]

- (b) Complete the frequency table and use it to calculate an estimate of the mean amount spent on fuel at the petrol station that day.

Amount spent (£ a)	Frequency
$0 < a \leq 10$	6
$10 < a \leq 30$	28
$30 < a \leq 50$	
$50 < a \leq 70$	
$70 < a \leq 90$	
$90 < a \leq 120$	
$120 < a \leq 150$	

(b) £ [5]

- 2 This histogram summarises the times that 25 patients waited before their appointment at a dental surgery one day.



- (a) How many patients waited between 20 and 30 minutes?

(a) _____ [1]

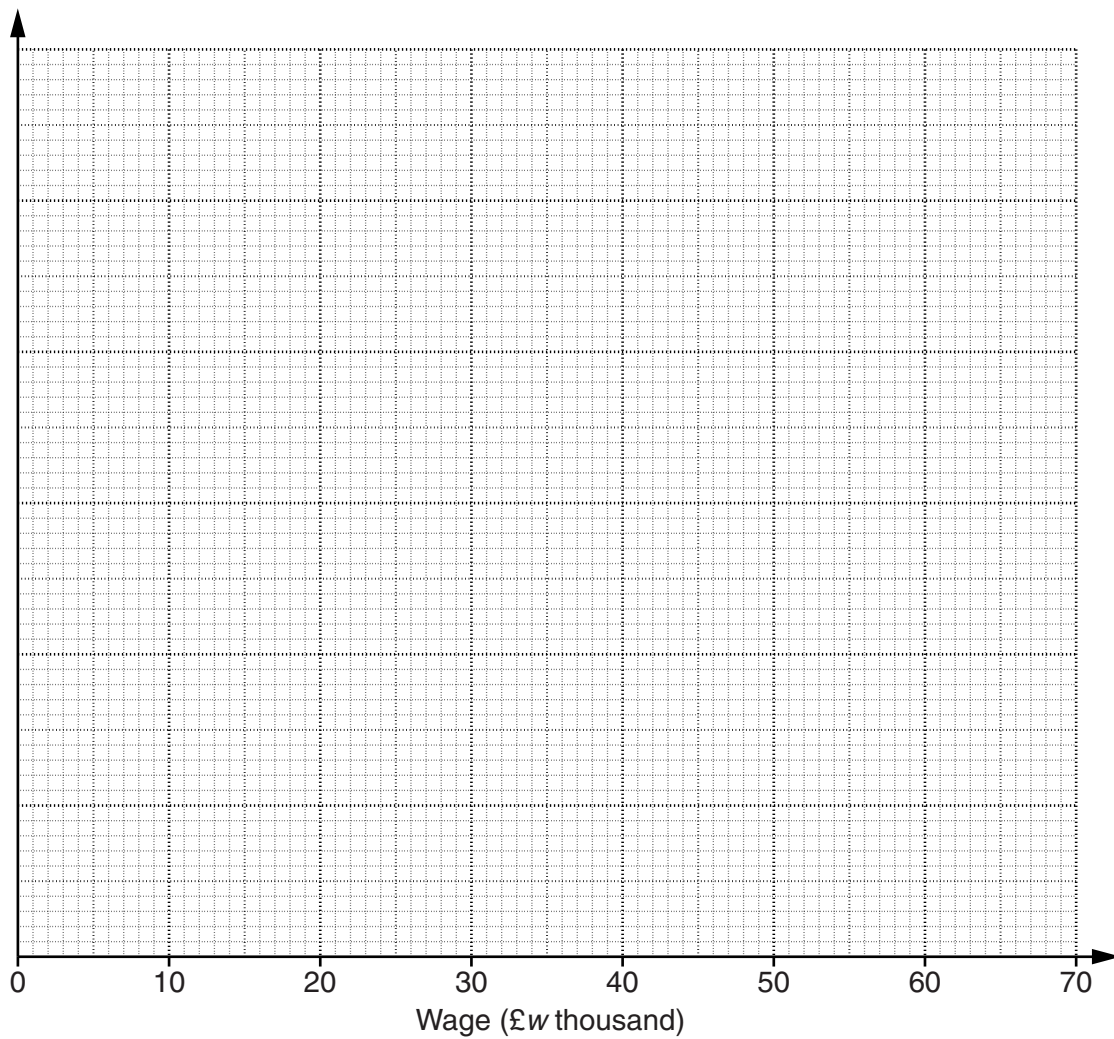
- (b) Calculate an estimate of the **median** waiting time.
Show your method.

(b) _____ minutes [2]

3 This table summarises the wages of employees at a company.

Wage (£ w thousand)	Frequency
$10 < w \leq 15$	5
$15 < w \leq 20$	8
$20 < w \leq 30$	20
$30 < w \leq 40$	22
$40 < w \leq 50$	16
$50 < w \leq 70$	4

Construct a histogram to represent this distribution.



