

# Histograms Topic Test

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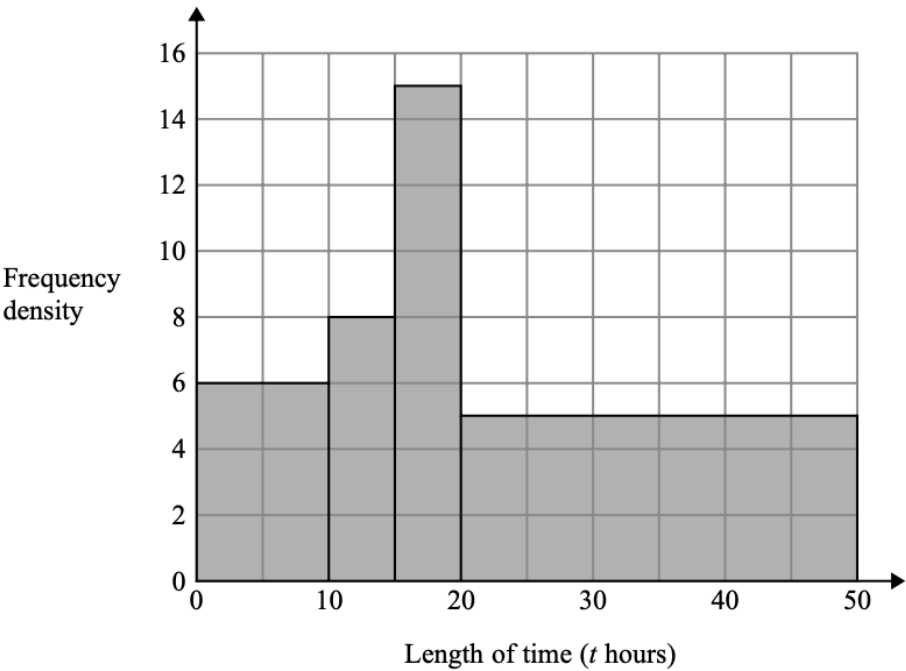
Questions in past papers often come up combined with other topics.  
Topic tags have been given for each question to enable you to know if you can do the question or whether you need to wait to cover the additional topic(s).

Scan the QR code(s) or click the link for instant detailed model solutions!

22 Bhavna recorded the lengths of time, in hours, that some adults watched TV last week.  
The table shows information about her 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

Bhavna made some mistakes when she drew a histogram for this information.



Write down **two** mistakes Bhavna made.

- 1 .....
- 2 .....

(Total for Question 22 is 2 marks)



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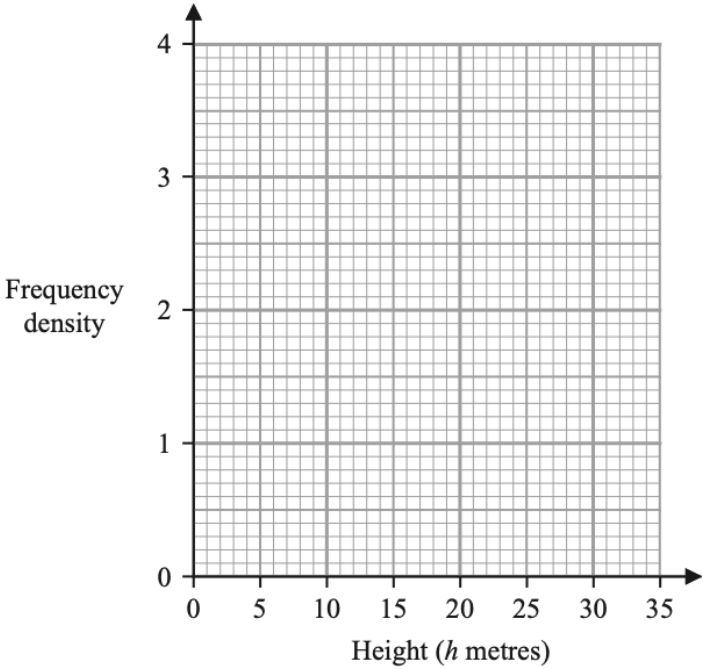


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16 The table gives information about the heights, in metres, of the trees in a park.

Height ( $h$ metres)	Frequency
$0 < h \leq 2$	5
$2 < h \leq 5$	12
$5 < h \leq 10$	18
$10 < h \leq 20$	14
$20 < h \leq 35$	9

On the grid, draw a histogram for this information.



(Total for Question 16 is 3 marks)



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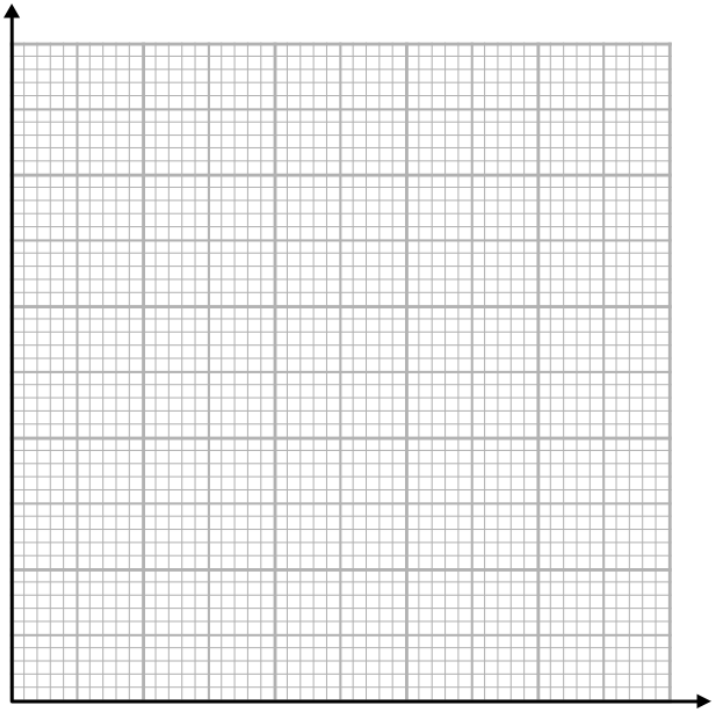


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14 The table gives information about the speeds, in km/h, of 81 cars.

