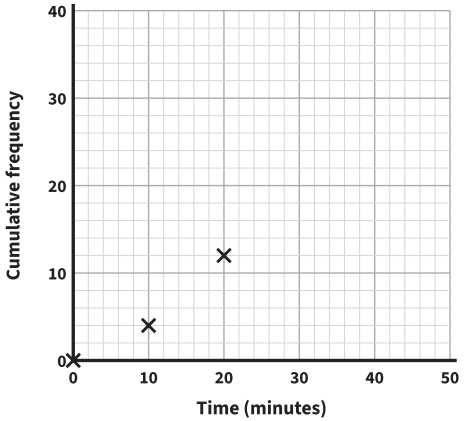
Cumulative frequency

1 cumulative frequency = running total

Complete the table, then draw the cumulative frequency graph. Plot each running total at the upper class boundary.

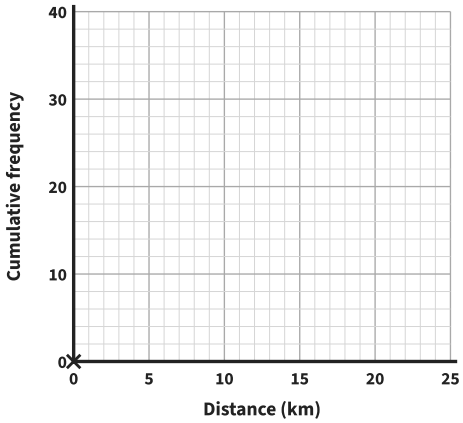
Time (minutes)	Frequency	Cumulative frequency
$0 < t \leq 10$	4	4
$10 < t \leq 20$	8	12
$20 < t \leq 30$	14	
$30 < t \leq 40$	10	
$40 < t \leq 50$	4	



2

Complete the table and draw the cumulative frequency graph.

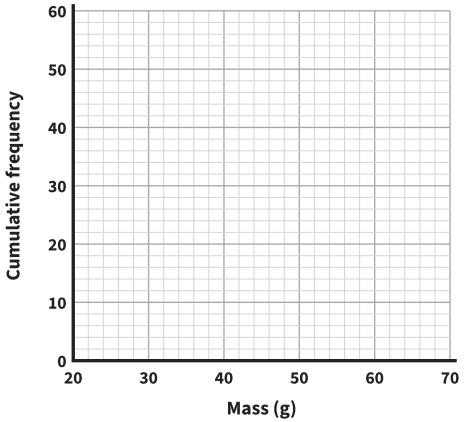
Distance (km)	Frequency	Cumulative frequency
$0 < d \leq 5$	2	2
$5 < d \leq 10$	8	
$10 < d \leq 15$	14	
$15 < d \leq 20$	12	
$20 < d \leq 25$	4	



3 *Notice the change!*

Complete the table and draw the cumulative frequency graph.

Mass (g)	Frequency	Cumulative frequency
$20 < m \leq 30$	4	
$30 < m \leq 40$	12	
$40 < m \leq 50$	20	
$50 < m \leq 60$	16	
$60 < m \leq 70$	8	

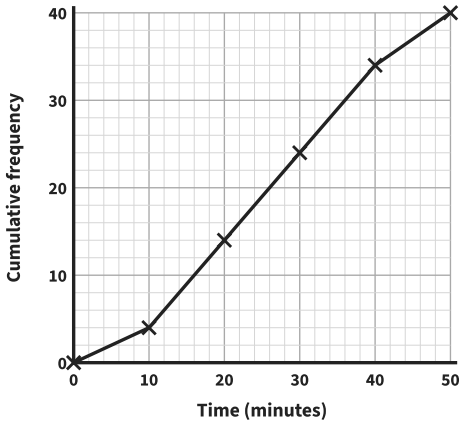


4

There are 40 values. Use the graph to find the median, the quartiles and the interquartile range.