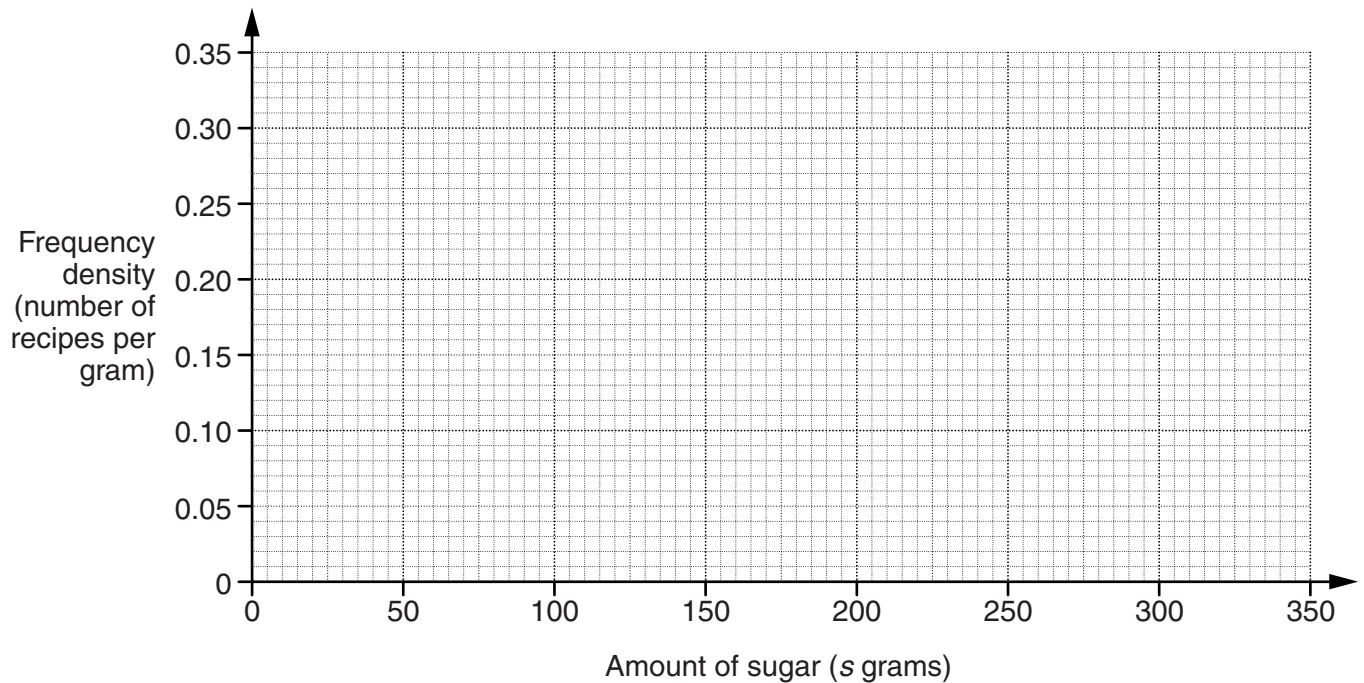
[4]

4 Sita recorded the amount of sugar and fat in each of 50 cake recipes.

(a) This table summarises her results for the amount of sugar in each recipe.

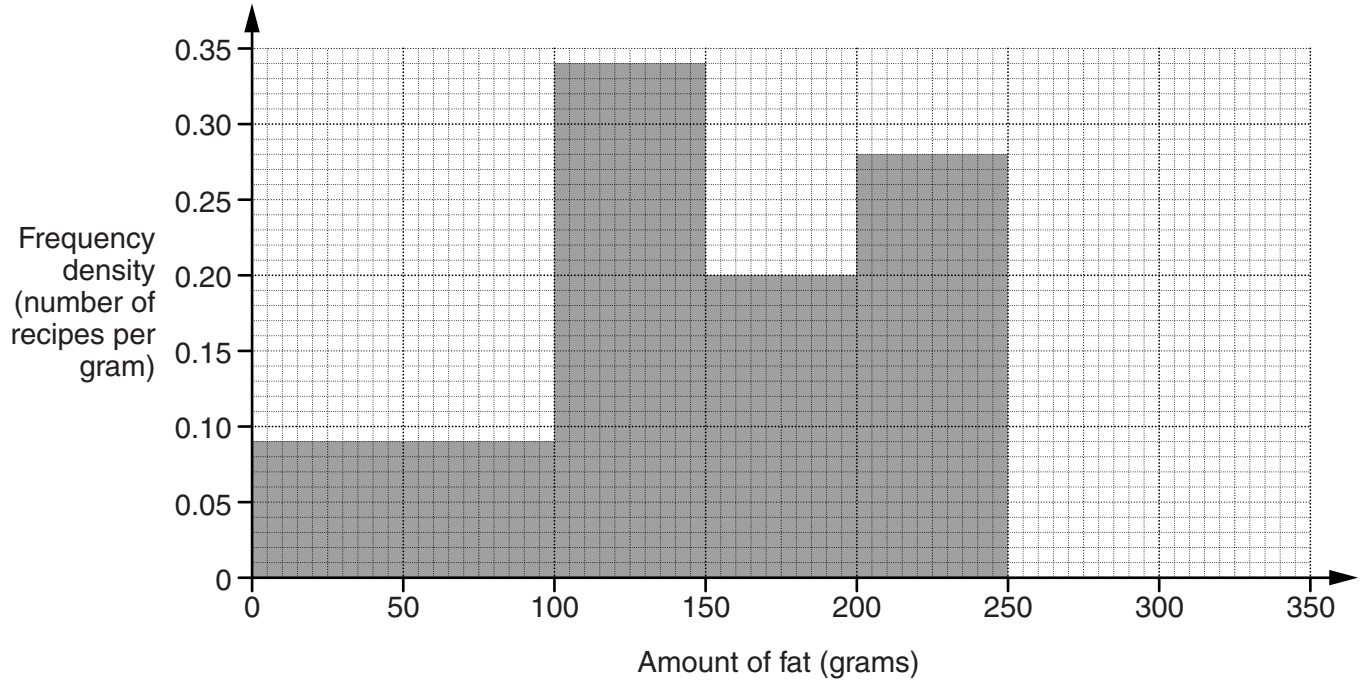
Amount of sugar (s grams)	Frequency
$0 \leq s < 100$	10
$100 \leq s < 150$	15
$150 \leq s < 200$	10
$200 \leq s < 250$	14
$250 \leq s < 350$	1

Draw a histogram to represent this information.



[3]

(b) This histogram summarises her results for the amount of fat in each recipe.



