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Topic 14 Statistics 2 (Pre-TT) [45]

1.

The table summarises the ages of the 80 employees of a company.

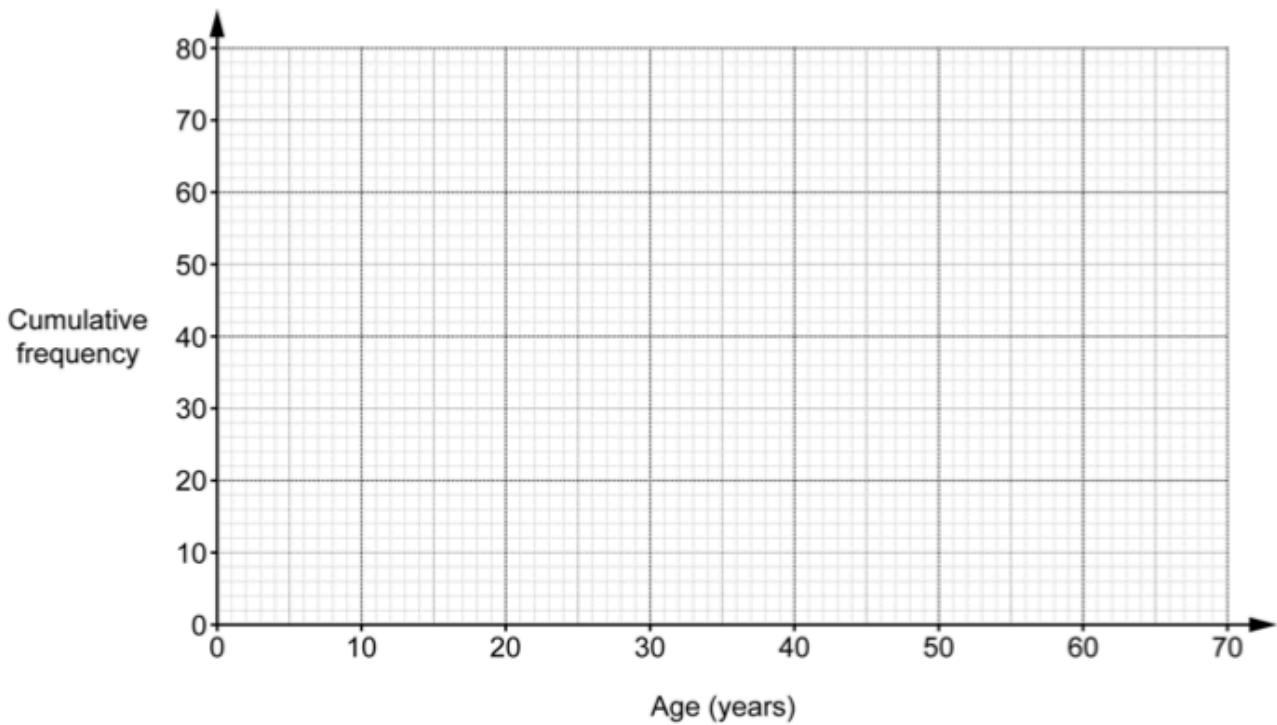
Age, y years	$20 < y \leq 30$	$30 < y \leq 40$	$40 < y \leq 50$	$50 < y \leq 60$	$60 < y \leq 70$
Frequency	10	14	24	23	9

(a) Complete the cumulative frequency table.

Age, y years	$y \leq 20$	$y \leq 30$	$y \leq 40$	$y \leq 50$	$y \leq 60$	$y \leq 70$
Cumulative frequency	0	10				80

[1]

(b) Draw the cumulative frequency graph.



[2]

(c) Ruby says

One quarter of the employees of the company are over 55.

Use the cumulative frequency graph to comment on whether she is correct.

