

Histograms

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You **can** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

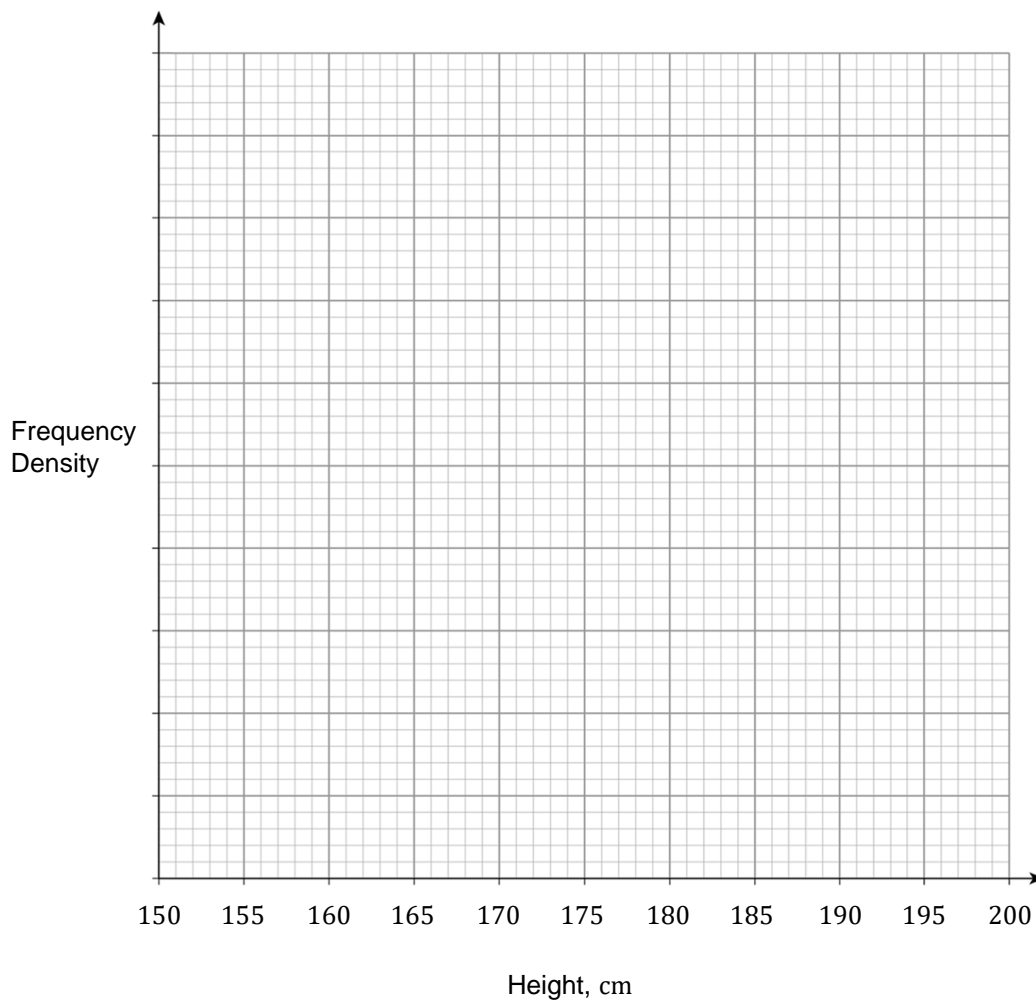
- In all calculations, show clearly how you work out your answer.

- 1 The table gives information about the heights of Year 12 pupils in college.

Height (cm)	Frequency	FD
$150 < \text{cm} \leq 155$	10	
$155 < \text{cm} \leq 165$	25	
$165 < \text{cm} \leq 170$	12	
$170 < \text{cm} \leq 180$	33	
$180 < \text{cm} \leq 190$	22	
$190 < \text{cm} \leq 200$	5	

Draw a histogram for the information on the axes below.