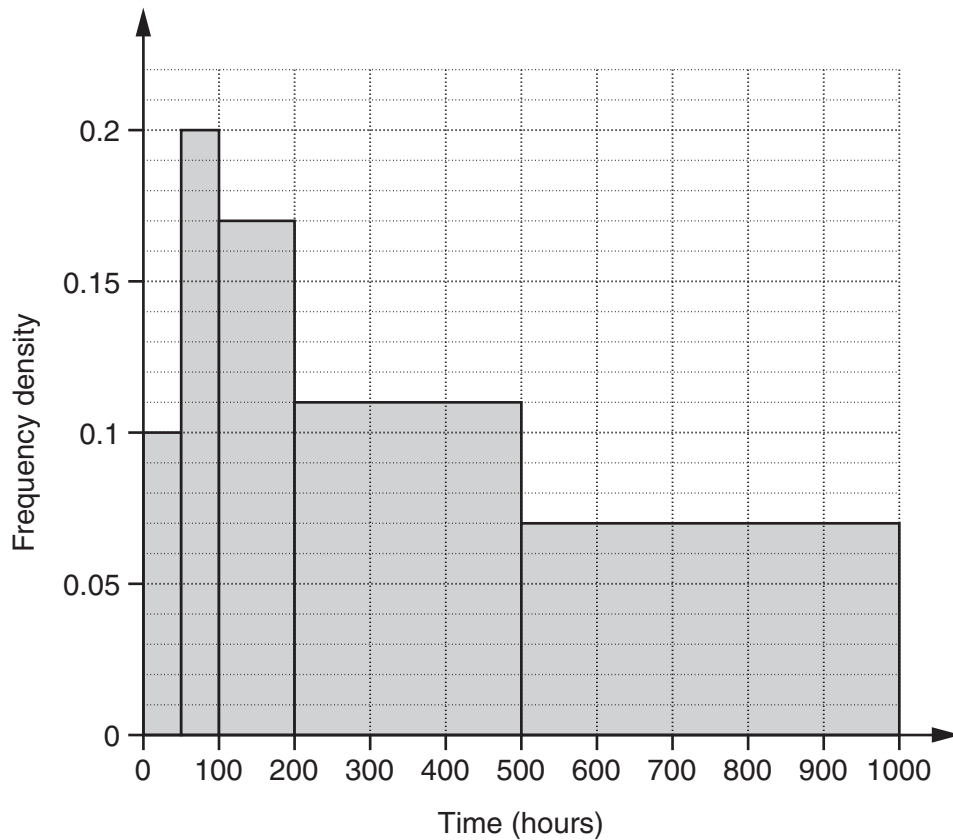
(i) What does the histogram show about the amount of fat in the recipe containing the most fat?

_____ [1]

(ii) How many recipes contained less than 100 g of fat?

(b)(ii) _____ [1]

- 5 Some light bulbs were tested to see how long they lasted.
This histogram summarises the results for a sample of 100 light bulbs of one type.



The company which makes the light bulbs claims that the mean length of time the light bulbs last is over 400 hours.

- (a) Complete the frequency distribution, and then use calculations to show that this sample meets the company's claim.

Time (t hours)	Frequency
$0 \leq t < 50$	5
$50 \leq t < 100$	
$100 \leq t < 200$	

- (b) Explain why calculations using information about each of the individual light bulbs may show that the sample does not meet the company's claim.

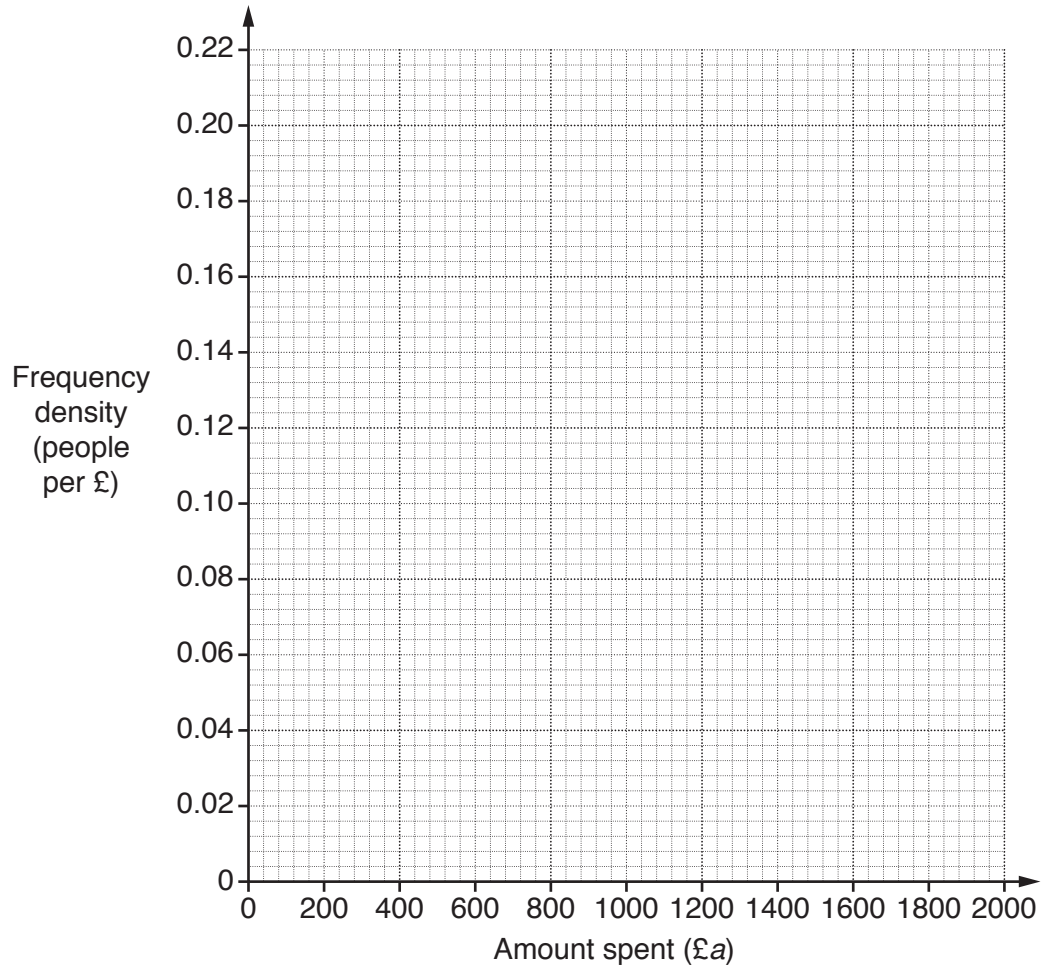
[1]

6 A travel agent did a survey about the amount spent per person on a week's holiday.

(a) This table summarises the amount spent on travel and accommodation.