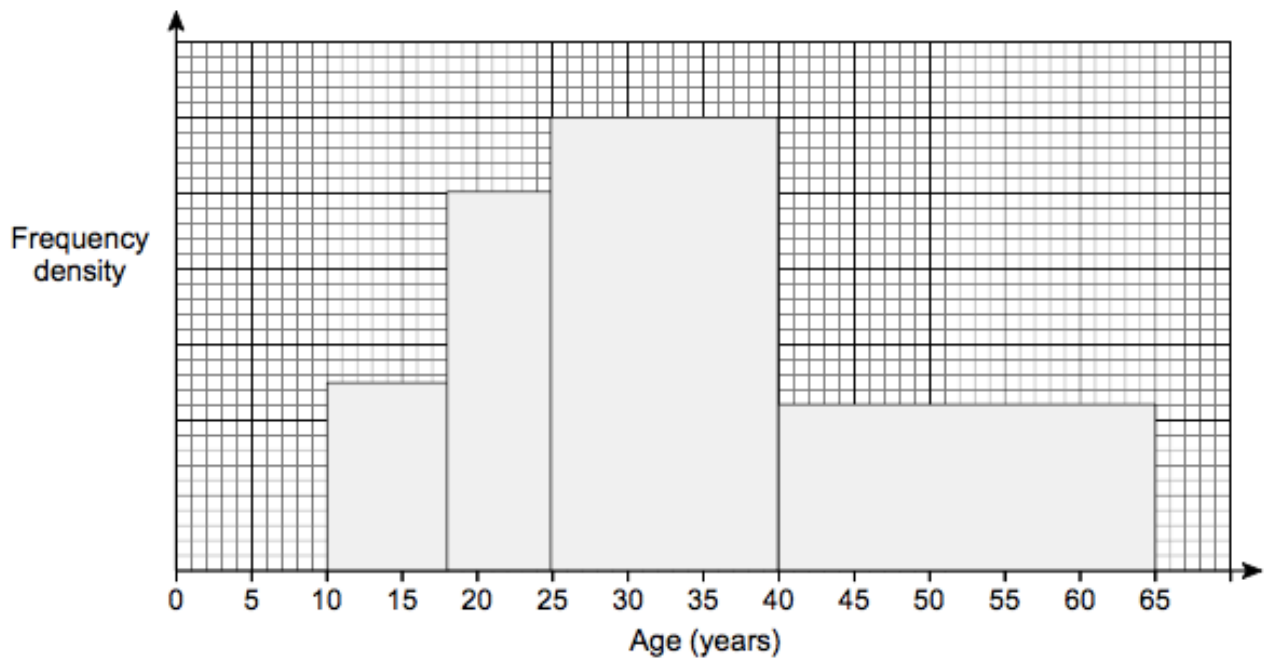
.....

[2]

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2.

22 The histogram shows the ages, in years, of members of a chess club.



There are 22 members with ages in the range $40 < \text{age} < 65$

Work out the number of members with ages in the range $25 < \text{age} < 40$

[4 marks]

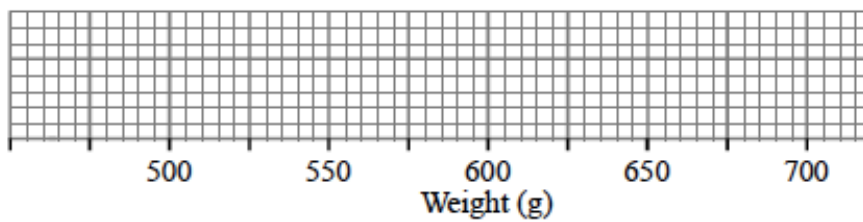
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3. **N.B. The total for this question is 9 marks**

The weights of 80 bags of rice are measured. The table summarises the results.

Minimum	480 g
Lower quartile	500 g
Median	540 g
Upper quartile	620 g
Maximum	720 g

- (a) Draw a box plot to show this information. (3)