Speed ( $s$ km/h)	Frequency
$90 < s \leq 100$	13
$100 < s \leq 105$	16
$105 < s \leq 110$	18
$110 < s \leq 120$	22
$120 < s \leq 140$	12

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



(3)

(b) Find an estimate for the median.

..... km/h

(2)

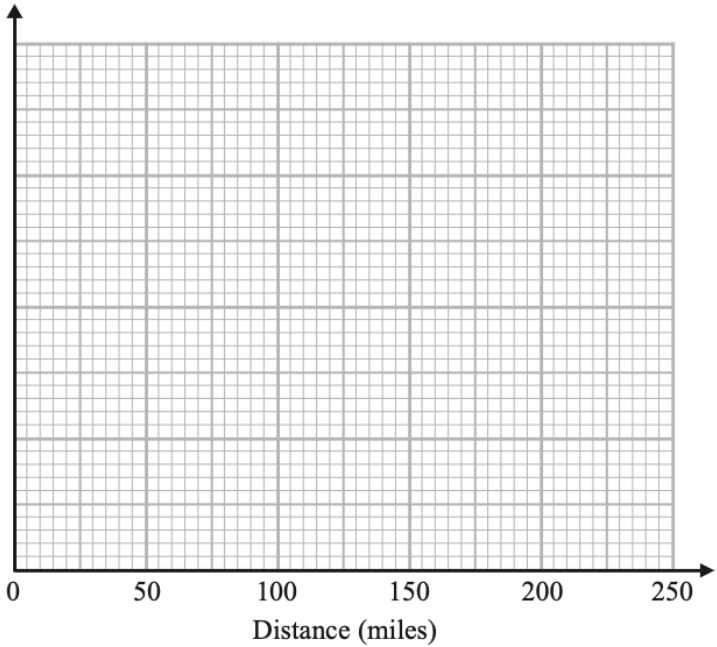
(Total for Question 14 is 5 marks)



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

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



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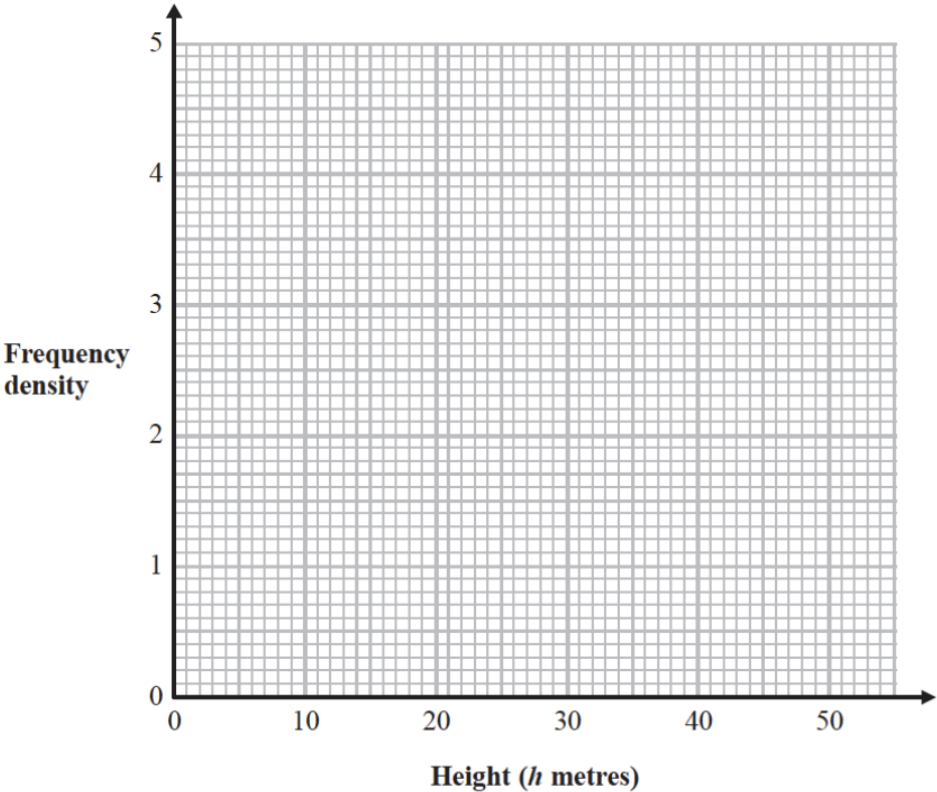


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19 The table gives information about the heights of some trees.

Height ( $h$ metres)	Frequency
$0 < h \leq 20$	15
$20 < h \leq 35$	48
$35 < h \leq 40$	21
$40 < h \leq 50$	16

On the grid, draw a histogram for this information.



(Total for Question 19 is 3 marks)