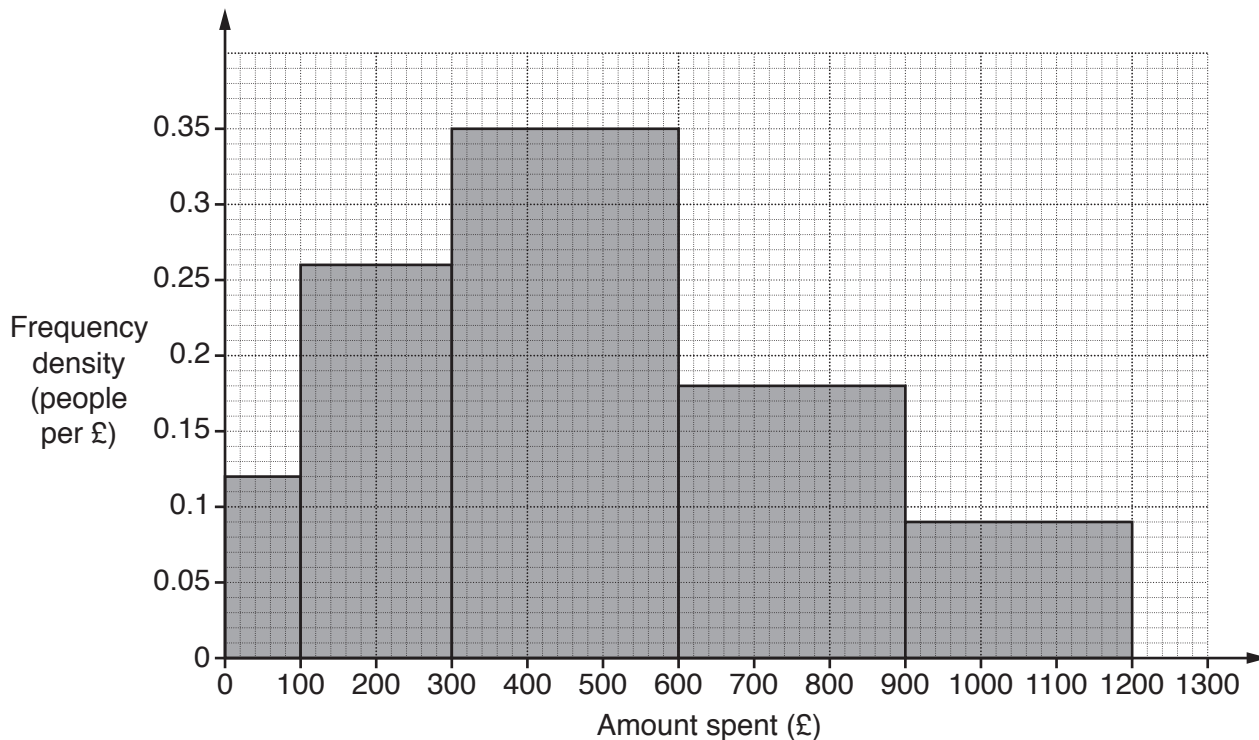
Amount spent (£ a)	Frequency
$0 \leq a \leq 100$	12
$100 < a \leq 300$	40
$300 < a \leq 500$	36
$500 < a \leq 1000$	86
$1000 < a \leq 1500$	66
$1500 < a \leq 2000$	10

Draw a histogram to represent this information.



[3]

(b) This histogram represents the amount spent on food, drink and entertainment.



How many people spent from £600 to £900 on food, drink and entertainment?

(b) [1]

(c) The travel agent totalled the amounts spent by each person on travel and accommodation and on food, drink and entertainment to work out their total spending on a holiday. The travel agent said

The person who spent most on their holiday spent £3100 altogether.

Explain how this is possible, given the data in parts (a) and (b).

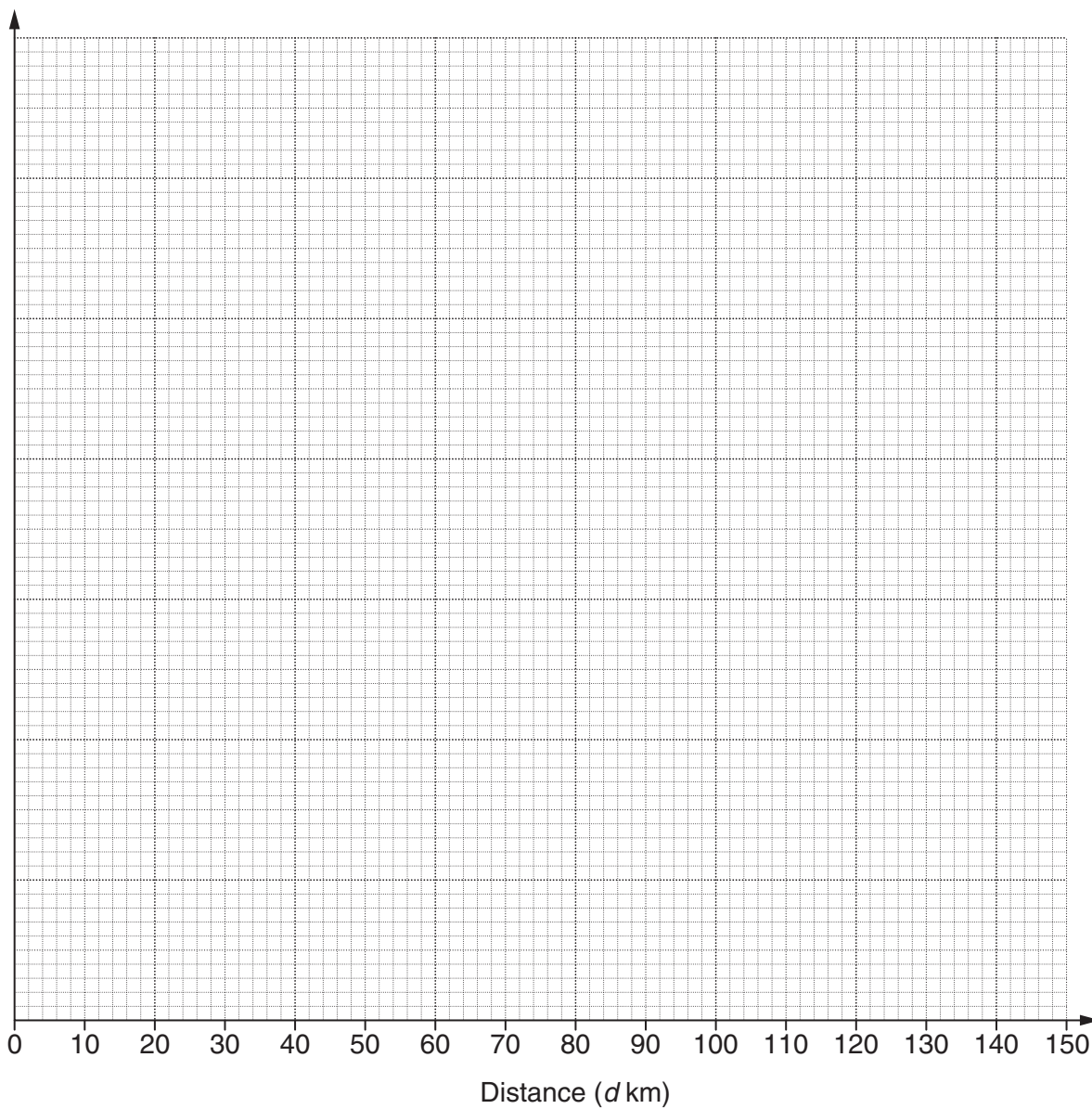
.....