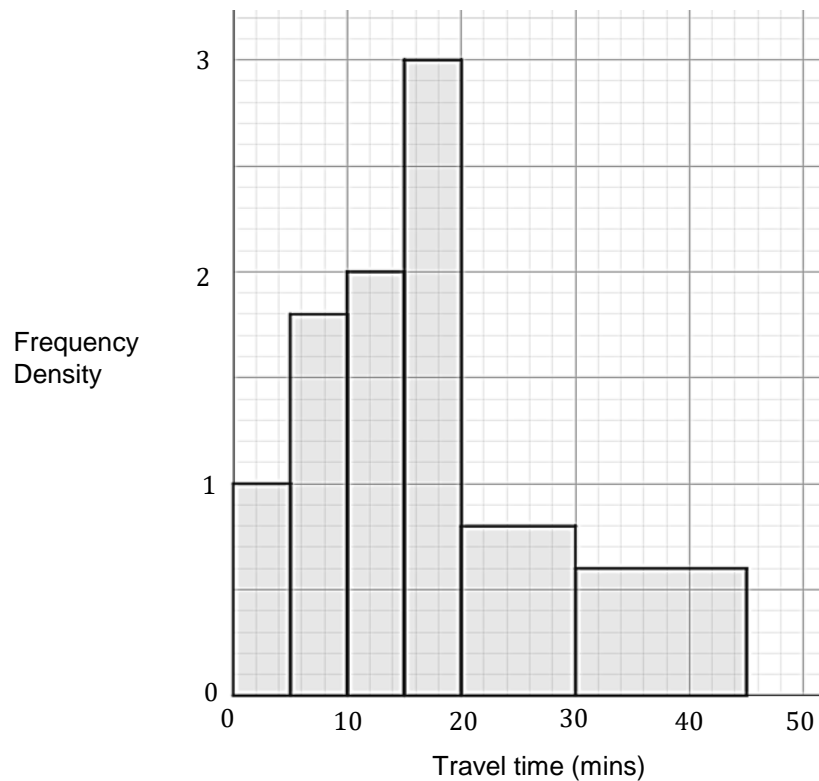
[3 marks]



Turn over for next question

Turn over ►

- 2 Data on the travel times of students getting to school has been collected and is summarised in a histogram below.



Use the histogram to fill in the information in the grouped frequency table below.

[3 marks]

Time, t , (mins)	Frequency
$0 < t \leq 5$	
$5 < t \leq 10$	
$10 < t \leq 15$	
$15 < t \leq 20$	
$20 < t \leq 30$	
$30 < t \leq 45$	

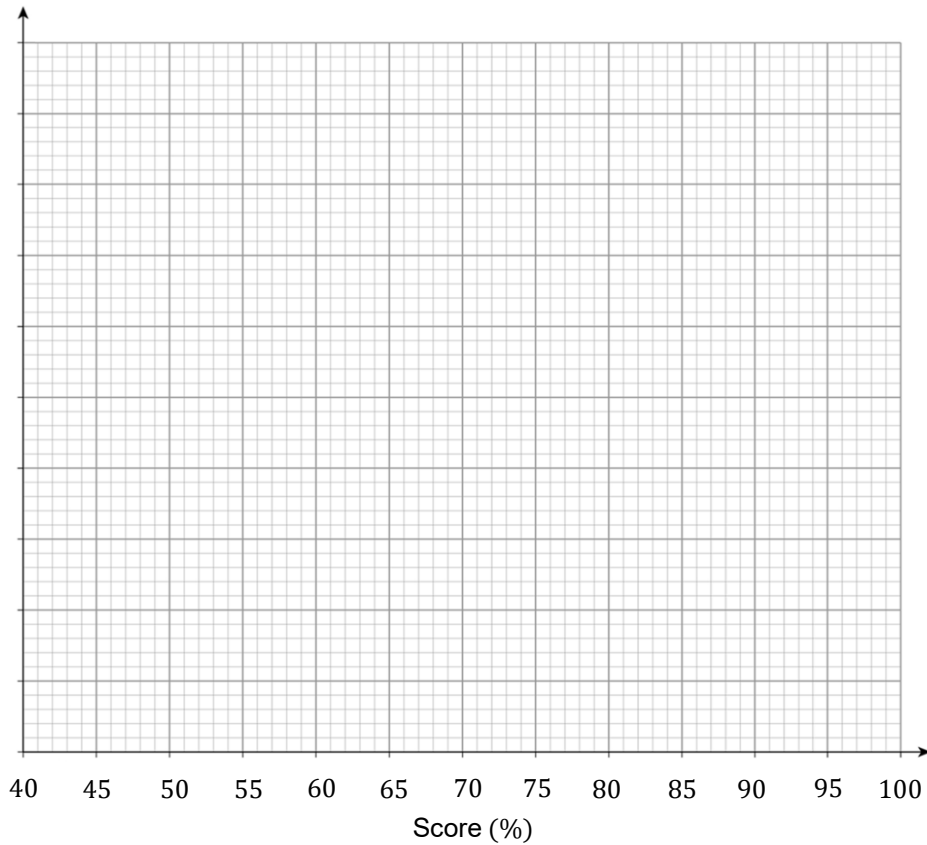
Turn over for next question

3 The table shows the results of a spelling test.

Score (%)	Frequency	
$40 < m \leq 50$	3	
$50 < m \leq 60$	5	
$60 < m \leq 75$	12	
$75 < m \leq 80$	10	
$80 < m \leq 85$	4	
$85 < m \leq 100$	3	

3(a) Draw a histogram for these results on the axes below.

