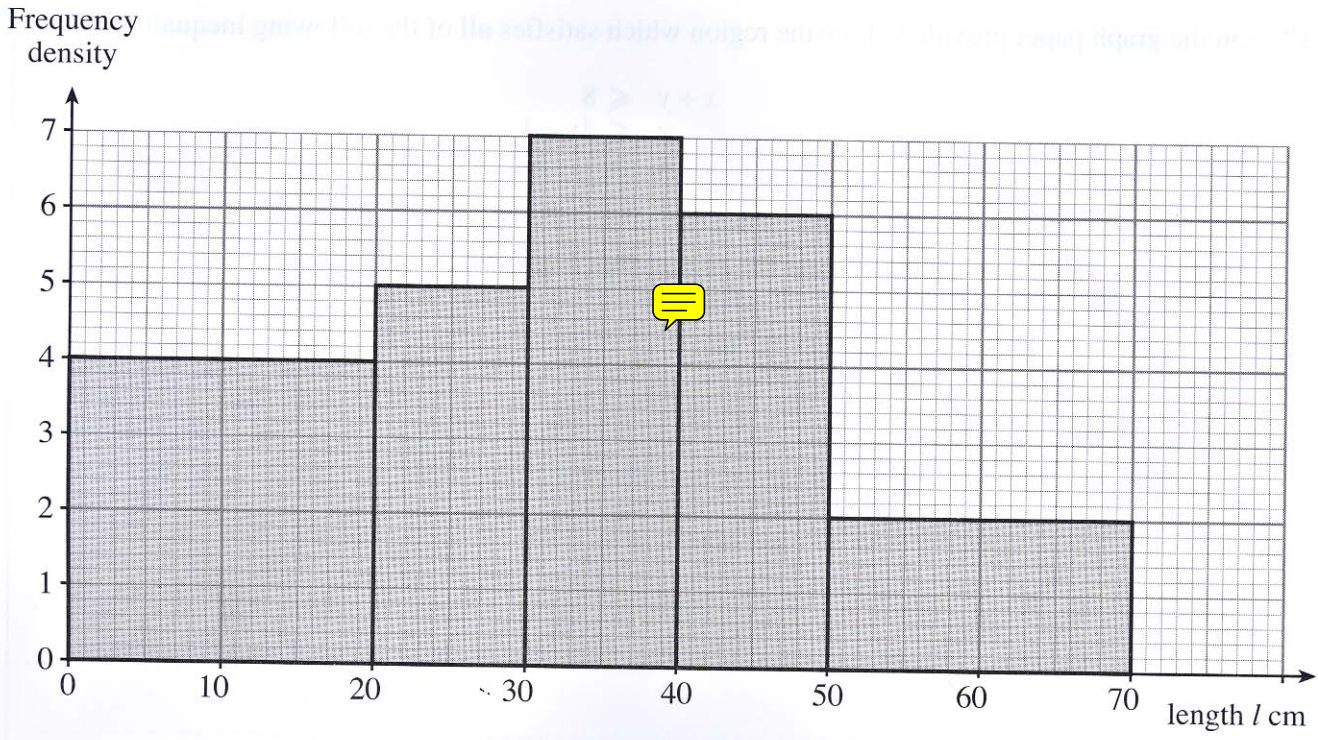
16. The histogram below represents the results of gathering and measuring the lengths of twigs.



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

Length, l cm	$0 \leqslant l < 20$	$20 \leqslant l < 30$	$30 \leqslant l < 40$	$40 \leqslant l < 50$	$50 \leqslant l < 70$
Number of twigs					

[2]

(b) Find the fraction of twigs that are 40 cm or longer, expressing your fraction in its lowest terms.

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[1]

(c) Calculate an estimate of the number of twigs with length less than 22 cm.