	How far up	Read across
Lower quartile	10	
Median		
Upper quartile		

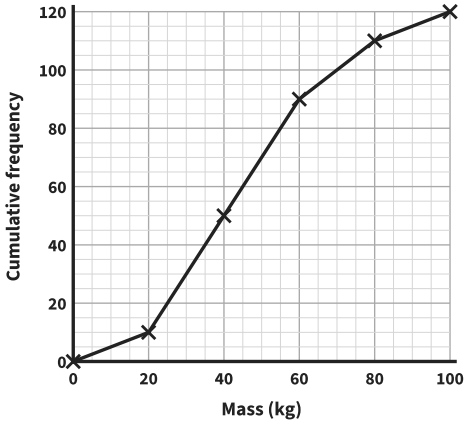
Interquartile range _____



Cumulative frequency

5

The graph shows the masses of 120 parcels. Find the median and the interquartile range.



Median _____

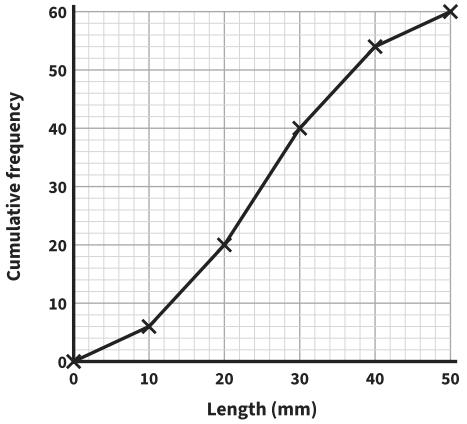
IQR _____

6

The graph shows the lengths of 60 leaves. How many leaves are less than 24 mm long?

Go up from 24 to the graph, then across to the scale.

Answer _____

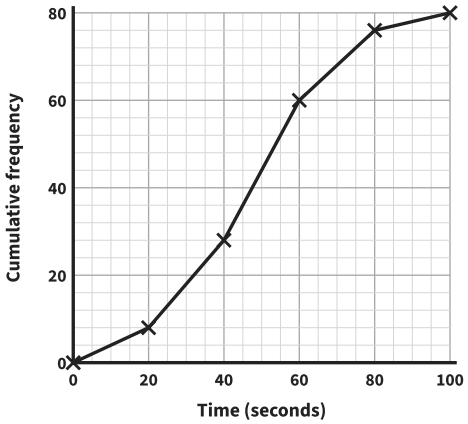


7

The graph shows how long 80 people took to fill in a form. How many took more than 70 seconds?

Go up from 70 to the graph, then across.
Take that from the total.

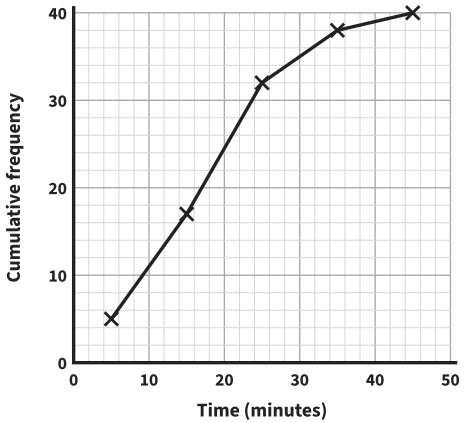
Answer _____



8

Explain Leo's mistake. Write down the points he should plot.

Leo drew this cumulative frequency graph. He plotted each running total at 5, 15, 25, 35 and 45.

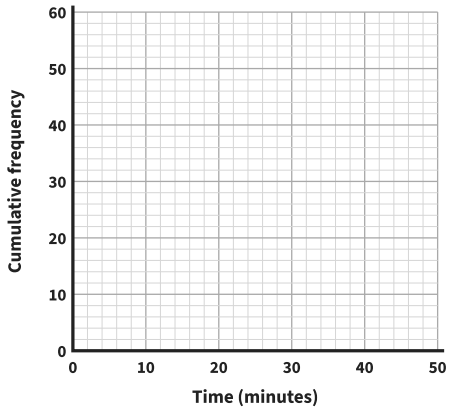


Cumulative frequency *further practice*

9

The table shows how long 60 people spent in a library. Draw the cumulative frequency graph and use it to find the median.

