

# HISTOGRAMS - GRADE A

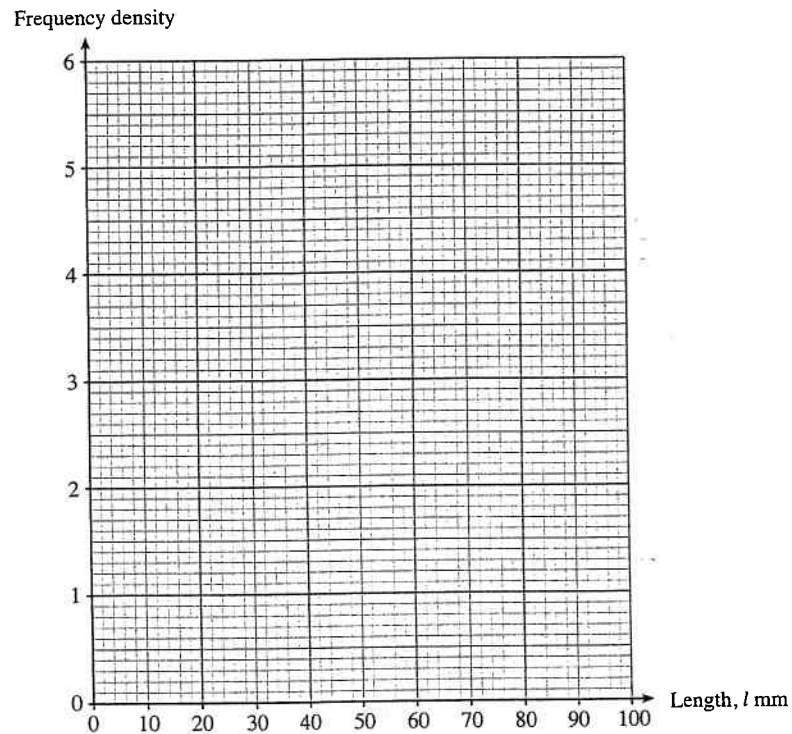
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①

A survey was carried out to find the distribution of the lengths of index fingers. The data was recorded in a grouped frequency table.

Length of index finger, $l$ mm	Frequency	Frequency density
$0 \leq l < 40$	0	
$40 \leq l < 50$	3	
$50 \leq l < 55$	5	
$55 \leq l < 60$	15	
$60 \leq l < 65$	25	
$65 \leq l < 70$	10	
$70 \leq l < 90$	2	

Complete the frequency density column in the table above and hence draw the histogram for the data using the axes below. [3]



②

There are 100 pupils in Year 9. The time taken by each pupil to answer a mental mathematics question was recorded. The following grouped frequency distribution was obtained.

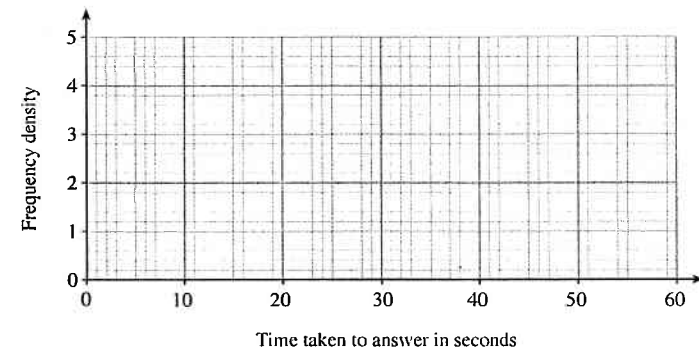
Time, $t$ seconds	$0 < t \leq 10$	$10 < t \leq 20$	$20 < t \leq 30$	$30 < t \leq 40$	$40 < t \leq 60$
Number of pupils	8	17	25	38	12

(a) Find an estimate for the median of this distribution.

[1]

(b) Draw a histogram to illustrate the distribution on the graph paper below.