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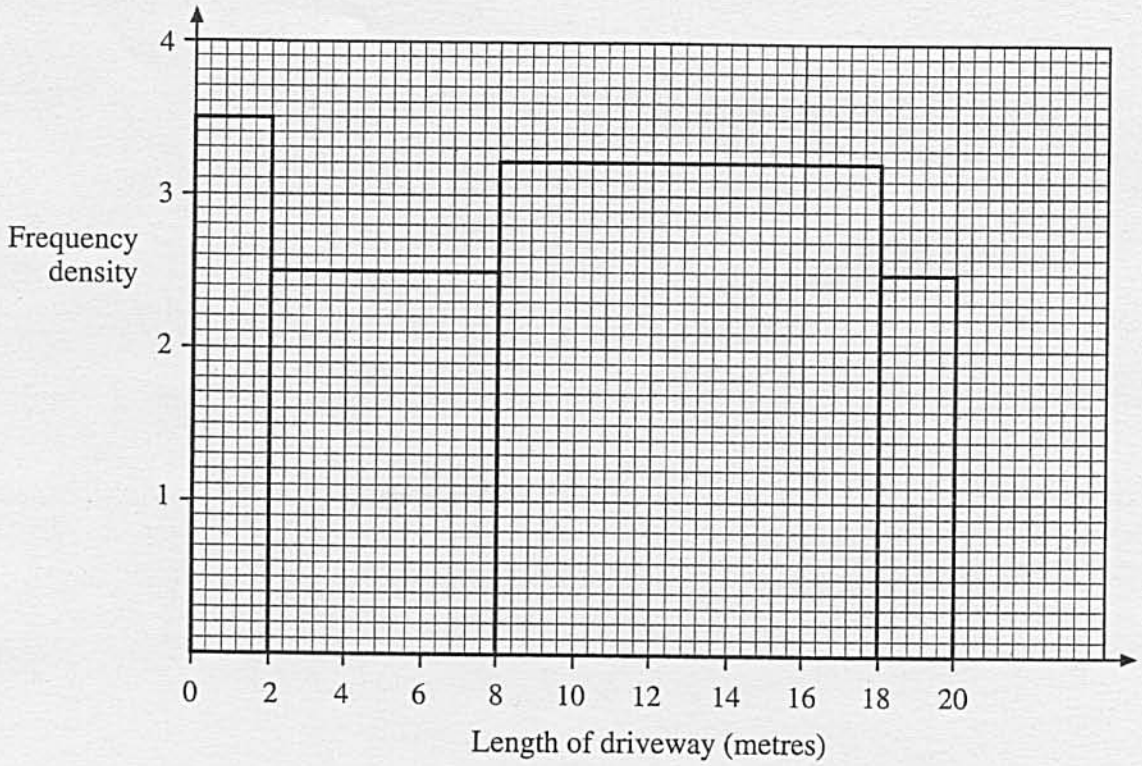
[3]

21. A survey was carried out to measure the lengths of the driveways to a number of houses. The histogram shows the results of the survey.



(a) Use the histogram to calculate the number of driveways measured.

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[3]

(b) Find the length exceeded by 75% of the driveways measured. Give your answer to 2 decimal places.

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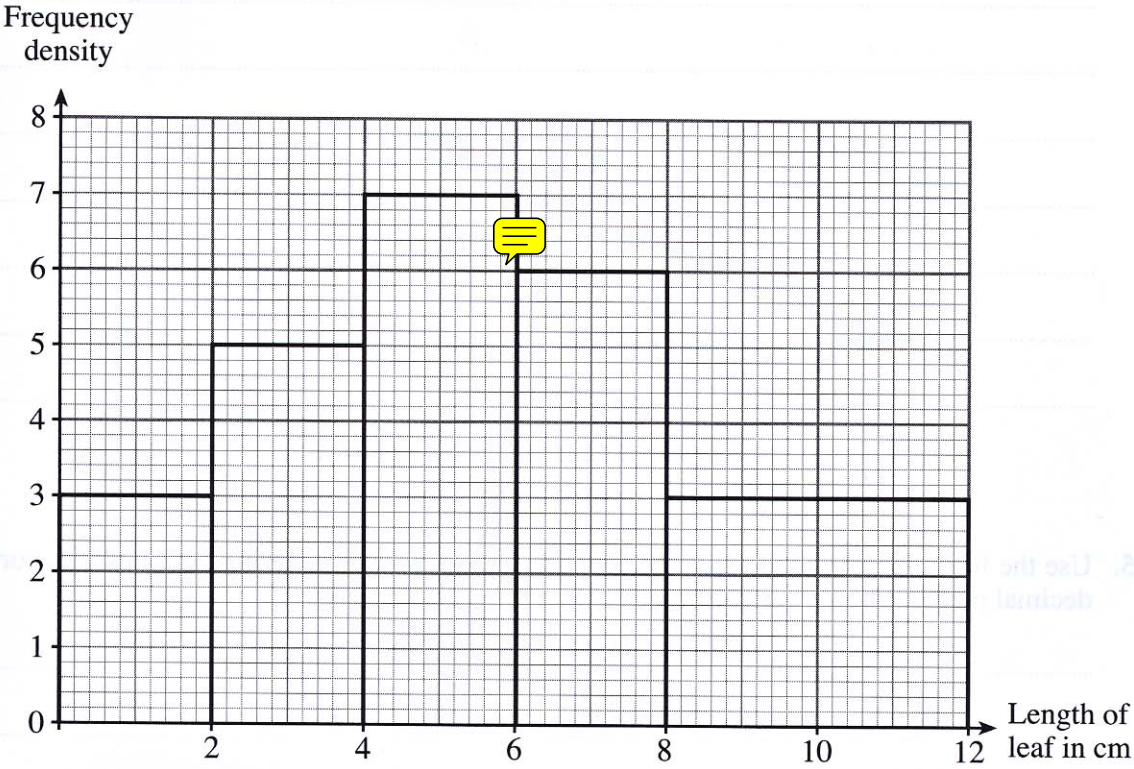
[3]