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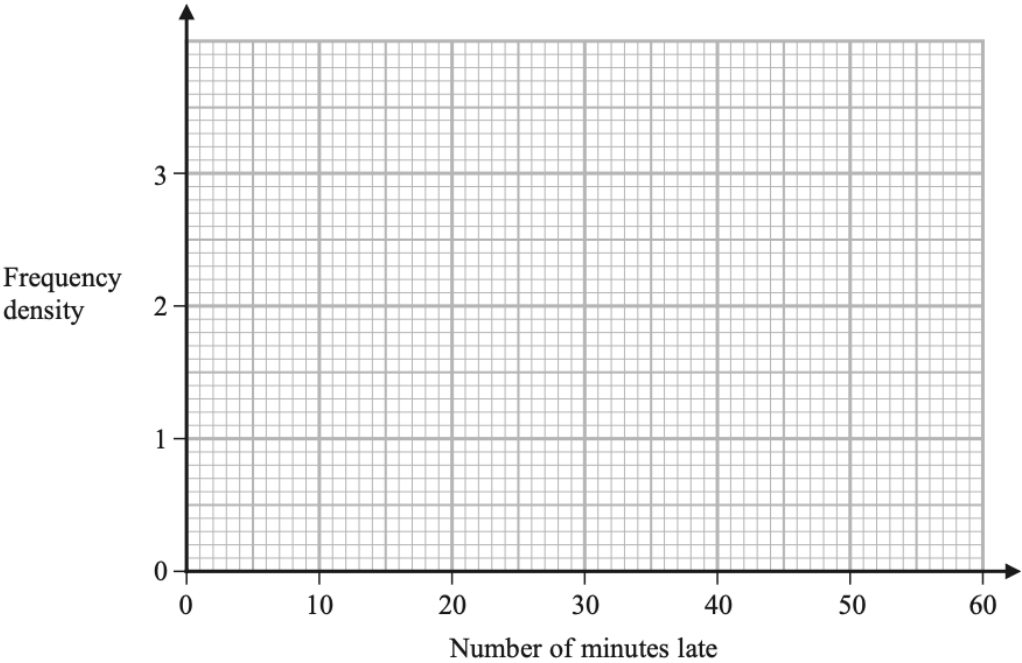
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14 Manuel collected information about the flights that arrived late at an airport last month.

The table gives information about the number of minutes that these flights were late.

Minutes late ( $L$ minutes)	Frequency
$0 < L \leq 10$	8
$10 < L \leq 15$	13
$15 < L \leq 25$	19
$25 < L \leq 40$	24
$40 < L \leq 60$	6

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



(3)

Manuel selected at random a flight that was late by 25 minutes or less from his results.

(b) Work out an estimate for the probability that this flight was late by 5 minutes or less.

(2)

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(Total for Question 14 is 5 marks)

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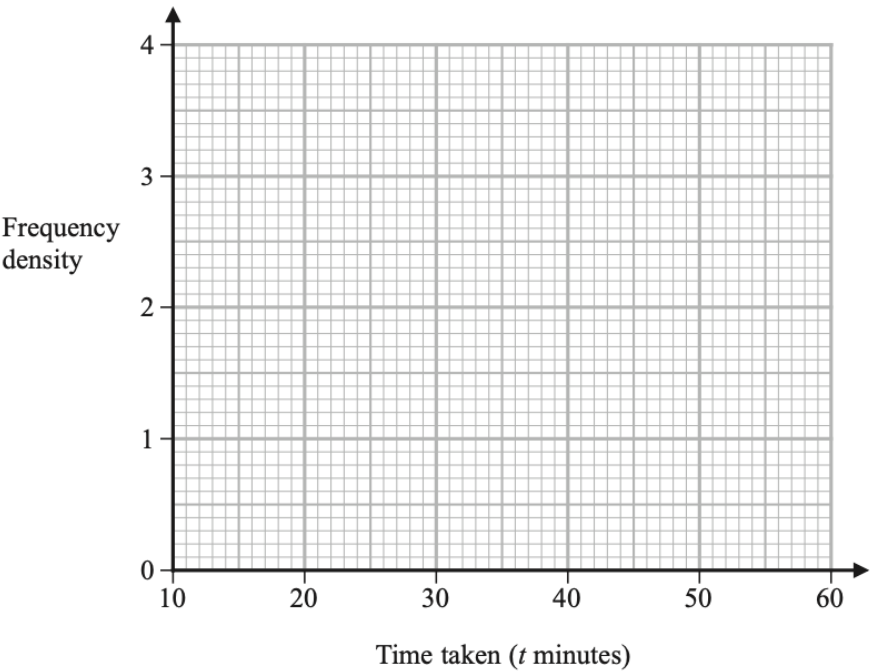


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17 The table gives information about the time taken by each student in Year 11 to complete a homework task.

Time taken ( $t$ minutes)	Frequency
$10 < t \leq 25$	15
$25 < t \leq 30$	18
$30 < t \leq 50$	32
$50 < t \leq 60$	4

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



(3)

One of these students who took 50 minutes or less and more than 25 minutes to complete this homework task is chosen at random.

(b) Find an estimate for the probability that this student took 45 minutes or less to complete this homework task.

(2)

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(Total for Question 17 is 5 marks)

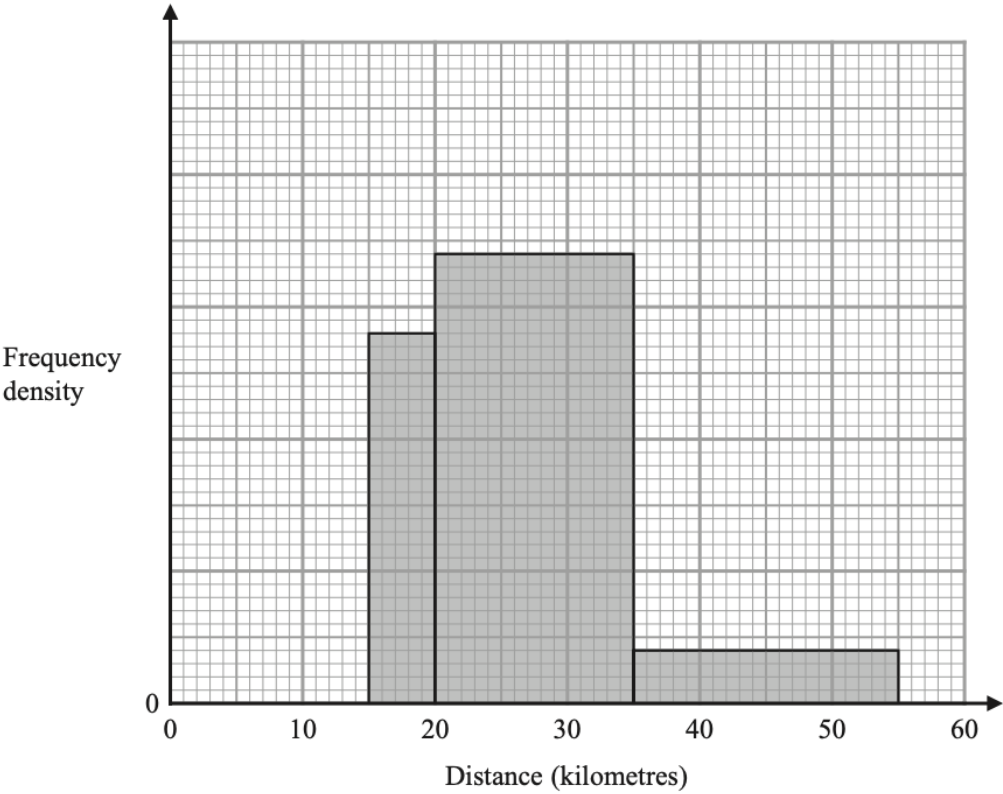
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22 The incomplete histogram shows some information about the distances, in kilometres, that 100 adults ran last week.



