Exam style questions histograms

1. The data below show the ages of a random sample of full driving licence holders

	2019						
Age group	**17-20**	**21-29**	**30-39**	**40-49**	**50-59**	**60-69**	**70-79**
Frequency	36	63	74	82	82	78	54

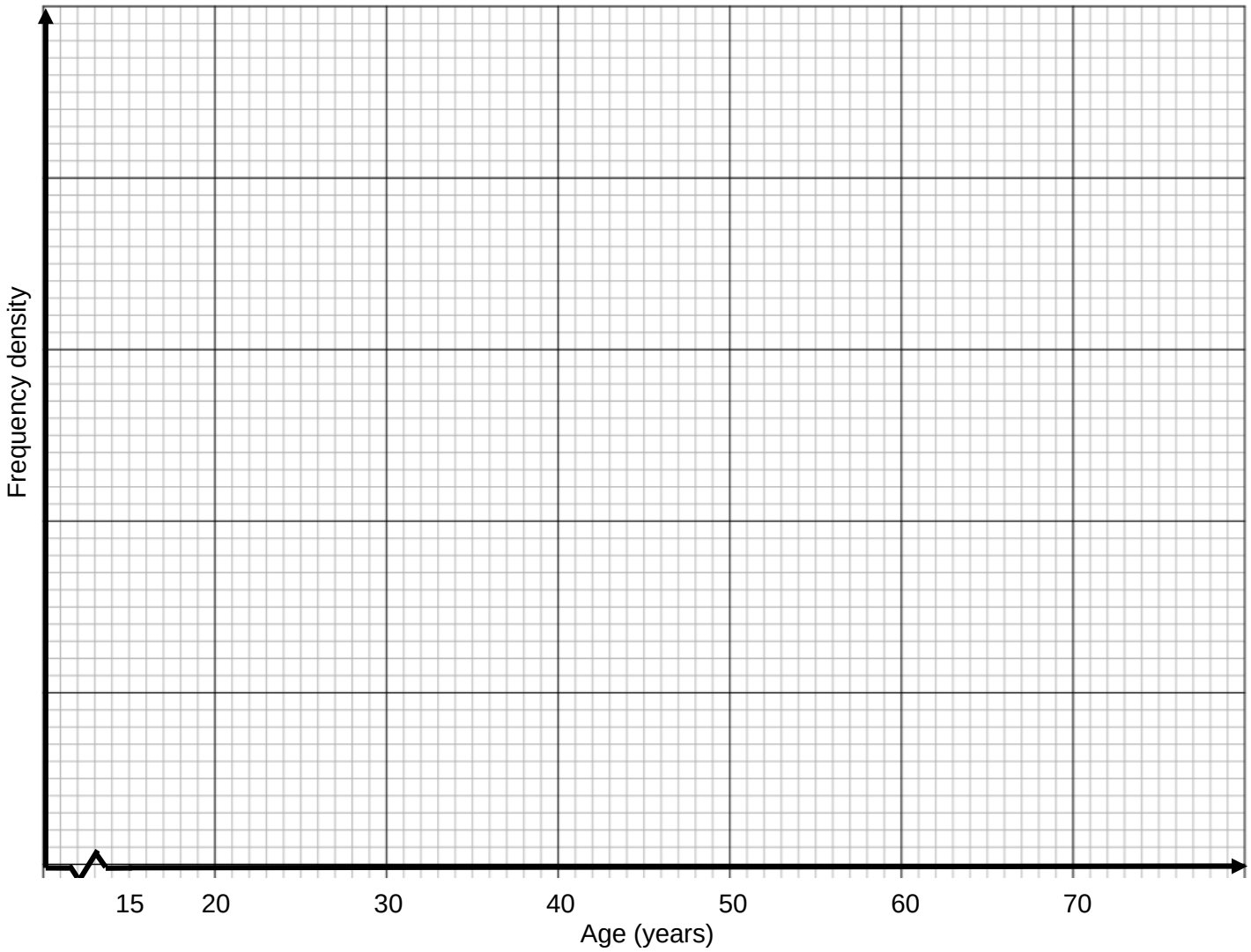
(a) Give a reason why a histogram would be a suitable diagram for displaying this information.

