

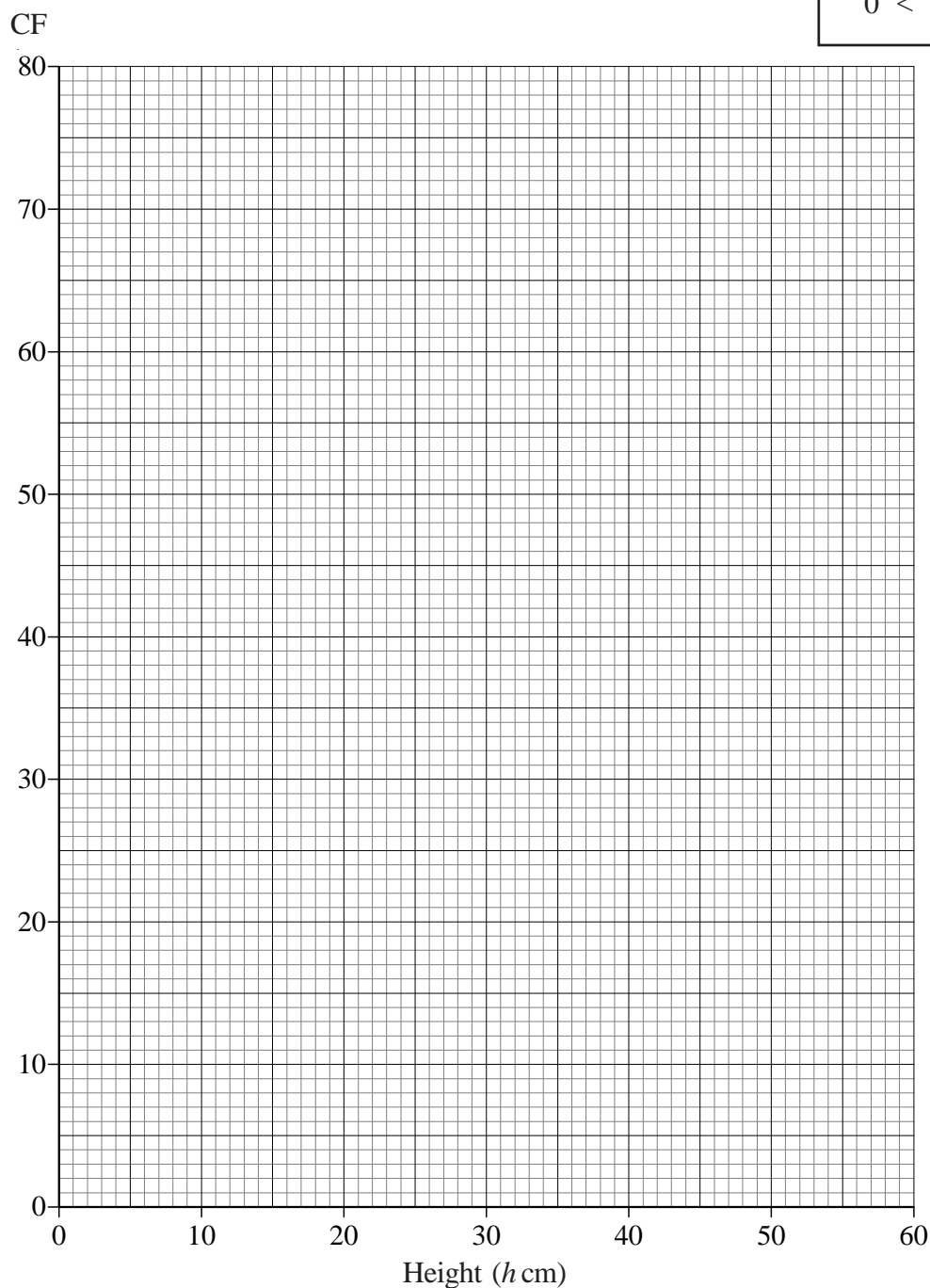
Cumulative Frequency

The heights of 80 plants were measured and can be seen in the table, below.