All of the adults ran at least 5 kilometres.  
None of the adults ran more than 55 kilometres.  
14 adults ran between 15 kilometres and 20 kilometres.  
Complete the histogram.

(Total for Question 22 is 3 marks)

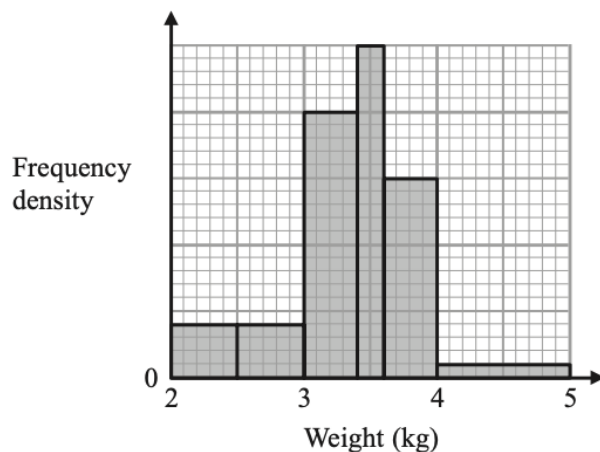


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20 The histogram shows information about the birth weights of some babies.



6 of these babies had a birth weight less than 2.5 kg or greater than 4 kg.

Work out the number of babies who had a birth weight between 2.5 kg and 4 kg.

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(Total for Question 20 is 3 marks)

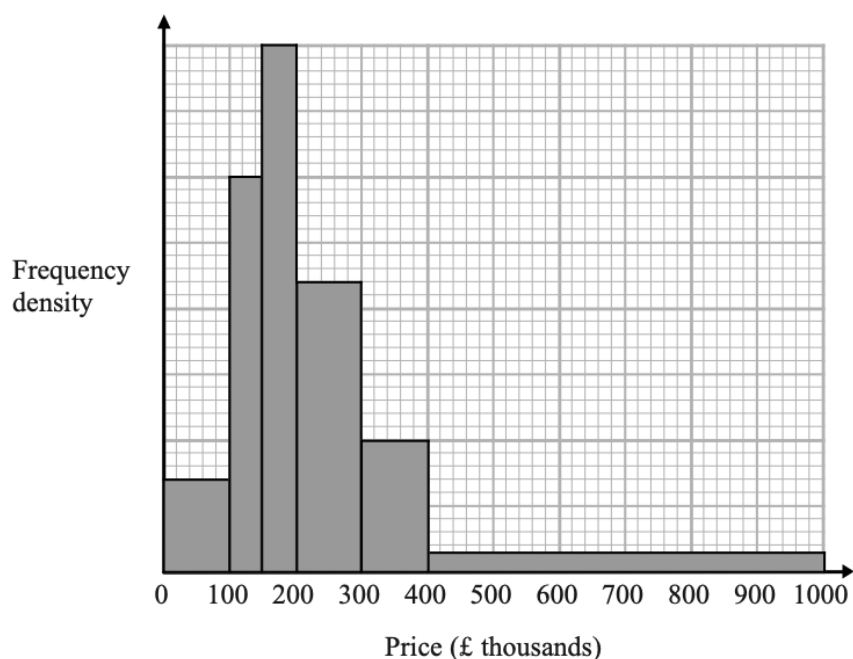
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**16** The histogram gives information about house prices in a village in 2015



20 houses in the village have a price between £300 000 and £400 000

Work out the number of houses in the village with a price under £200 000

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(Total for Question 16 is 3 marks)

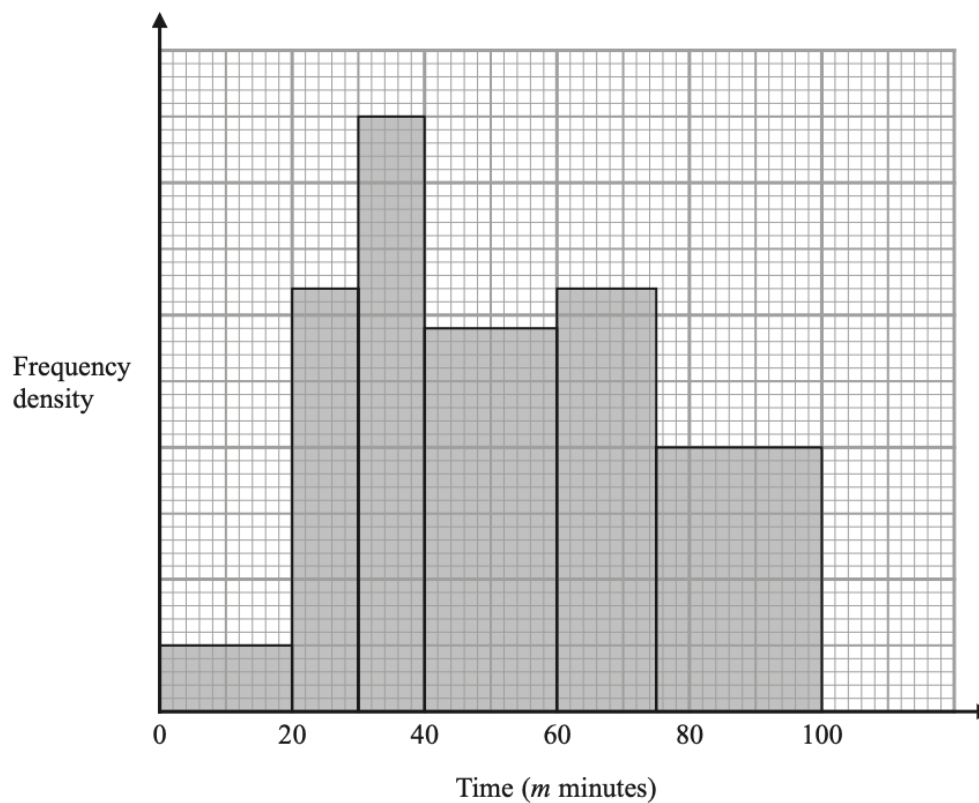
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- 21** The histogram shows information about the total time,  $m$  minutes, taken by each child in a school to walk to school every day for one week.