13. The histogram below represents the results of gathering and measuring the lengths of 55 leaves.



Use the histogram to estimate the median length of leaf measured.

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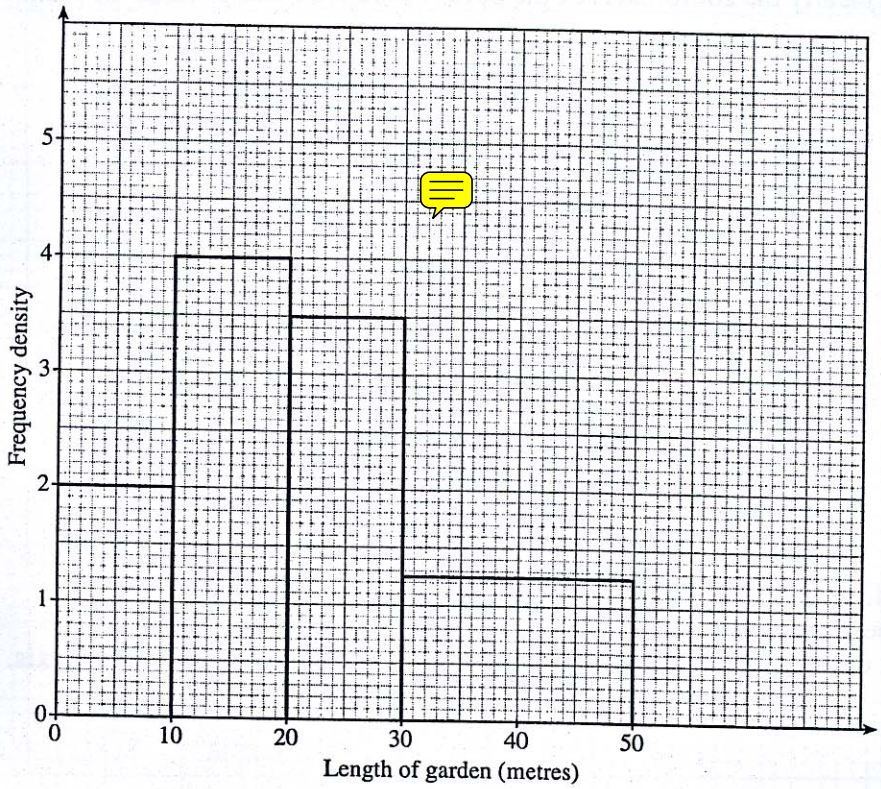
[5]

18. A survey was carried out to measure the lengths of the gardens of a number of houses. The histogram shows the results of the survey.



(a) Use the histogram to calculate the number of gardens measured.