[3 marks]



3(b) Calculate an estimate for the median score using your histogram.

[2 marks]

Answer _____

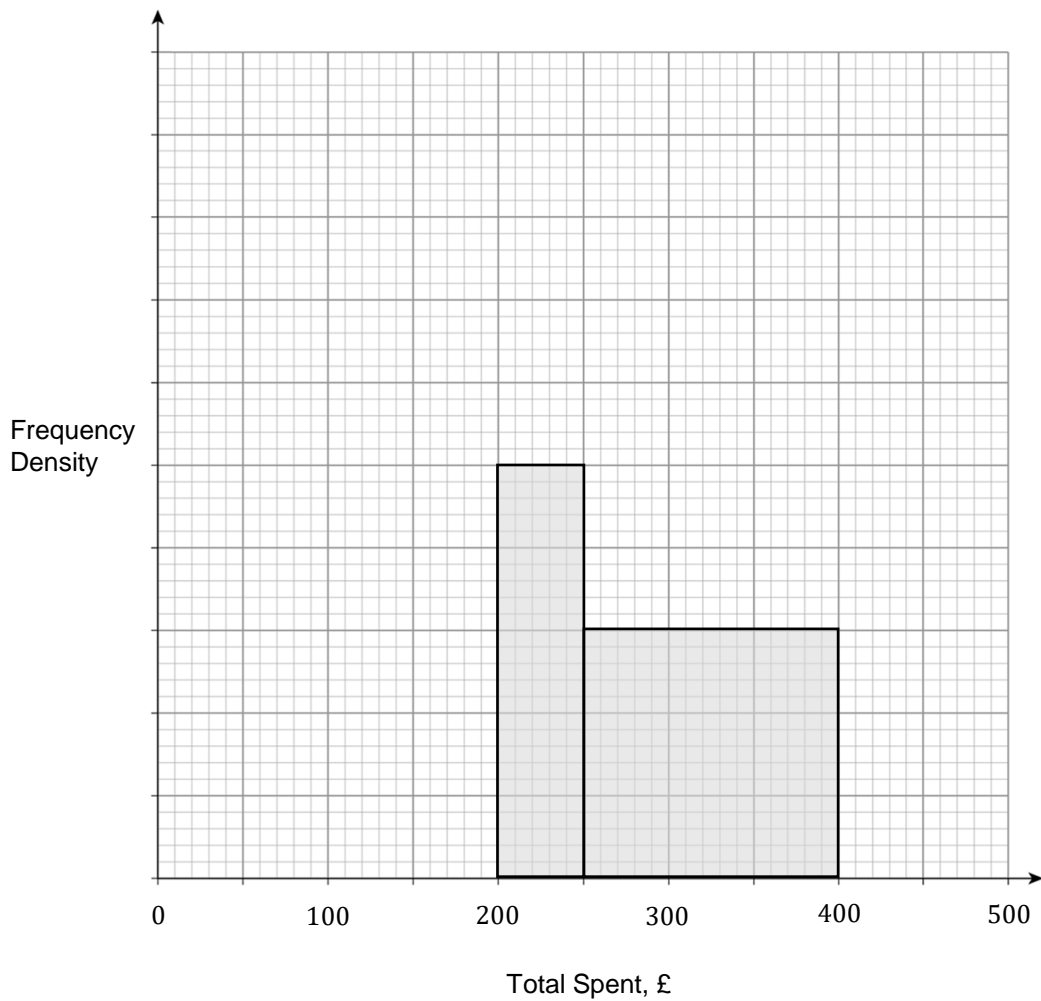
Turn over for next question

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- 4 The table and histogram show some data on the amount spent by shoppers during the Christmas period. Complete the table and histogram.

[3 marks]