Height (h cm)	Frequency
$0 < h \leq 10$	2
$10 < h \leq 20$	5
$20 < h \leq 30$	19
$30 < h \leq 40$	38
$40 < h \leq 50$	13
$50 < h \leq 60$	3

a) Complete the cumulative frequency table for the plants.

Height (h cm)	Cumulative Frequency
$0 < h \leq 10$	2
$0 < h \leq 20$	
$0 < h \leq 30$	
$0 < h \leq 40$	
$0 < h \leq 50$	
$0 < h \leq 60$	



b) Draw a cumulative frequency graph for your table.

c) Use your graph to find an estimate for

(i) the median height of a plant.

(ii) the interquartile range of the heights of the plants.

d) Use your graph to estimate how many plants had a height that was greater than 45cm.

Cumulative Frequency

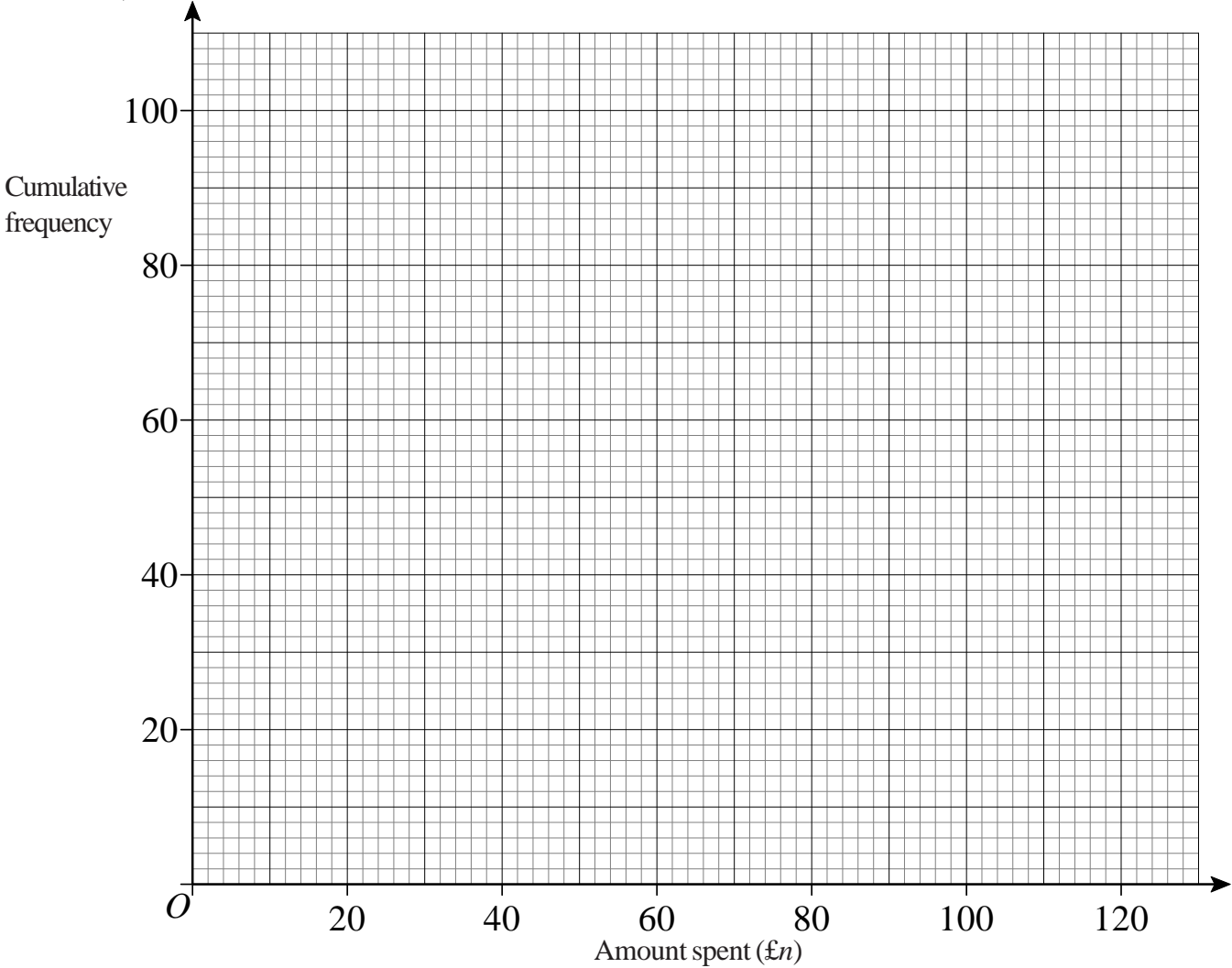
The table shows information about the amount spent by 100 customers in a supermarket.