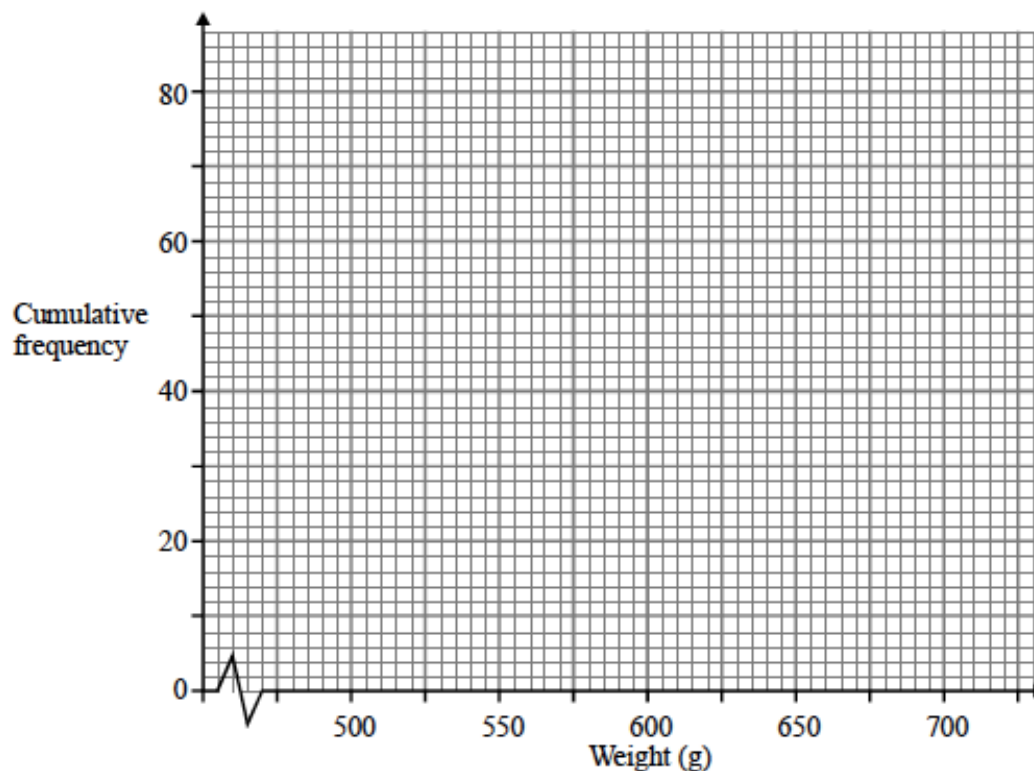
- (b) Write down the interquartile range for these data. (1)

- (c) How many bags weigh

(i) less than 480 g (1)

(ii) less than 500 g? (1)

- (d) Draw a cumulative frequency diagram to show the information.



(3)
(Total 6 marks)

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4. **N.B. Draw your histogram on the axes below**

Simon kept a record of the length of time he spent on the internet each day for 360 days.

The table summarises the results.

Time, t (minutes)	Frequency
$0 \leq t < 10$	50
$10 \leq t < 30$	100
$30 \leq t < 60$	90
$60 \leq t < 120$	120