[3]

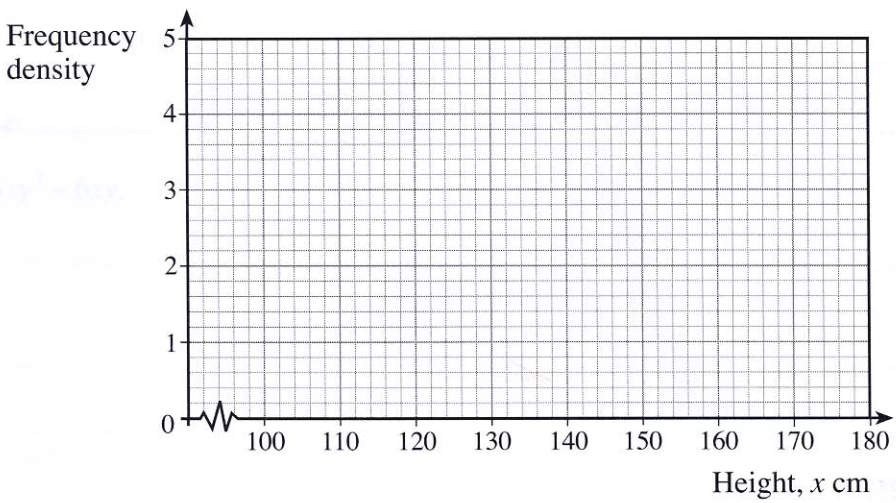
(b) Find the length exceeded by 50% of the gardens measured.

[1]

17. The heights of a group of children are summarised in the grouped frequency distribution below.

Height, x cm	Number of children	Frequency density
$100 \leqslant x < 120$	8	0·4
$120 \leqslant x < 130$	15	1·5
$130 \leqslant x < 140$	18	
$140 \leqslant x < 150$	40	
$150 \leqslant x < 160$	25	
$160 \leqslant x < 180$	10	

(a) Complete the frequency density column in the table and draw a histogram.



[3]

(b) Calculate an estimate for the number of children in the group whose heights are at least 142 cm.

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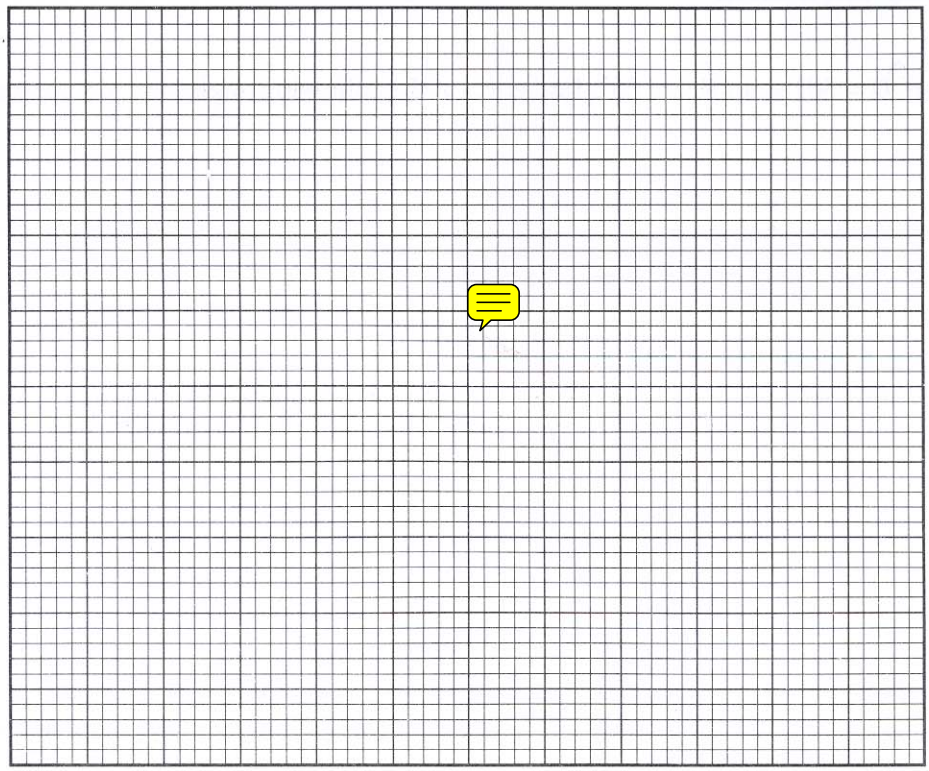
[3]

18. A survey of time wasted by pupils at a school in one hour of unsupervised study time was carried out. The lengths of times wasted were noted by an observer. The results are summarised in the grouped frequency distribution below.