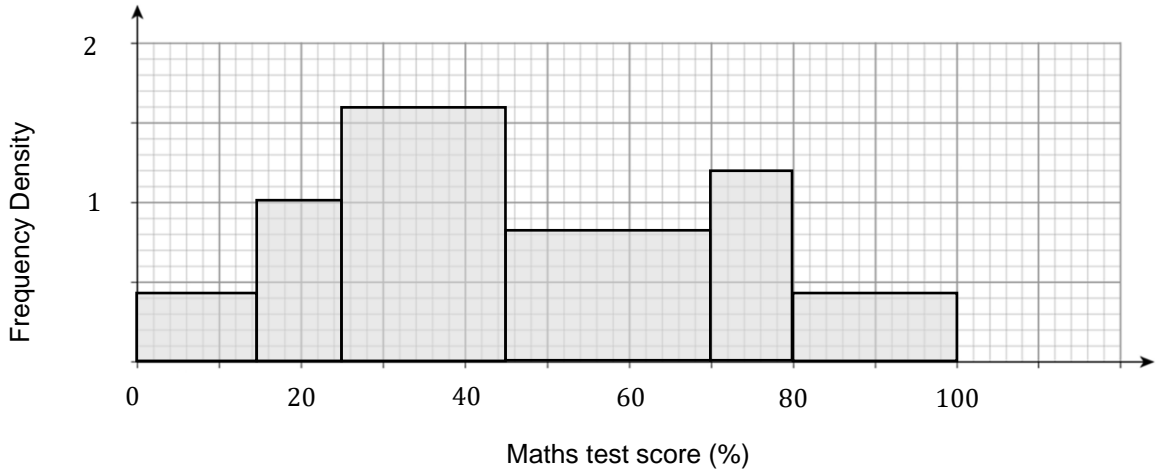
Total spent (£)	Frequency
$0 < £ \leq 100$	20
$100 < £ \leq 200$	60
$200 < £ \leq 250$	25
$250 < £ \leq 400$	
$400 < £ \leq 450$	35
$450 < £ \leq 500$	5



Turn over for next question

Turn over ►

5 Use the histogram below to answer the following questions.



5(a) The score required for a grade C was 45%.
How many students achieved at least a grade C?

[2 marks]

Answer _____

5(b) Which group was the modal class?

[2 marks]

Answer _____

Question continues on next page

5(c) The score required for a grade B was 75%.

Estimate the number of students that achieved a grade A or B assuming A is the highest grade.

[2 marks]

Answer _____

5(d) Why is this answer an estimate?

[1 mark]

Answer _____



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6 The times taken for students to complete a challenge in PE are collected.

There are x students in the group $30 < t \leq 35$.

y students join the group, and the frequency density increases by 15%.

6(a) Tom says, "there were fewer than 50 people in group x and y ".

Using this knowledge, find possible values for the number of students in x and y .

[4 marks]

Answer _____

6(b) Based on your answer, make an estimate for the number of students who achieved a time between $30 < t \leq 32$.

[2 marks]

Answer _____



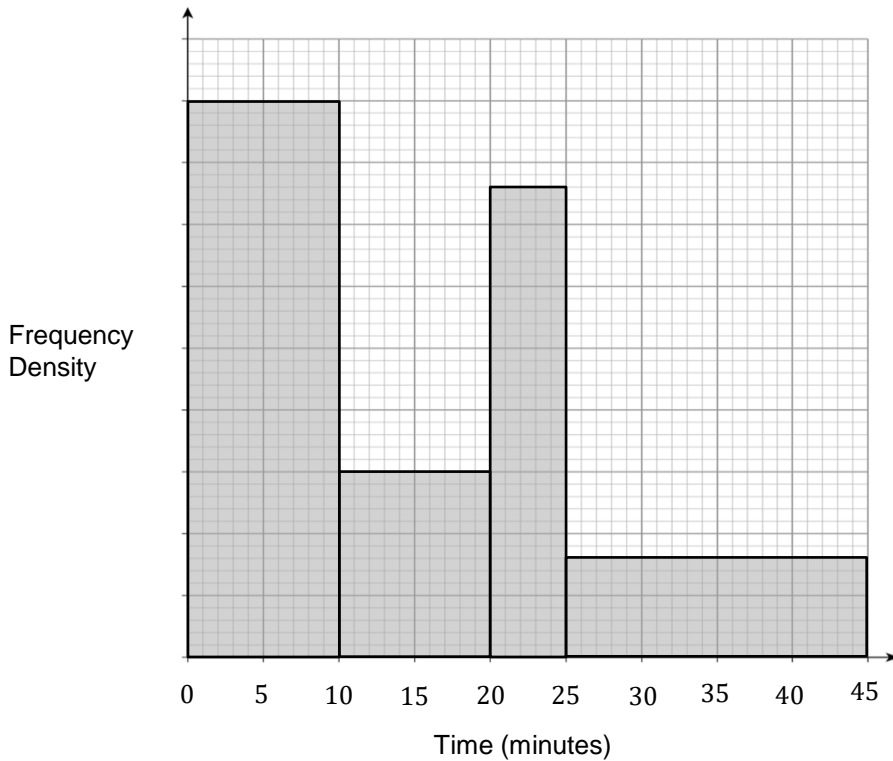
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7 The histogram shows information about the time it took 266 people to commute to work.



Any employee whose commute took 15 minutes or less, are able to sign up for a cycle-to-work scheme.

Use the histogram to estimate the percentage of people that are eligible for the scheme.

Give your answer to 1 decimal places.

[3 marks]

Answer _____

End of Questions

3

END