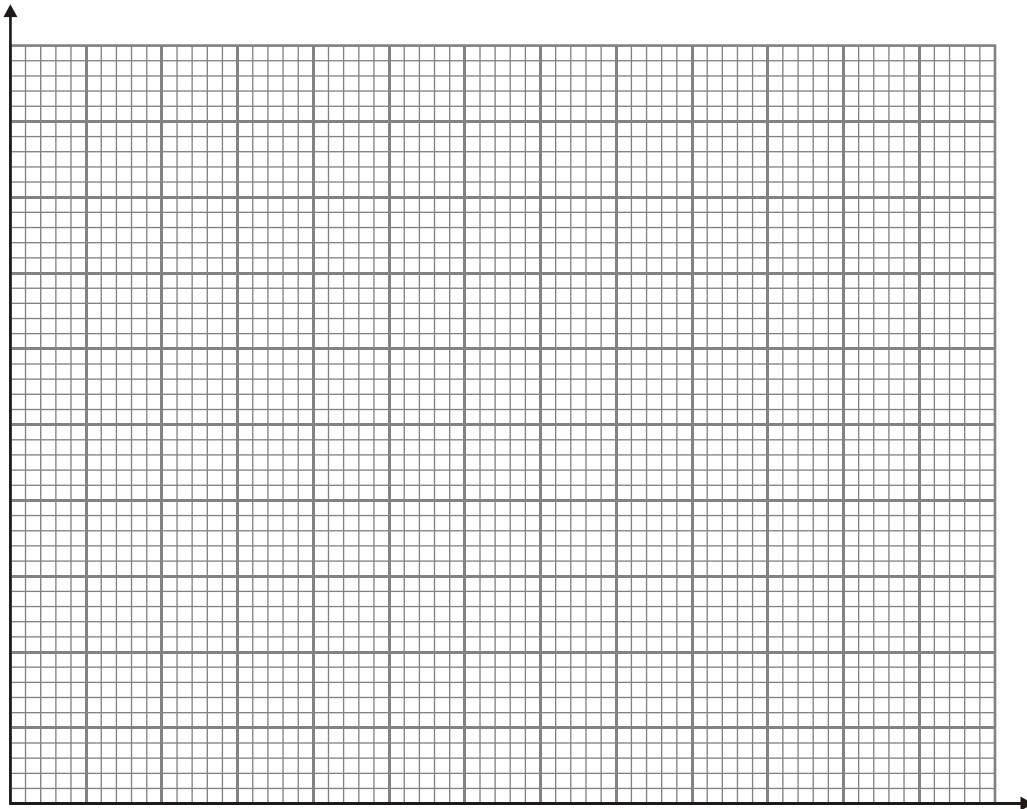
(a) Draw a histogram to represent these times.

(4)

(b) Estimate the number of days that Simon was on the internet for more than 50 minutes.

(3)

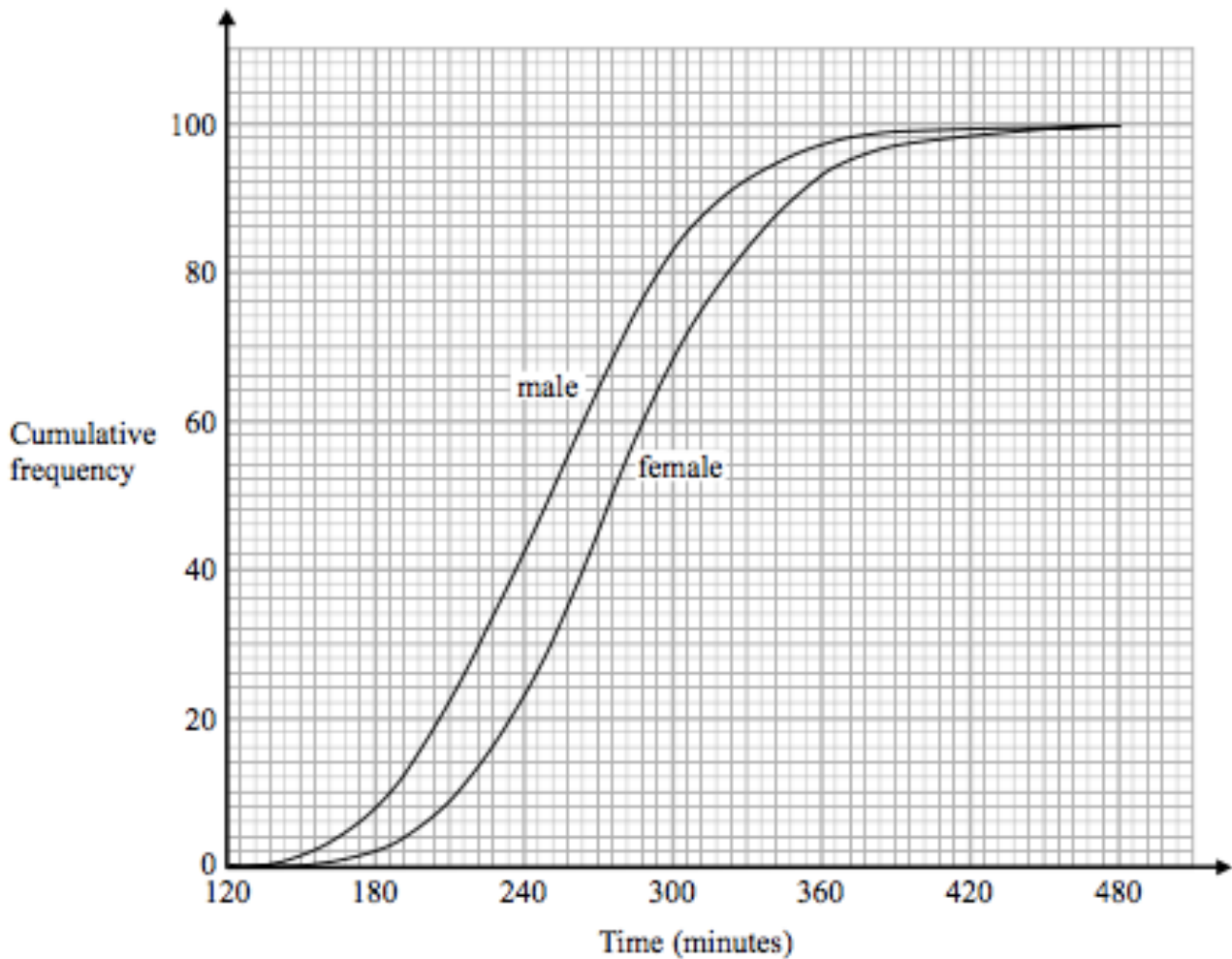
(Total 7 marks)