 [1]

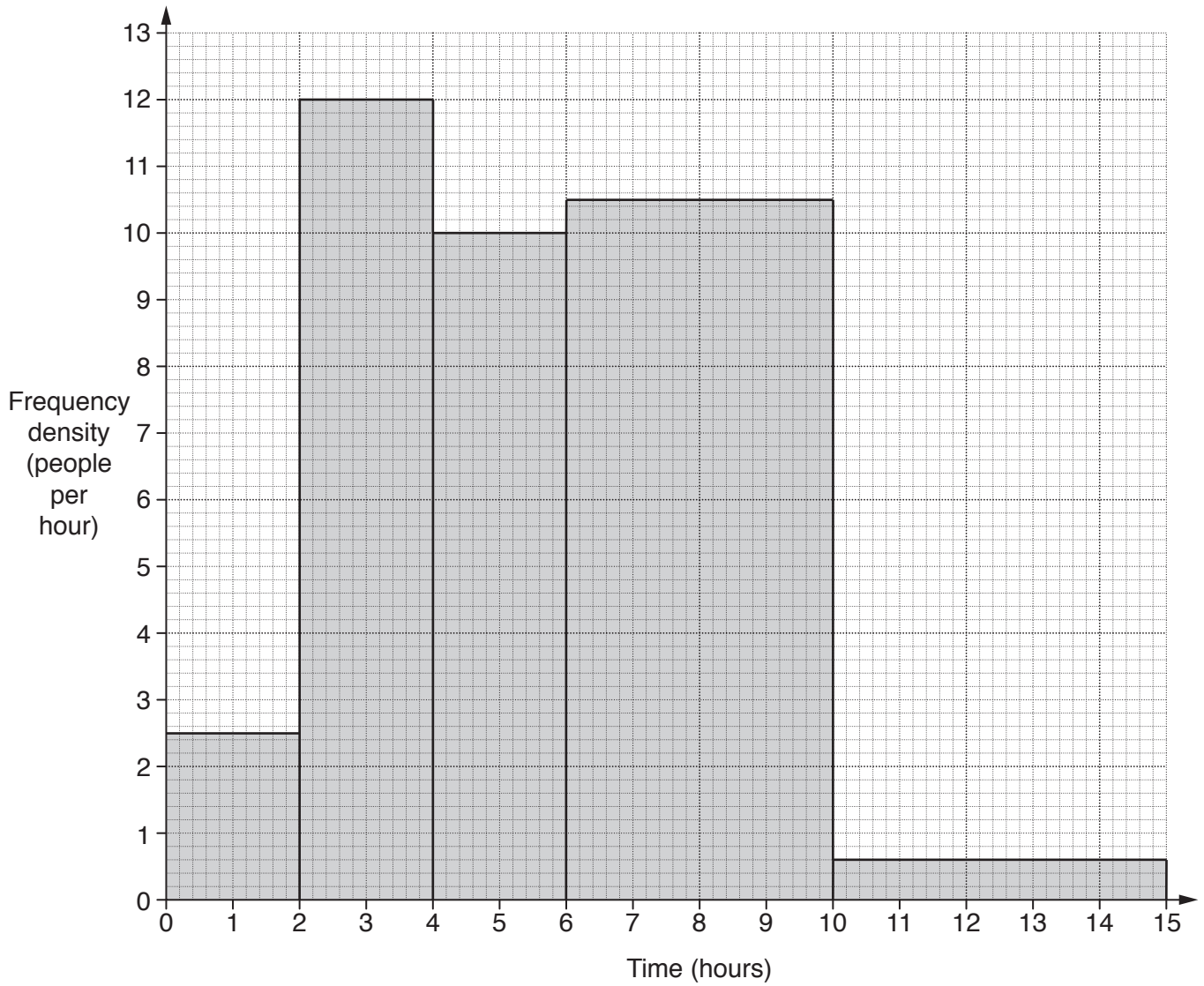
- 7 (a) This table summarises the distances cycled by members of a cycling group during one weekend.

Distance (d km)	Frequency
$10 \leq d < 20$	4
$20 \leq d < 30$	7
$30 \leq d < 50$	25
$50 \leq d < 100$	40
$100 \leq d < 150$	18

Draw a histogram to represent this information.



(b) This histogram represents the times spent cycling by the members of the group that weekend.



(i) How many of the group cycled for 10 hours or more that weekend?