There are no children for whom  $m > 100$

There are 10 children for whom  $m \leq 20$

Work out an estimate for the number of children for whom  $50 < m \leq 80$

(Total for Question 21 is 3 marks)

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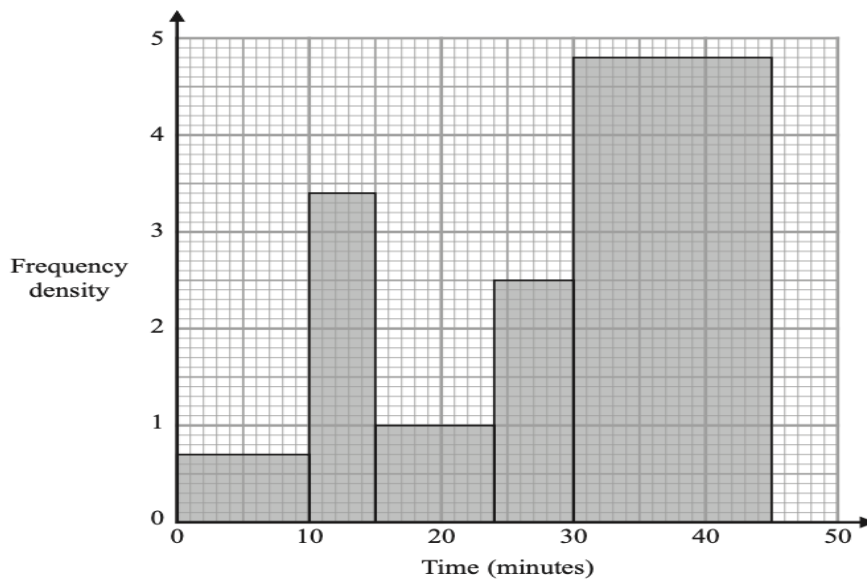
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- 18** The histogram gives information about the times, in minutes, that some customers spent in a supermarket.



- (a) Work out an estimate for the proportion of these customers who spent between 17 minutes and 35 minutes in the supermarket.

(3)

One of the customers is selected at random.

Given that this customer had spent more than 30 minutes in the supermarket,

- (b) find the probability that this customer spent more than 36 minutes in the supermarket.

(2)

(Total for Question 18 is 5 marks)

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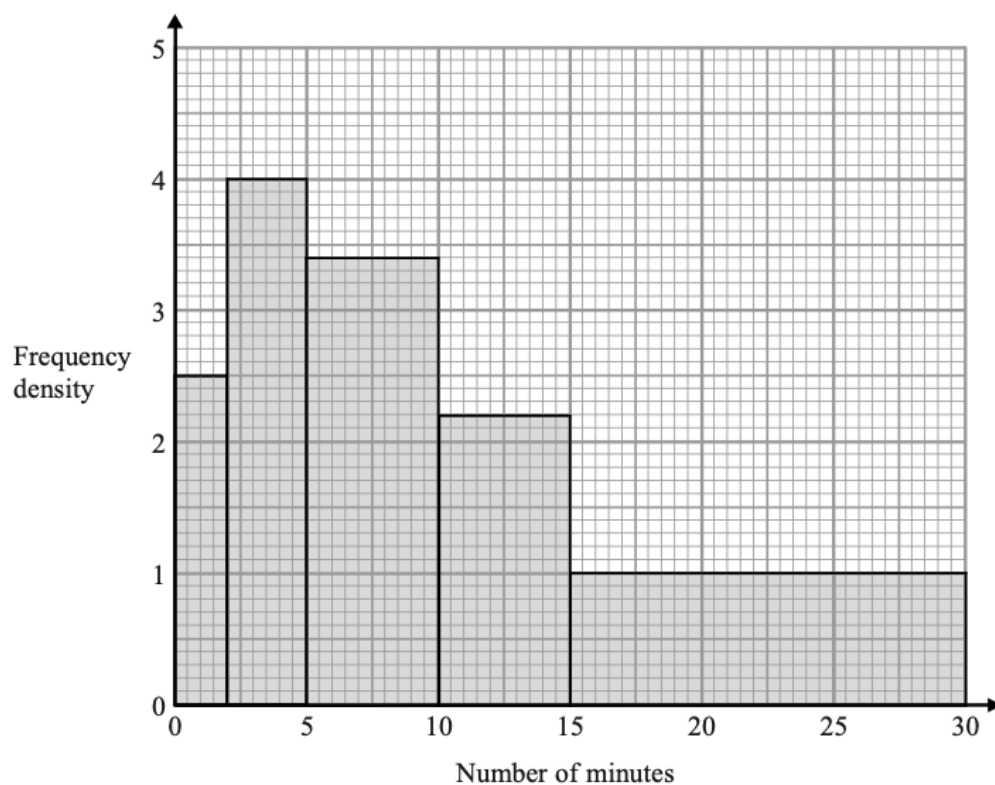
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- 19 The histogram shows information about the numbers of minutes some people waited to be served at a Post Office.