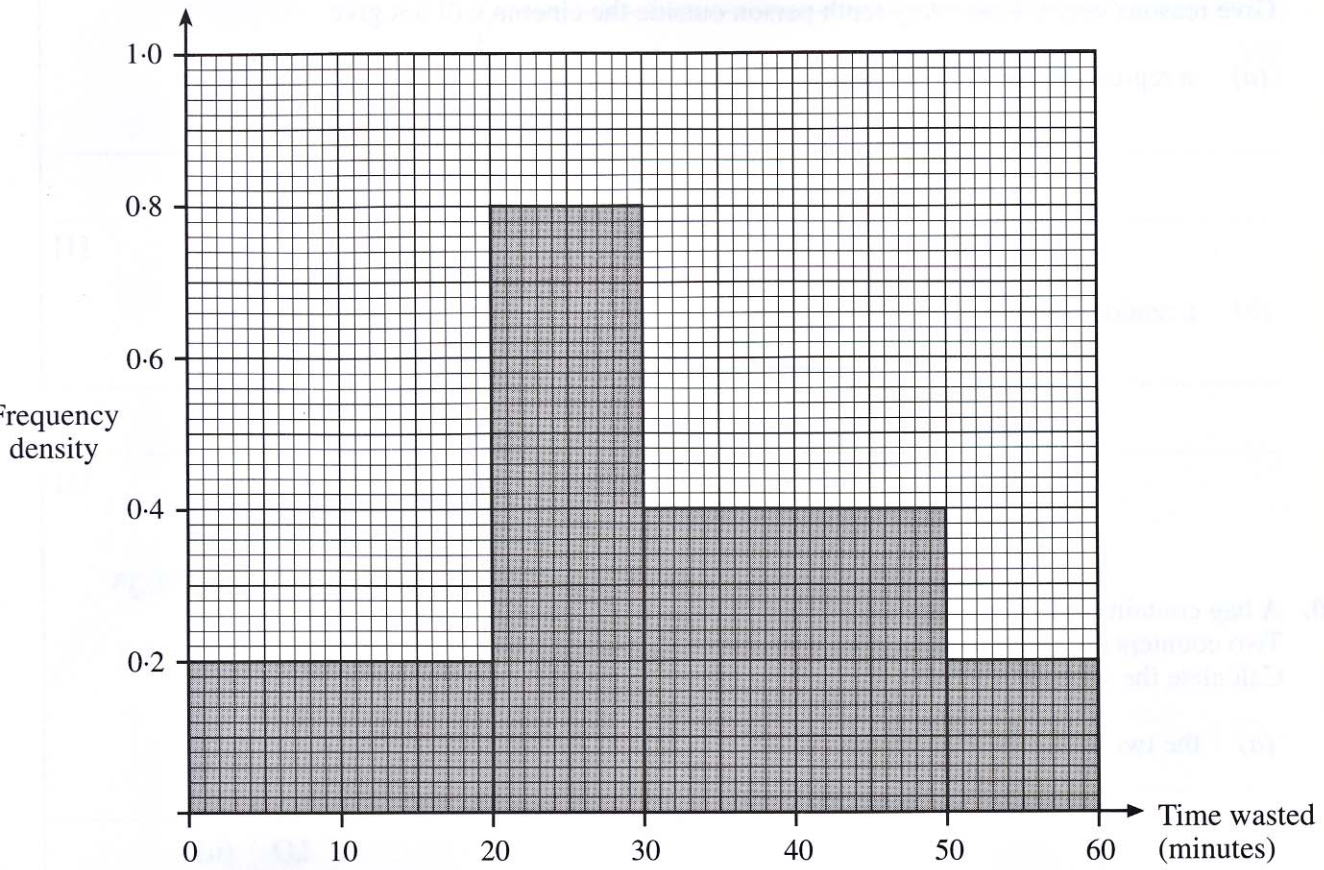
Time wasted, x minutes	Number of pupils, f	Frequency density
$0 \leqslant x < 5$	3	0·6
$5 \leqslant x < 15$	8	
$15 \leqslant x < 25$	3	
$25 \leqslant x < 45$	18	
$45 \leqslant x < 55$	4	
$55 \leqslant x < 60$	4	

(a) Draw a histogram of the data in the table.



[3]

(b) The survey was repeated one month later. The results are shown in the histogram below.



Calculate the total number of pupils in this second survey.

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[3]