(b)(i) [1]

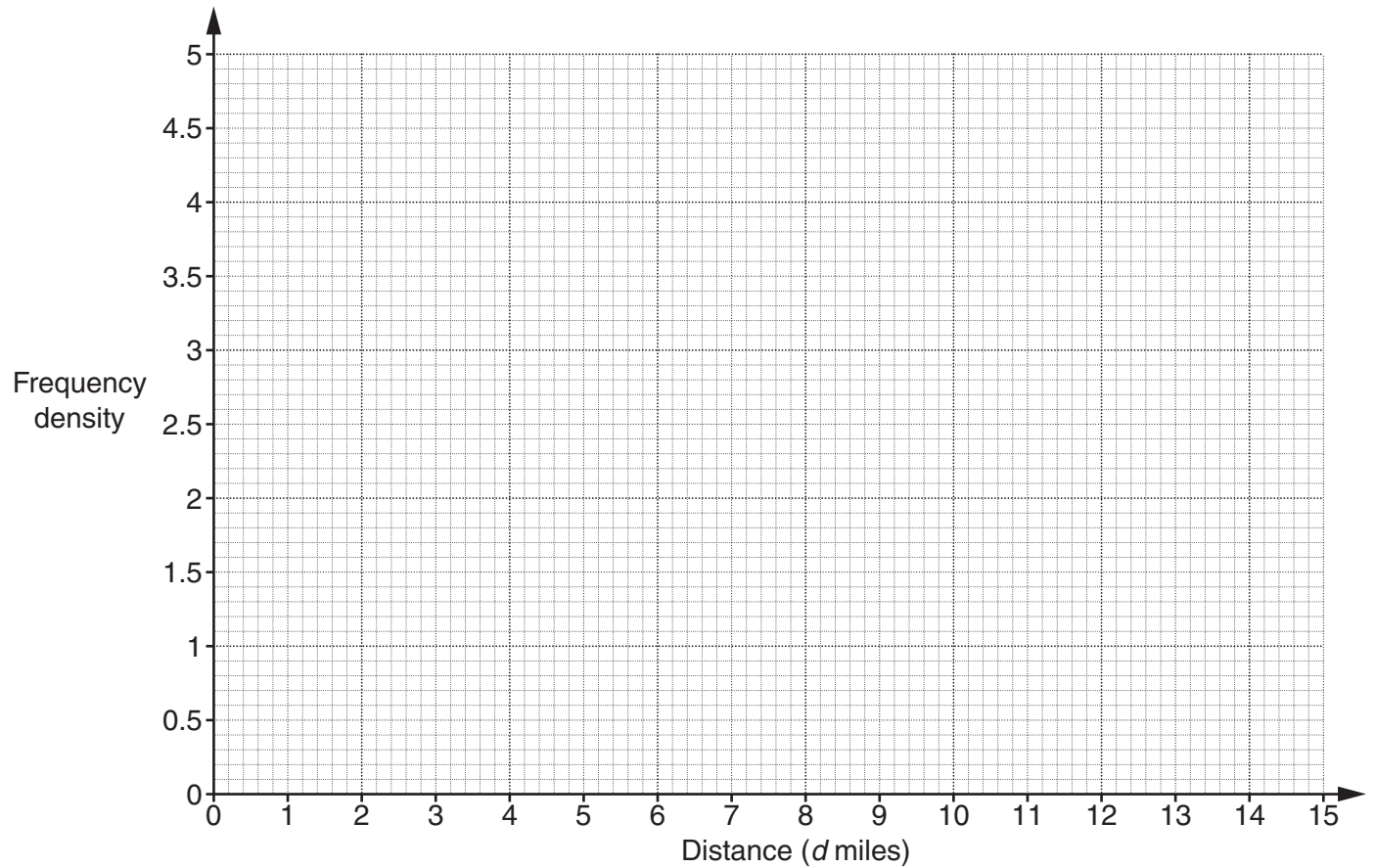
(ii) What can you tell from the histogram about the shortest time spent cycling?

..... [1]

- 8 Anouk asked some people how far they had walked the previous day. This table summarises the responses.

Distance (d miles)	Frequency
$0 \leq d < 1$	3
$1 \leq d < 3$	8
$3 \leq d < 5$	10
$5 \leq d < 10$	5
$10 \leq d < 15$	2

Construct a histogram to represent this information.