(b) Nadia and Elana are discussing how to draw the diagram. Nadia thinks the block for the first group should start at 16.5 and end at 20.5 on the horizontal axis, but Elana thinks the group should start at 17 and end at 21. Who has interpreted the situation better, Nadia or Elana? (explain your answer)

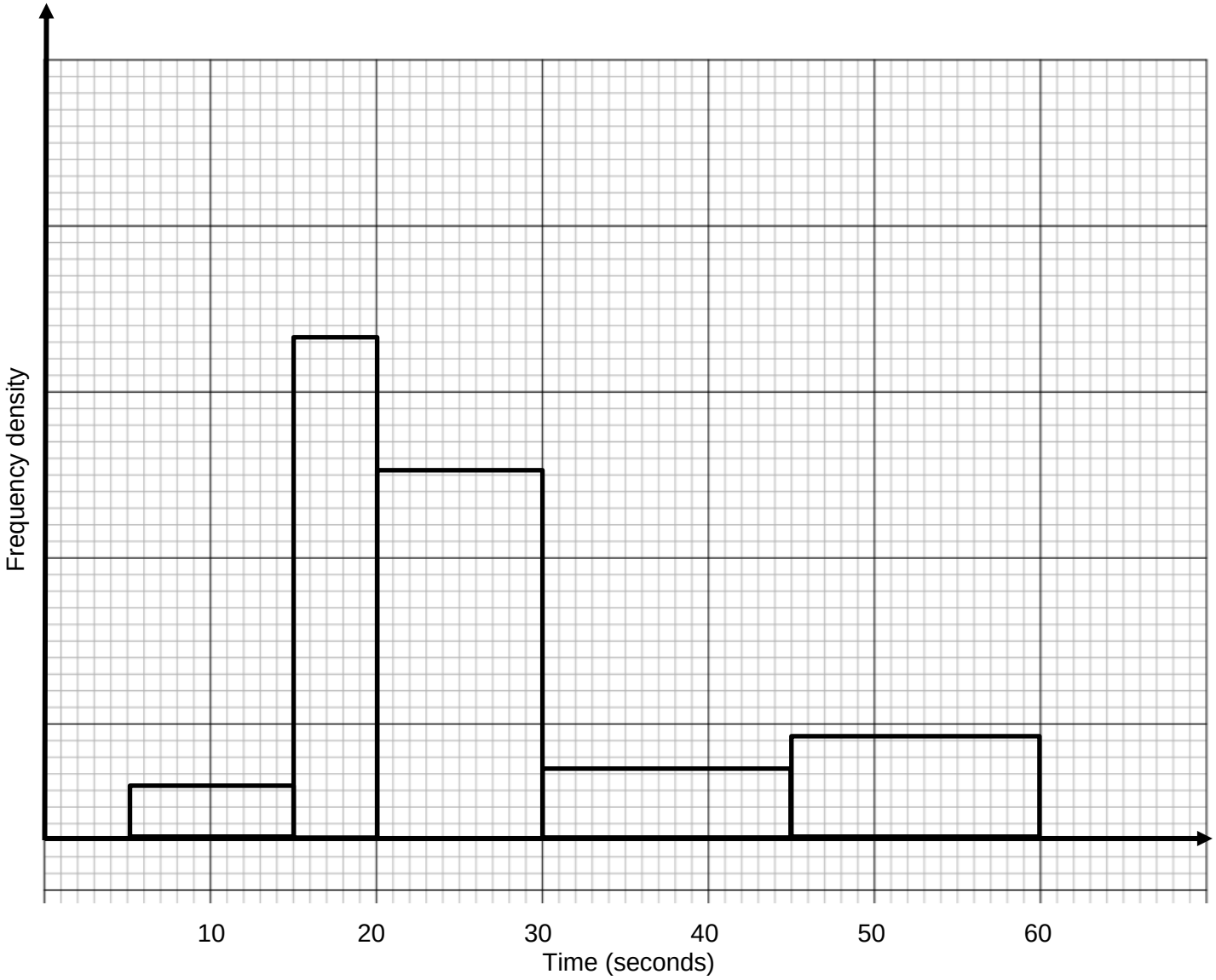
(c) Complete the blank columns in the table below.

Age	**Limits**	**Frequency**	**Interval Width**	**Frequency density**
17-20	17-21	36	4	9
21-29		63		
30-39		74		
40-49		82		
50-59		82		
60-69		78		
70-79		54		

(d) Draw a histogram of the data on the grid on the next page.


Frequency density
15
20
30
40
50
60
70
Age (years)

2. The time that people spent viewing an advert on a website was recorded. The histogram below represents the times of 1100 views.



(a) Work out the number of views represented by a small square on the histogram.