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5.

The cumulative frequency graphs show information about the times taken by 100 male runners and by 100 female runners to finish the London marathon.



A male runner is chosen at random.

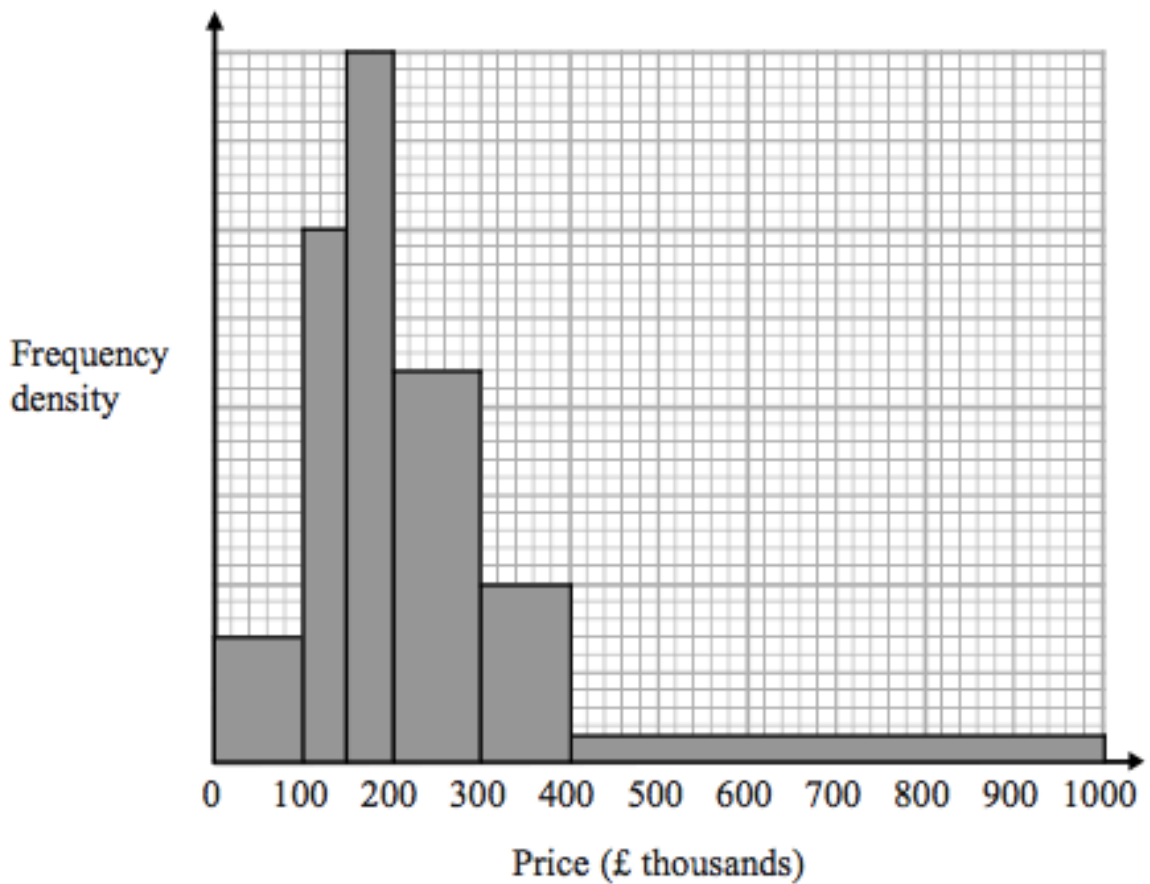
- Find an estimate for the probability that this runner took less than 4 hours to finish the London marathon.
- Use medians and interquartile ranges to compare the distribution of the times taken by the male runners with the distribution of the times taken by the female runners.