Amount spent (£ n)	Frequency
$0 < n < 20$	17
$20 < n < 40$	23
$40 < n < 60$	36
$60 < n < 80$	14
$80 < n < 100$	8
$100 < n < 120$	2

a) Complete the cumulative frequency table for this information.

Amount spent (£ n)	Cumulative frequency
$0 < n < 20$	17
$0 < n < 40$	
$0 < n < 60$	
$0 < n < 80$	
$0 < n < 100$	
$0 < n < 120$	

b) On the grid, draw a cumulative frequency graph for your table.



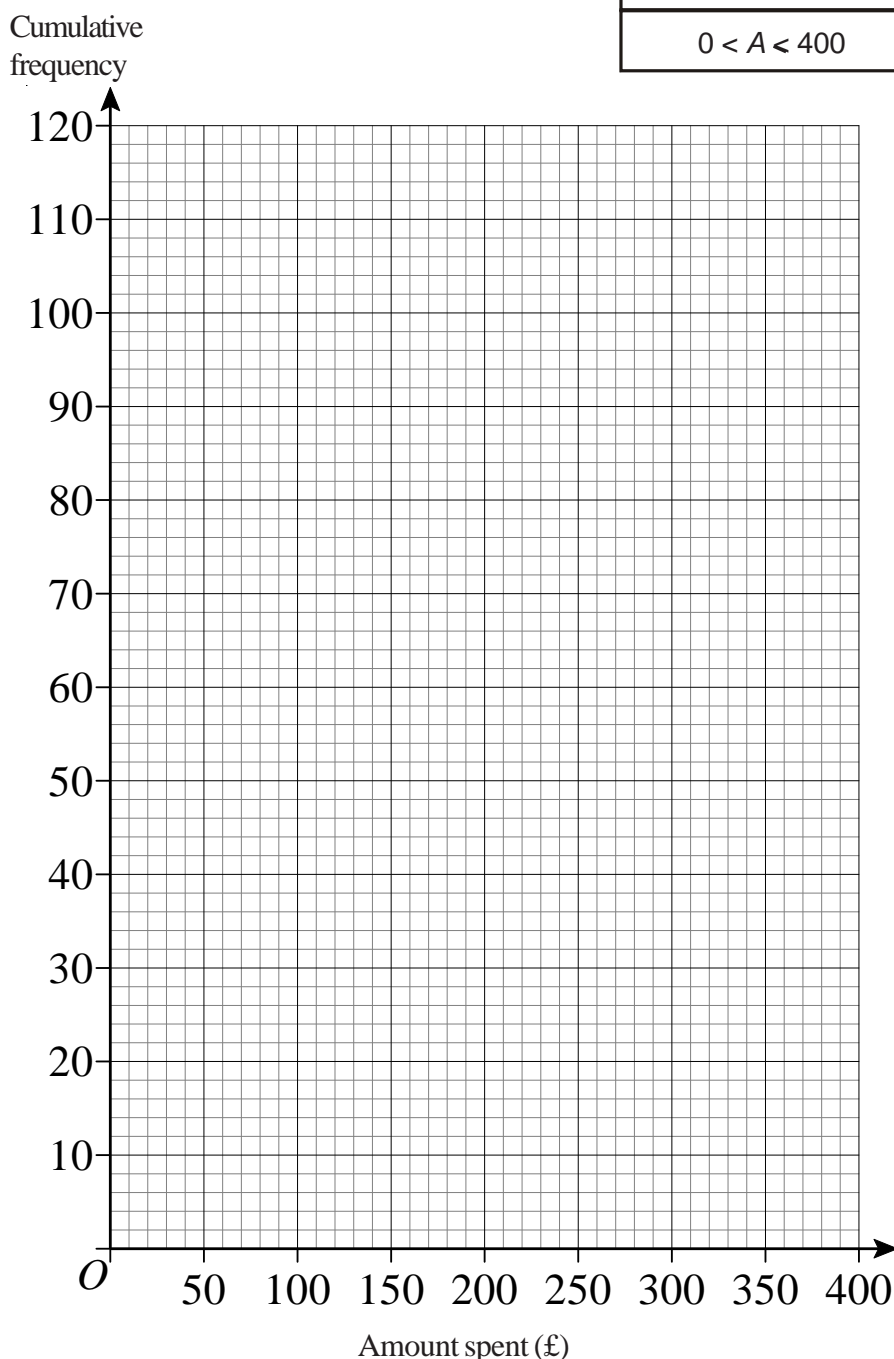
- c) Use your graph to find an estimate for the median amount spent.
- d) Use your graph to find an estimate for the interquartile range of the amount of money spent.