[2]

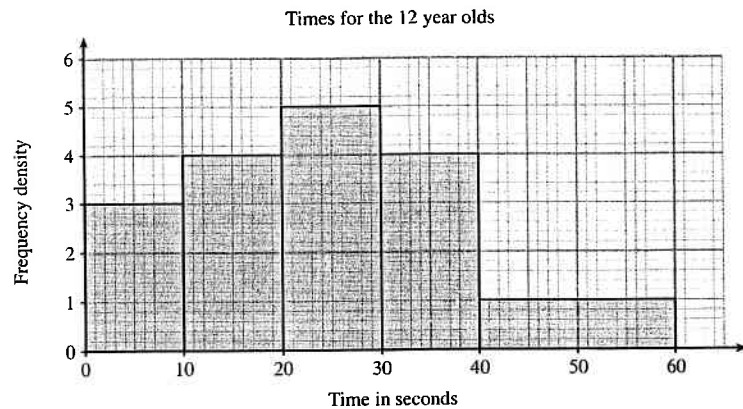


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As part of an investigation, the time taken to undo three knots in a piece of string was measured for each pupil in a group of twelve year olds. The histogram below illustrates the results obtained.



(a) Use the histogram to calculate the number of twelve year olds in this group.

[3]

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(b) The time taken to undo three knots in a piece of string was measured for each pupil in a group of 200 sixteen year olds. The following grouped frequency distribution was obtained.

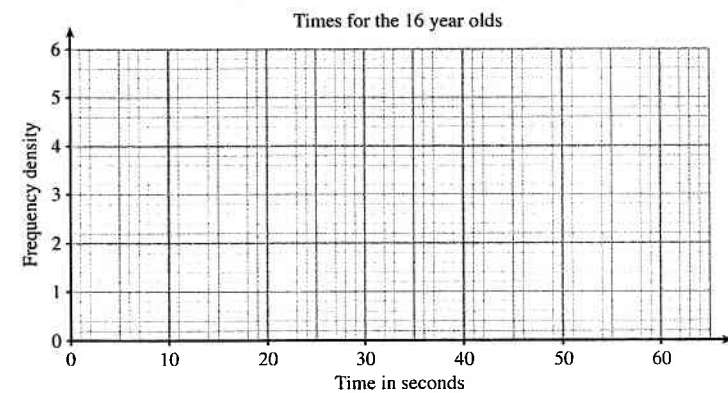
Time, $t$ seconds	$0 < t \leq 10$	$10 < t \leq 20$	$20 < t \leq 30$	$30 < t \leq 40$	$40 < t \leq 60$
Number of people	45	55	60	30	10

(i) Find an estimate for the median of this distribution.

[1]

(ii) Draw a histogram to illustrate the distribution on the graph paper below.

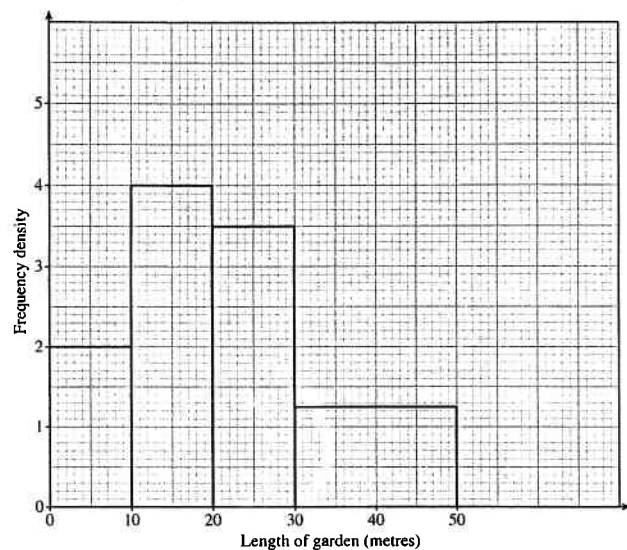
[2]



(c) State, with a reason, which of the two groups is the better, on average, at undoing knots.

[1]

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.