(Total 6 marks)

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6.

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

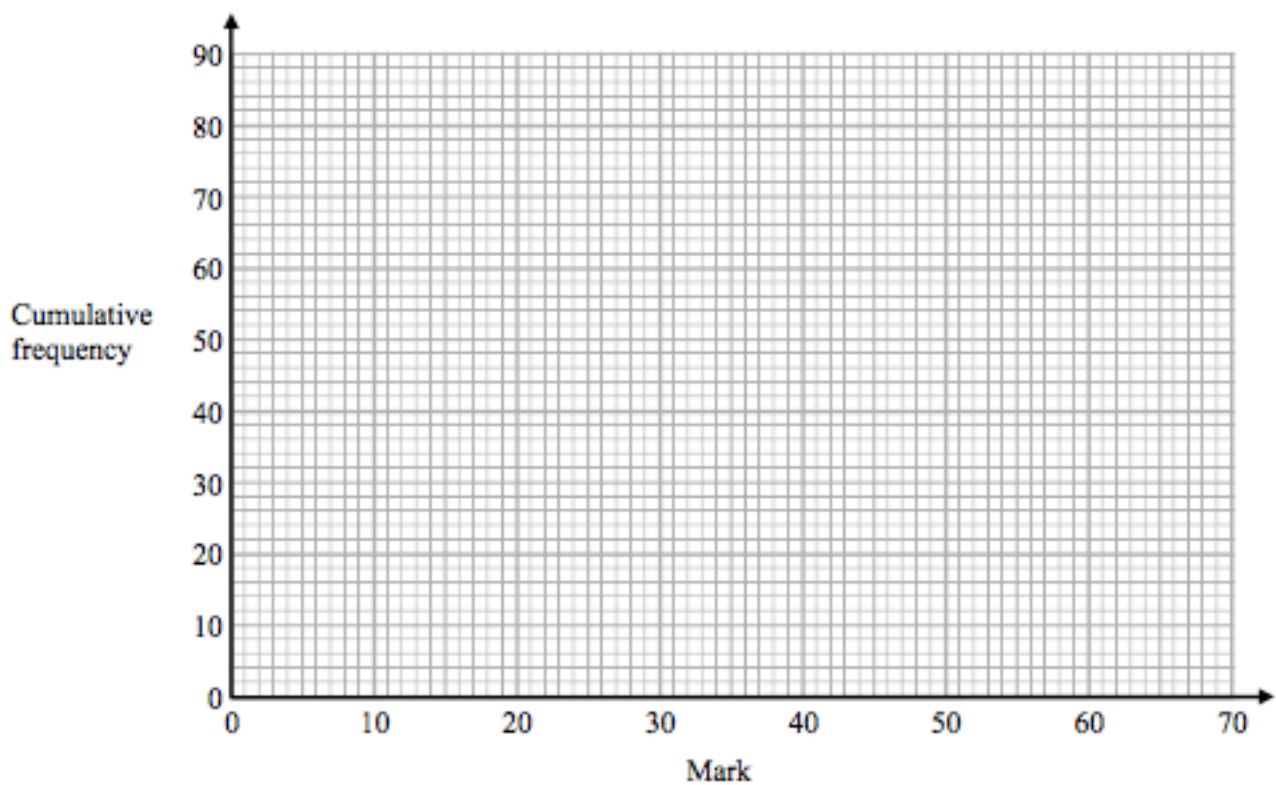
(Total 3 marks)

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7 The cumulative frequency table shows the marks some students got in a test.