Work out an estimate for the proportion of these people who waited longer than 20 minutes to be served.

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(Total for Question 19 is 3 marks)

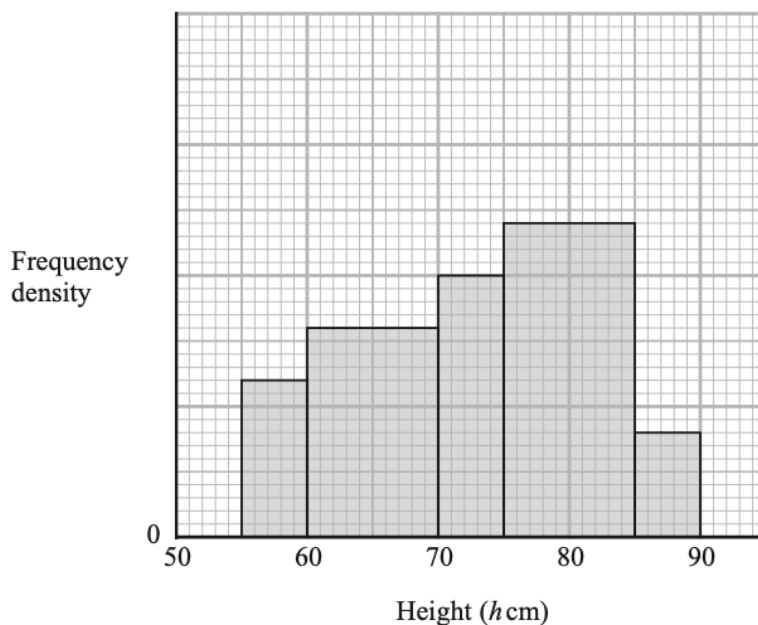
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20 The histogram gives information about the heights,  $h$  cm, of some tomato plants.



There are 12 tomato plants for which  $75 < h \leq 85$

One of the tomato plants is selected at random.

Find an estimate for the probability that this tomato plant has a height greater than 82.5 cm

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(Total for Question 20 is 4 marks)

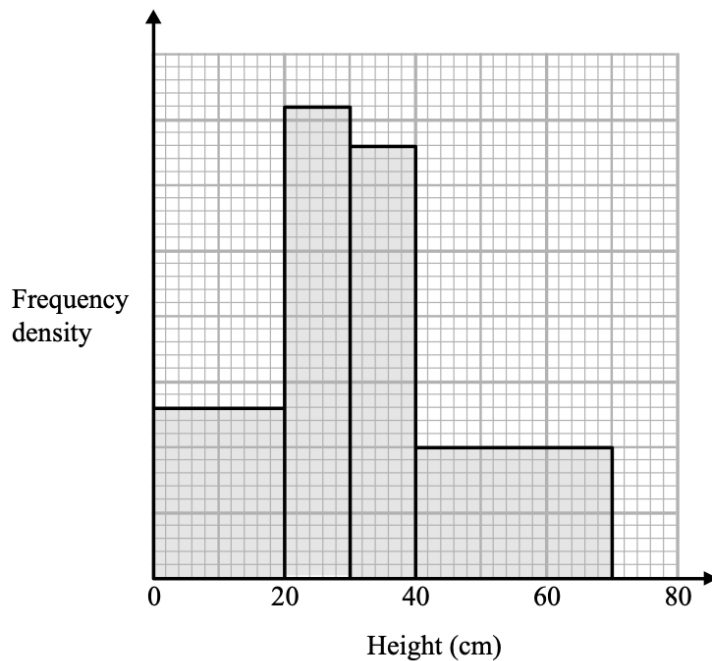
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**14** The histogram shows information about the heights of some tomato plants.



26 plants have a height of less than 20 cm.

Work out the total number of plants.

(Total for Question 14 is 3 marks)

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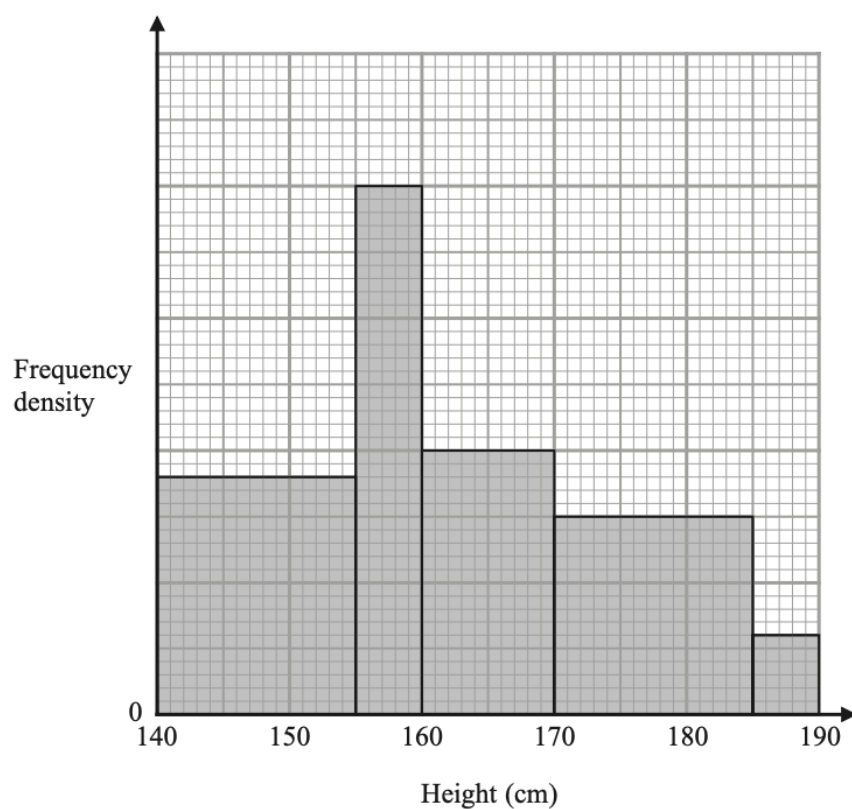


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19



The histogram gives information about the heights of all the Year 11 students at a school.