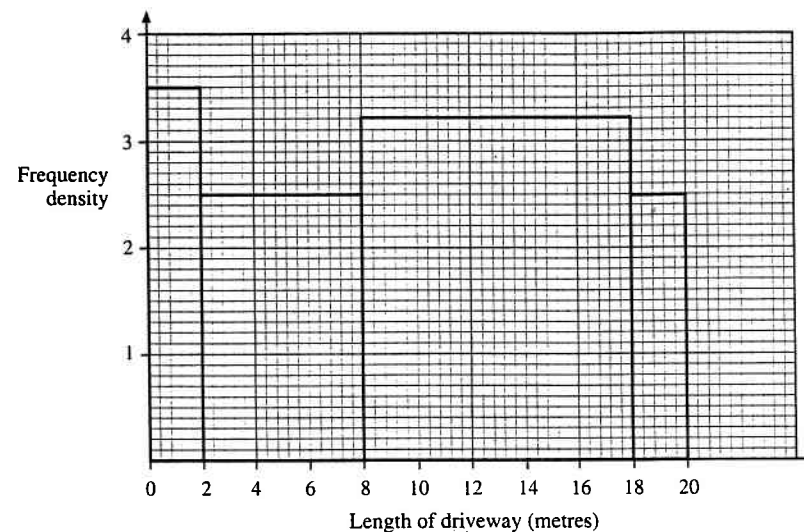


(a) Use the histogram to calculate the number of gardens measured.

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

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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.

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

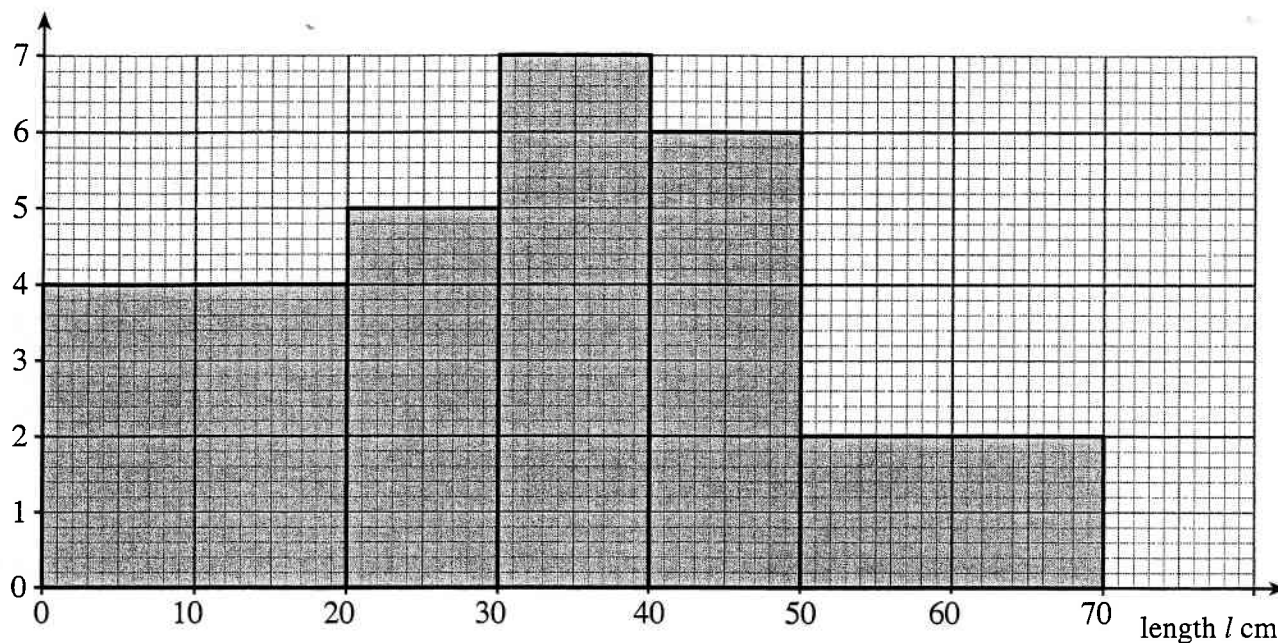
[3]

[3]

[3]

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

Frequency  
density



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

Length, $l$ cm	$0 \leq l < 20$	$20 \leq l < 30$	$30 \leq l < 40$	$40 \leq l < 50$	$50 \leq l < 70$
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]