Mark (m)	Cumulative frequency
$0 < m \leq 10$	8
$0 < m \leq 20$	23
$0 < m \leq 30$	48
$0 < m \leq 40$	65
$0 < m \leq 50$	74
$0 < m \leq 60$	80

(a) On the grid, plot a cumulative frequency graph for this information.



(2)

(b) Find the median mark.

Students either pass the test or fail the test.

The pass mark is set so that 3 times as many students fail the test as pass the test.

(c) Find an estimate for the lowest possible pass mark.

(Total 6 marks)

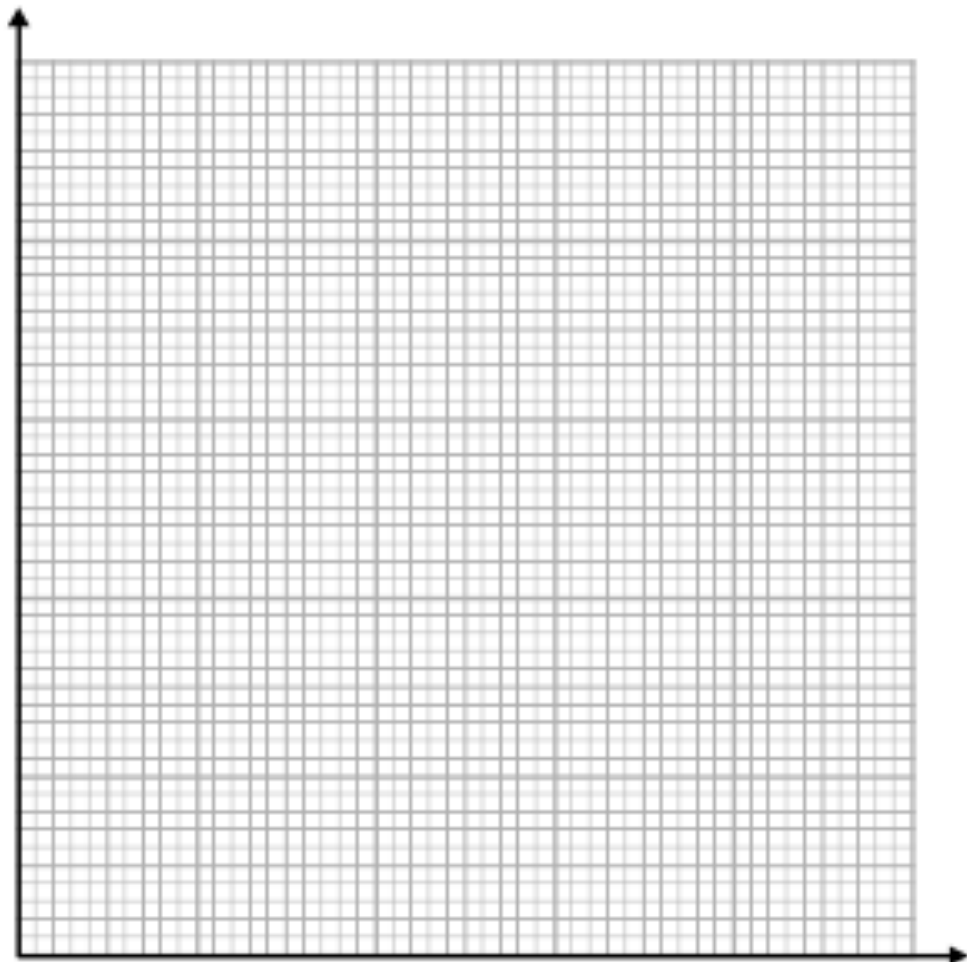
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8.

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.



(b) Find an estimate for the median.

(Total 5 marks)