There are 160 students in Year 11 with a height between 155 cm and 170 cm.

Work out the total number of students in Year 11 at the school.

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(Total for Question 19 is 4 marks)

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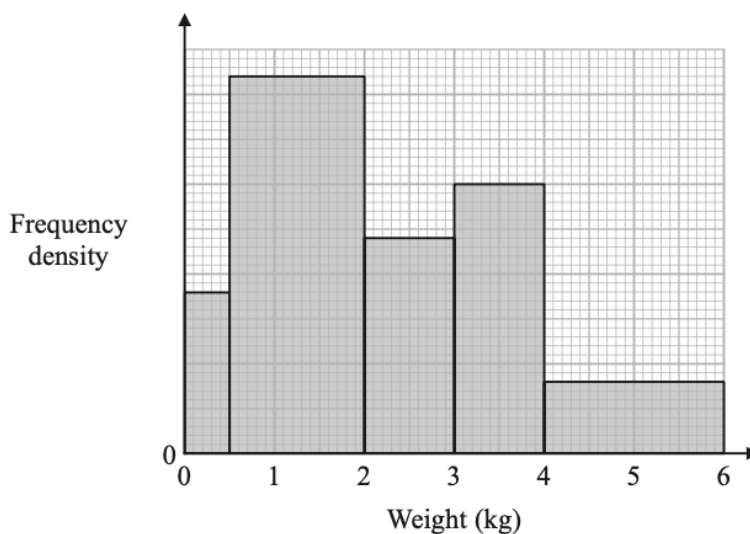


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**15** A postman records the weight of each parcel that he delivers.

The histogram shows information about the weights of all the parcels that the postman delivered last Monday. No parcels weighed more than 6 kg.



63 of the parcels that the postman delivered last Monday each had a weight between 0.5 kg and 2 kg.

(a) Work out the total number of parcels the postman delivered last Monday.

.....

(3)

The postman picks at random two of the records of the parcels he delivered last Monday.

(b) Work out an estimate for the probability that each parcel weighed more than 2.25 kg.

.....

(3)

(Total for Question 15 is 6 marks)

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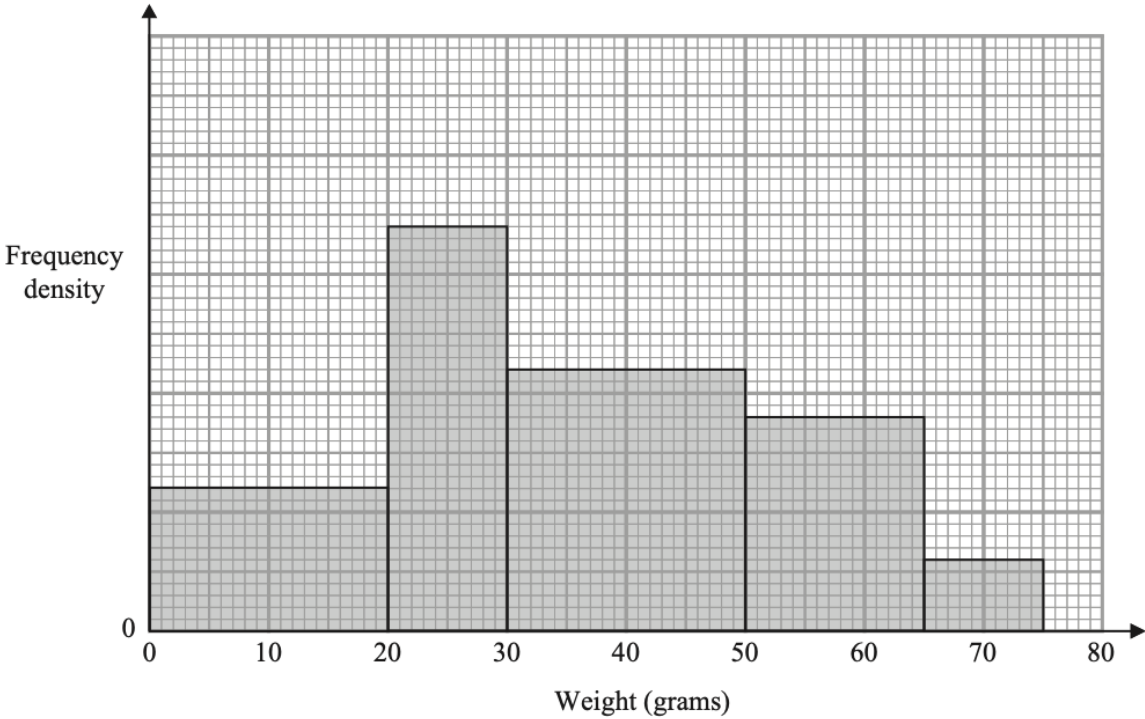
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17 The histogram gives information about the weights, in grams, of some oranges in a box.



24 of these oranges weigh less than 20 grams.  
Medium oranges weigh between 35 grams and 55 grams.  
Work out an estimate for the number of medium oranges in the box.