Cumulative Frequency

Fred did a survey about the amount of money spent by 120 men at Christmas. The cumulative frequency table gives some information about the amounts of money spent by the 120 men.

Amount (£A) spent	Cumulative frequency
$0 < A < 100$	12
$0 < A < 150$	26
$0 < A < 200$	42
$0 < A < 250$	64
$0 < A < 300$	93
$0 < A < 350$	112
$0 < A < 400$	120

- a) On the grid, draw a cumulative frequency diagram.



- b) Use your cumulative frequency diagram to estimate the median.
- c) Use your cumulative frequency diagram to estimate the interquartile range of the amount of money spent.
- d) Use your cumulative frequency diagram to estimate the number of men who spent more than £330.

Cumulative Frequency

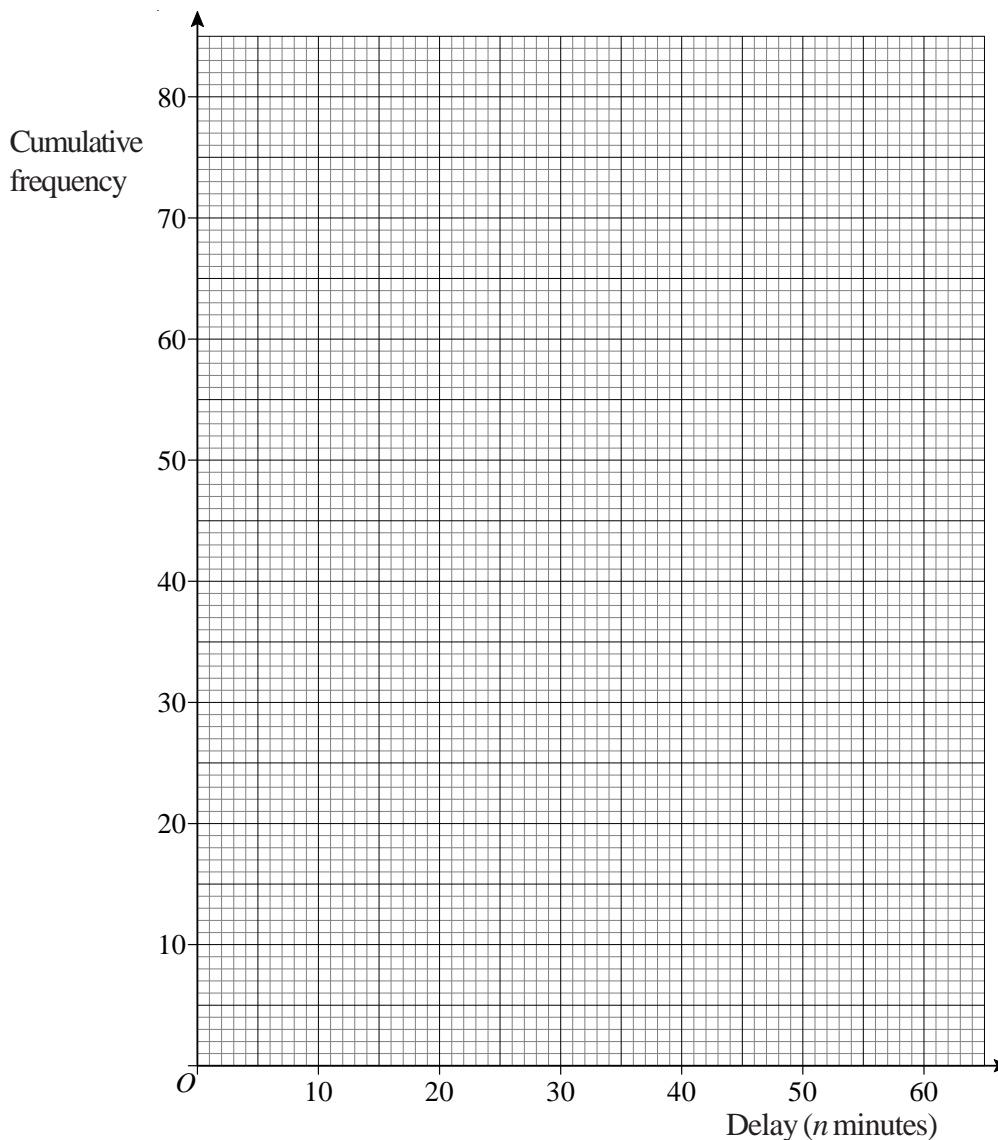
The table gives some information about the delay, in minutes, of 80 trains.

a) Complete the cumulative frequency table.

Delay (n minutes)	Frequency
$0 < n < 20$	16
$20 < n < 30$	27
$30 < n < 40$	22
$40 < n < 50$	10
$50 < n < 60$	5

Delay (n minutes)	Cumulative Frequency
$0 < n < 20$	
$0 < n < 30$	
$0 < n < 40$	
$0 < n < 50$	
$0 < n < 60$	

b) On the grid below, draw a cumulative frequency graph for your table.



- c) Use your graph to find an estimate for
- the median delay.
 - the interquartile range of the delays.
 - the number of trains delayed for more than 53 minutes.