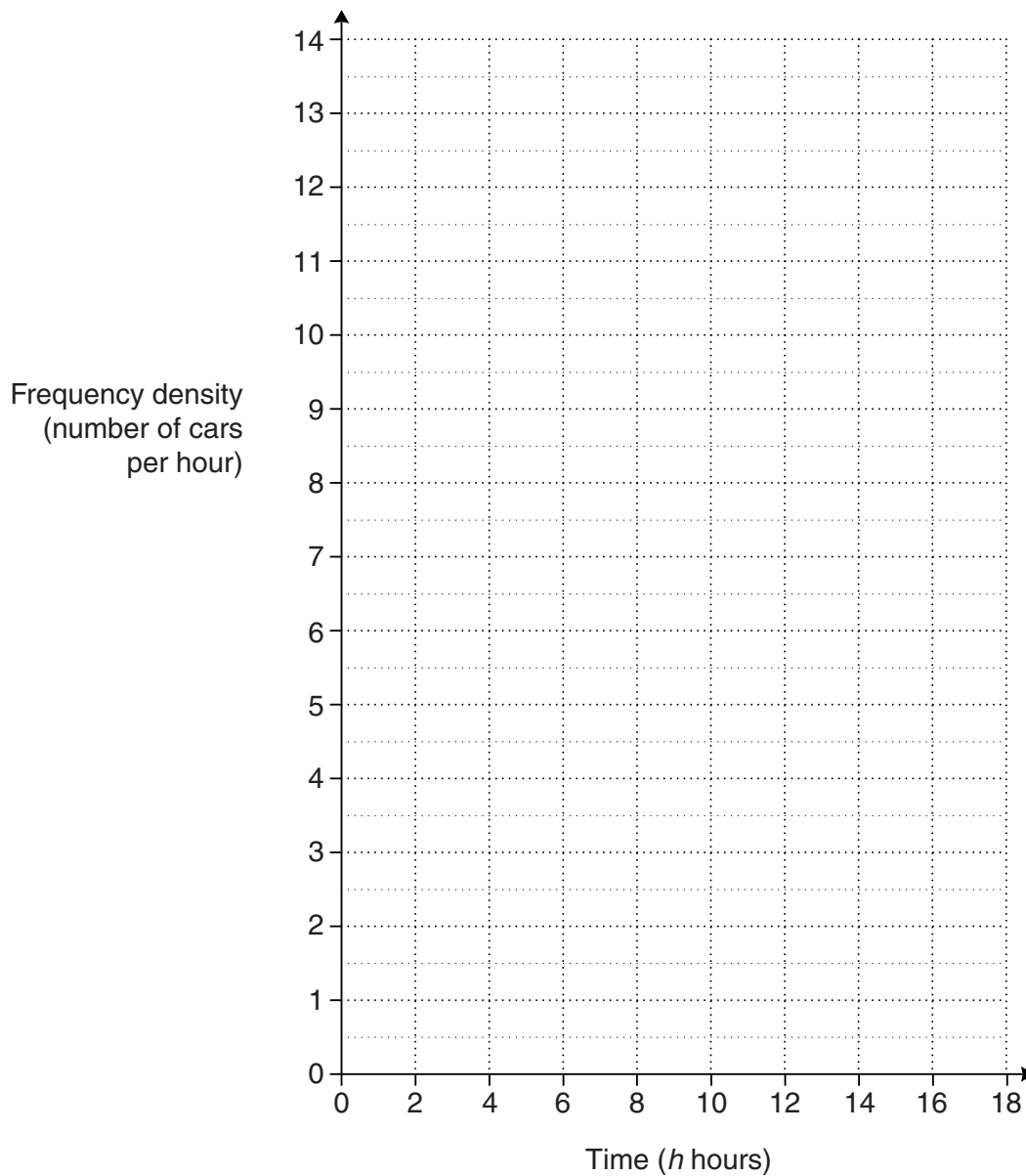


[3]

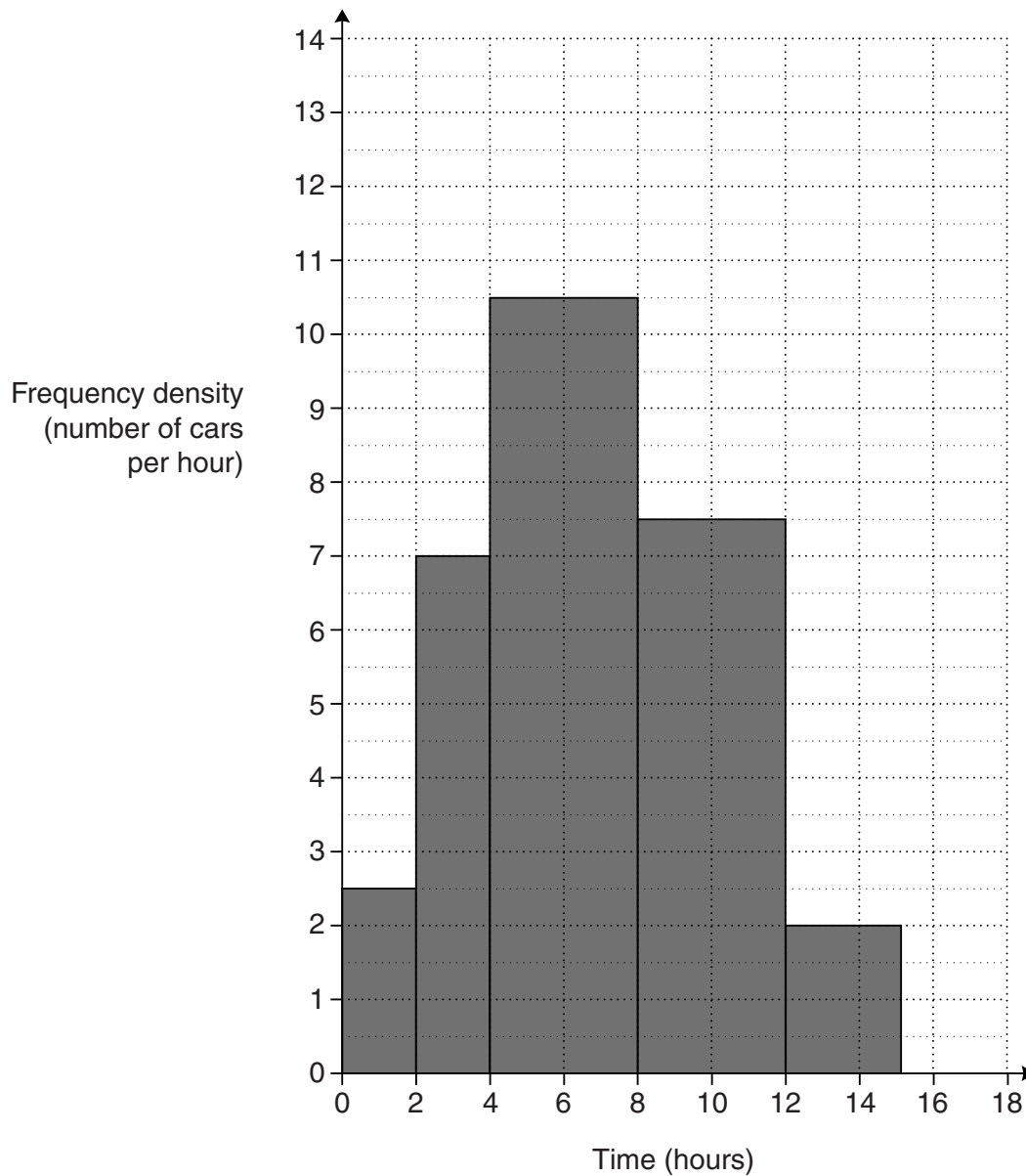
- 9 (a) This table summarises the lengths of time that cars were parked in Ayton station car park one day.

Time (h hours)	Frequency
$0 < h \leq 2$	7
$2 < h \leq 4$	12
$4 < h \leq 8$	36
$8 < h \leq 12$	54
$12 < h \leq 18$	15

Draw a histogram to represent this information.