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(Total for Question 17 is 3 marks)

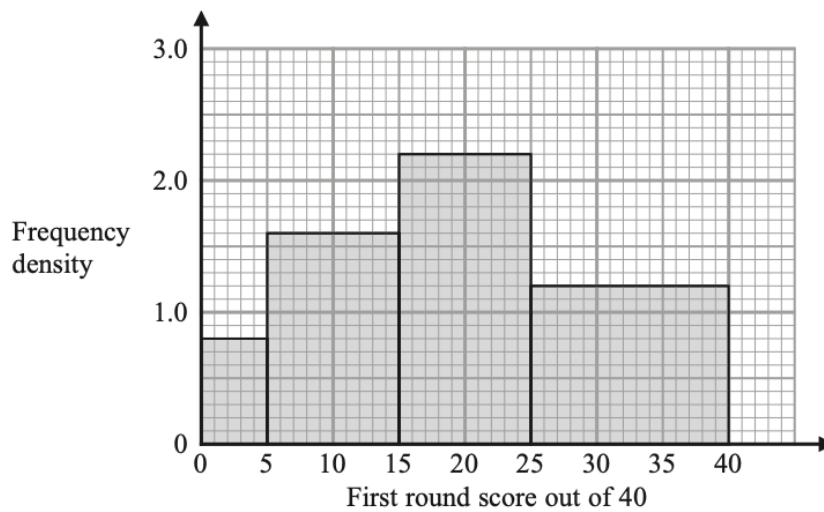
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**17** Some people took part in the first round of a competition.

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.

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(Total for Question 17 is 4 marks)

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**13** The frequency table gives information about the numbers of mice in some nests.

Number of mice	Frequency
5	4
6	13
7	16
8	$x$
9	6

The mean number of mice in a nest is 7

Work out the value of  $x$ .

$x =$  .....

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**(Total for Question 13 is 4 marks)**

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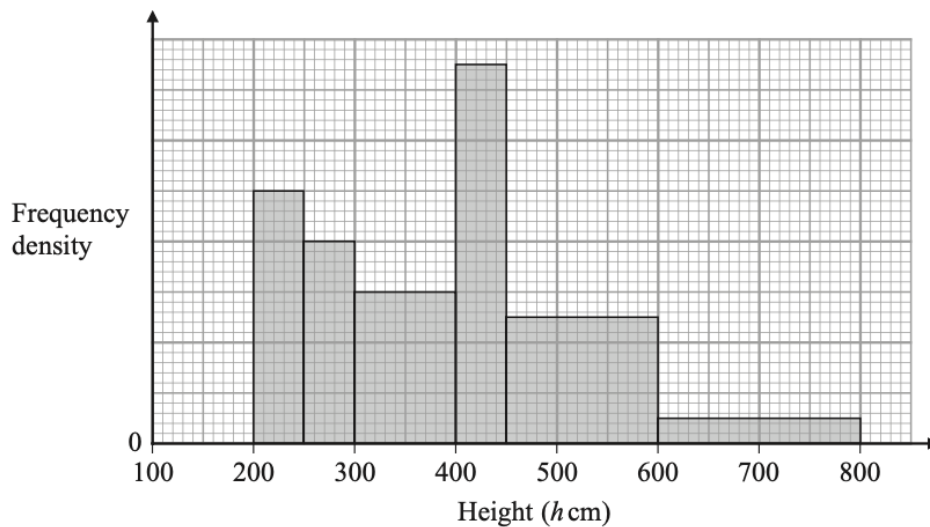
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**19** The histogram gives information about the height,  $h$  cm, of each tree in part of a forest.



There are no trees for which  $h \leq 200$  and for which  $h > 800$

The number of trees for which  $300 < h \leq 400$  is 8 fewer than the number of trees for which  $400 < h \leq 500$

Work out an estimate for the number of trees in this part of the forest that have a height greater than 500 cm.

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(Total for Question 19 is 3 marks)

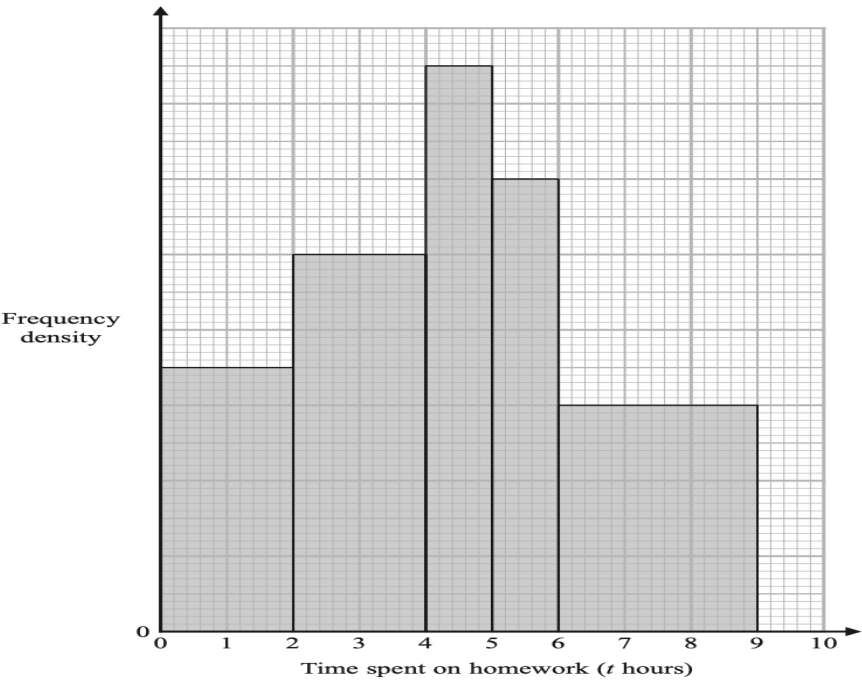
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18 The histogram and the table give some information about the amounts of time, in hours, that Year 11 students at Bergdesh Academy spent, in total, on their homework last week. No student in Year 11 spent longer than 9 hours on their homework.



Time spent on homework (t hours)	Frequency
$0 < t \leq 2$	28
$2 < t \leq 4$	
$4 < t \leq 5$	
$5 < t \leq 6$	
$6 < t \leq 9$	

Using the information in the histogram and in the table, work out an estimate for the mean amount of time the Year 11 students spent on their homework last week. Give your answer in hours correct to 3 significant figures.

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(Total for Question 18 is 5 marks)