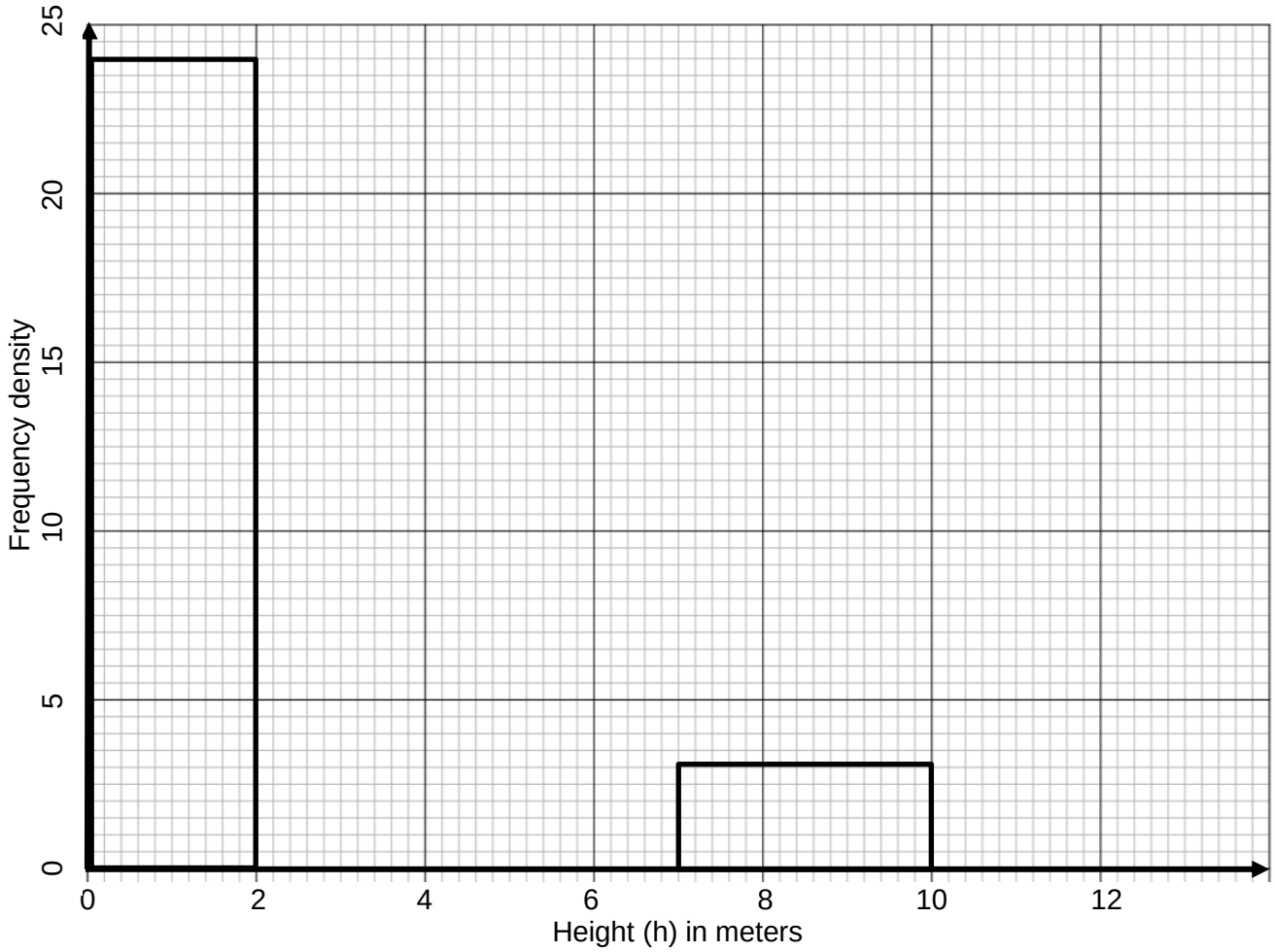
(b) How many views were 40 seconds or more?

(c) Using the data from this sample, estimate the probability that the next person to view the advert will have a view time of less than 40 seconds.

(d) Estimate the median view time for the advert

3. The incomplete table below shows information about the heights of trees in a plantation.

Height of tree h (metres)	0<h<2	2 ≤ h < 5	5 ≤ h < 7	7 ≤ h < 10
Frequency		60	46	



(a) Explain why a histogram is a suitable diagram for this data.

(b) Complete the table and the histogram.

Height of tree h (metres)	0<h<2	2 ≤ h < 5	5 ≤ h < 7	7 ≤ h < 10
Frequency		60	46	

(c) In the histogram, how many small squares represent 1 tree?

(d) Estimate the number of trees with a height of 4 metres or less.

4. A council is doing a survey of the age of cars in part of the town. They decide to group the data as shown below. One resident has a classic car that is 62 years old

Age of car	0-2	3-5	6-8	9-12	13 or over
Frequency	12	18	45	22	3

(a) Give a reason why grouping the data like this will make it difficult to display this data in a histogram

(b) Suggest how Rita could overcome this problem.

5. The data below shows the average number of trips for commuting for the year 2019. The data has been split by age group.

Age group	**17-20**	**21-29**	**30-39**	**40-49**	**50-59**	**60-69**
Average number of trips in a year	150	258	228	228	229	97

Give a reason why a histogram would not be a suitable diagram for this data