(b) This histogram represents the lengths of time that cars were parked in Beeton station car park that day.



Make two comparisons between these distributions of times spent in Ayton and Beeton car parks.

1 _____

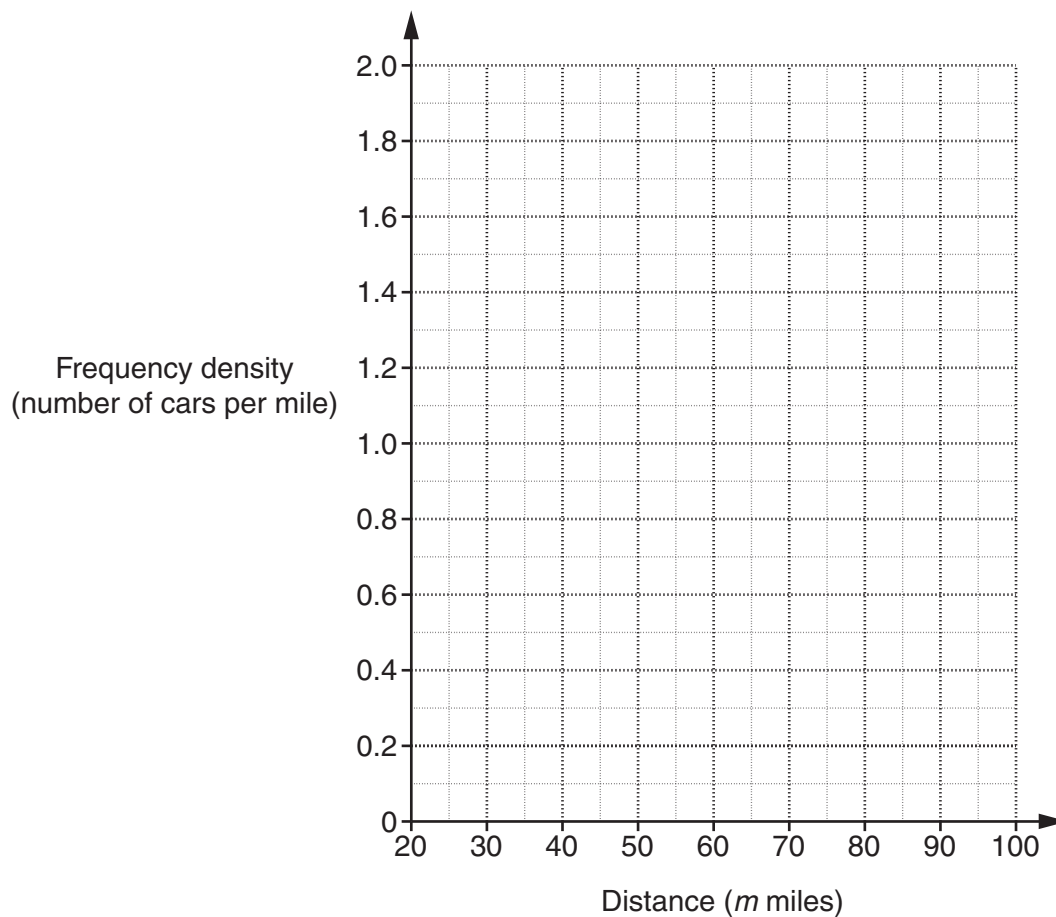
2 _____

[2]

10 The table summarises the distance, in miles, travelled on one gallon of fuel for 50 different cars.

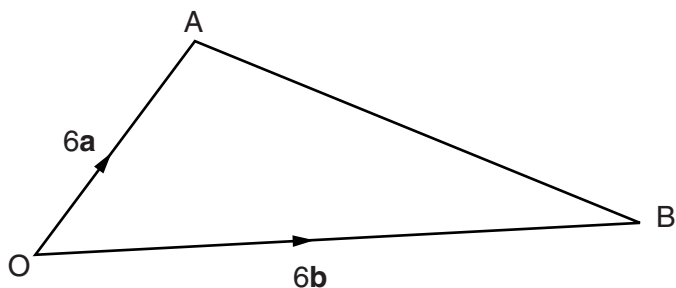
Distance (m miles)	Frequency
$20 \leq m < 30$	7
$30 \leq m < 40$	16
$40 \leq m < 45$	10
$45 \leq m < 50$	5
$50 \leq m < 70$	6
$70 \leq m < 100$	6

Draw a histogram to represent this information.



[3]

- 11 In triangle OAB, $\vec{OA} = 6\mathbf{a}$ and $\vec{OB} = 6\mathbf{b}$.
M is the midpoint of OB and N is the midpoint of AB.



In this question give your answers in their simplest form in terms of \mathbf{a} and \mathbf{b} .

- (a) Find \vec{AB} .

(a) _____ [1]

- (b) Find \vec{ON} .

(b) _____ [2]

G is a point on AM such that $AG = \frac{2}{3} AM$.

- (c) (i) Find \vec{AM} .

(c)(i) _____ [1]

- (ii) Find \vec{OG} .

(ii) _____ [2]

- (d) What do your answers tell you about the points O, G and N?

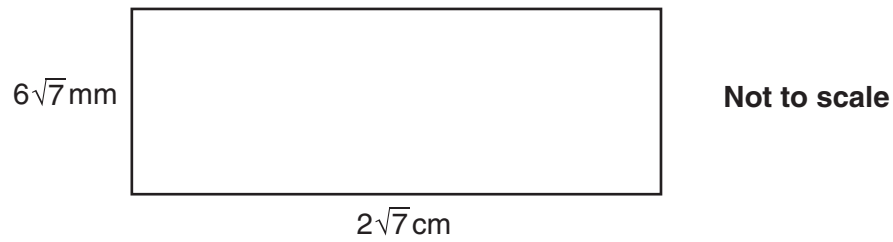
_____ [1]

12 (a) Simplify.

$$(3 - \sqrt{5})(2 + \sqrt{5})$$

(a) _____ [3]

(b) Find the area of this rectangle.
Give the units of your answer.



(b) _____ [3]