Cumulative Frequency

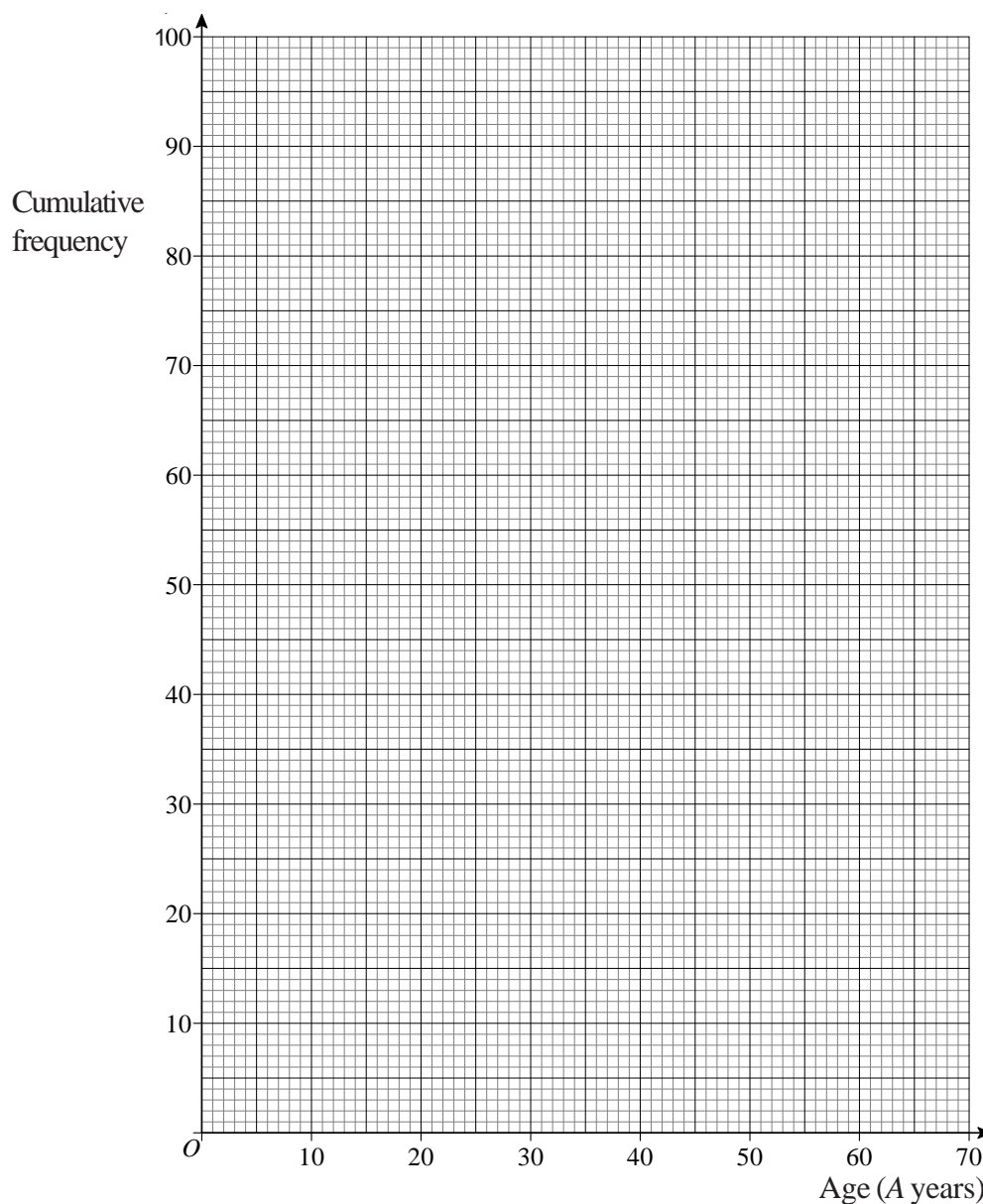
There are 100 teachers at Sam's school.
Sam found out the age of each teacher.

The table gives information about her results. a) Complete the cumulative frequency table

Age (A years)	Frequency
$20 < A < 30$	25
$30 < A < 40$	36
$40 < A < 50$	22
$50 < A < 60$	11
$60 < A < 70$	6

Age (A years)	Cumulative Frequency
$20 < A < 30$	25
$20 < A < 40$	
$20 < A < 50$	
$20 < A < 60$	
$20 < A < 70$	

b) On the grid, draw a cumulative frequency graph for your table.



- c) Use your graph to find an estimate for the median age.
d) Use your graph to find an estimate for the number of these teachers who are **older** than 56 years old.

Cumulative Frequency

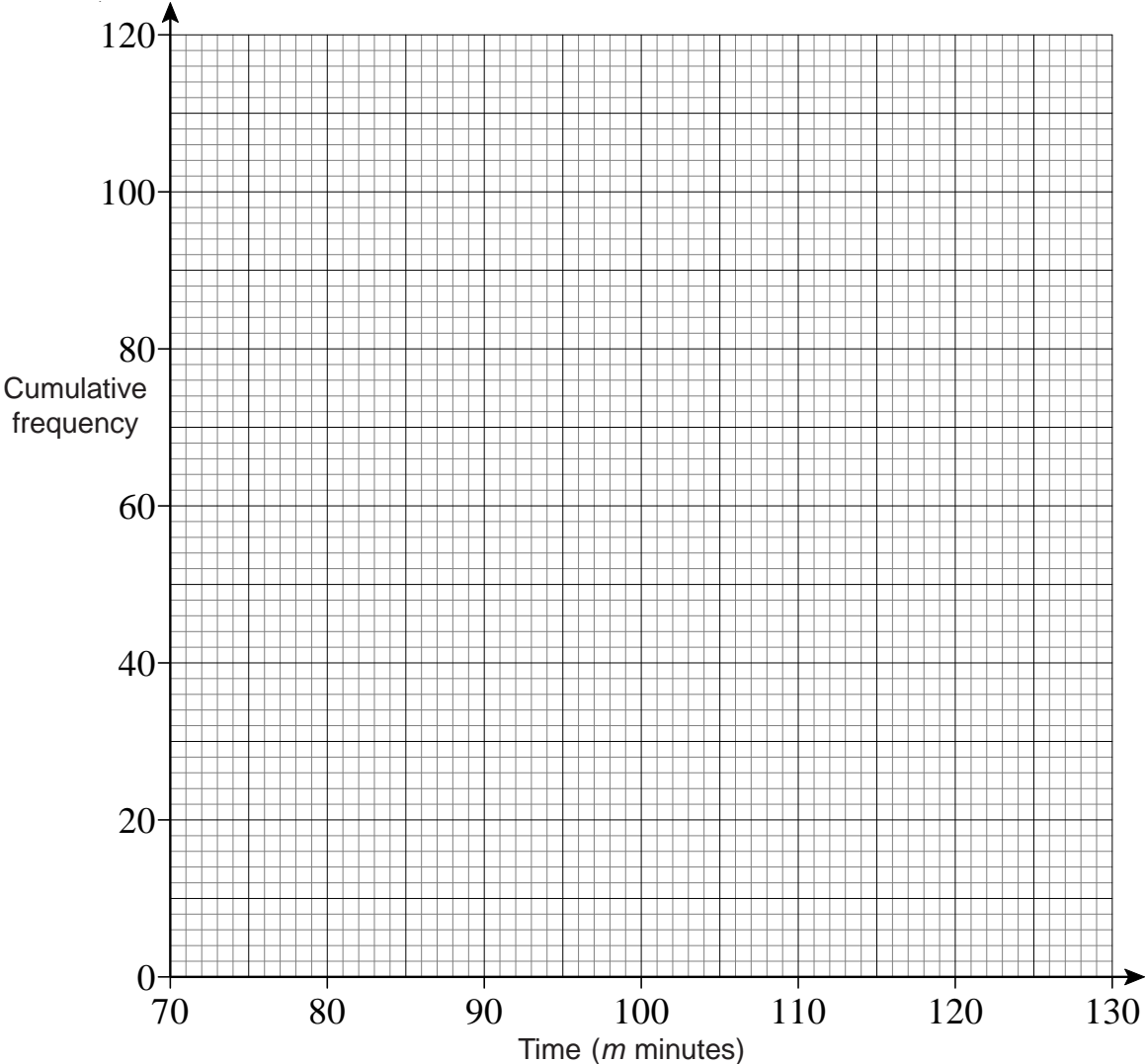
This table shows information about the time, m minutes, it takes to show each of 120 films.

Time (m minutes)	Frequency
$70 < m < 80$	3
$80 < m < 90$	13
$90 < m < 100$	34
$100 < m < 110$	32
$110 < m < 120$	26
$120 < m < 130$	12

- a) Write down the modal class interval.
- b) Complete this cumulative frequency table.

Time (m minutes)	Cumulative frequency
$70 < m < 80$	3
$70 < m < 90$	
$70 < m < 100$	
$70 < m < 110$	
$70 < m < 120$	
$70 < m < 130$	

- c) On the grid, draw a cumulative frequency graph for your cumulative frequency table.



- d) Use your graph to find an estimate for the median.
- e) Use your graph to find an estimate for the interquartile range of times.
- f) Use your graph to find an estimate for the number of films which take longer than 115 minutes to show.