Time (minutes)	Frequency	Cumulative frequency
$0 < t \leq 10$	4	
$10 < t \leq 20$	10	
$20 < t \leq 30$	20	
$30 < t \leq 40$	18	
$40 < t \leq 50$	8	



Median _____

10

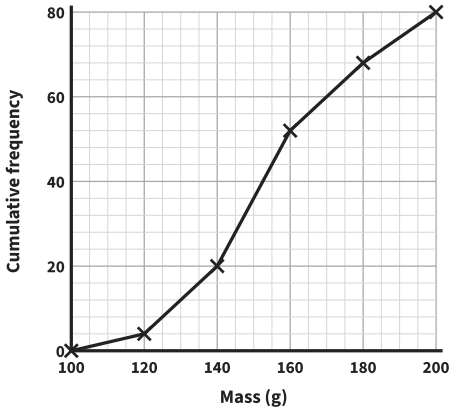
The graph shows the masses of 80 pumpkins. Estimate how many have a mass between 130 g and 170 g.

_____

_____

_____

Estimate _____



11

The graph shows how long 40 patients waited at a dentist. What percentage waited more than 35 minutes?

_____

_____

_____

Percentage _____

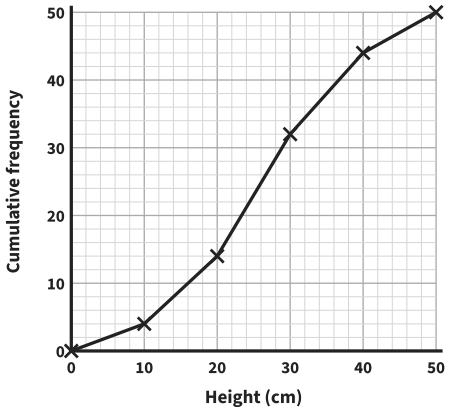


12

The graph shows the heights of 50 seedlings. Complete the frequency table. Which class has the median?

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

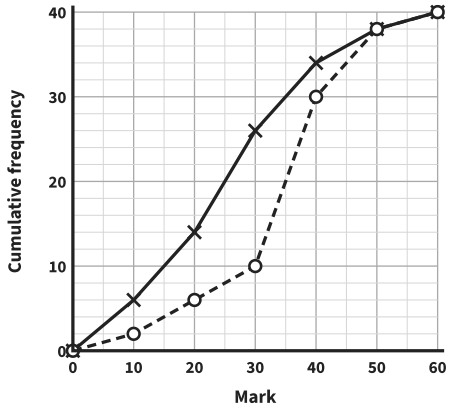
Median class _____



Cumulative frequency *further practice*

13

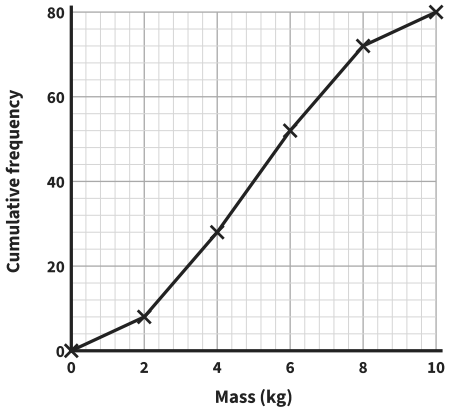
The test marks of class A (crosses) and class B (circles), 40 students each.
Compare them using the medians and interquartile ranges.



14

The graph shows the masses of 80 suitcases. The heaviest 15% get a heavy label.
Estimate the lightest mass that gets a label.

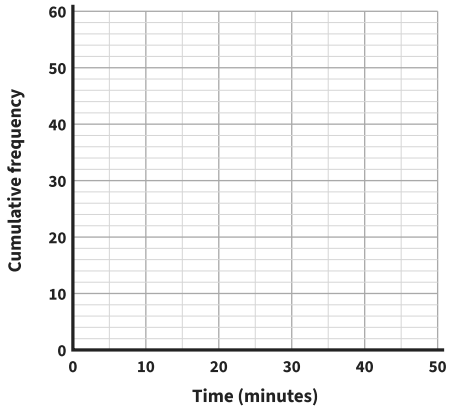
Mass _____



15

Draw the cumulative frequency graph. The classes are different widths.
Then estimate the upper quartile.

Time (minutes)	Frequency	Cumulative frequency
$0 < t \leq 10$	6	
$10 < t \leq 15$	12	
$15 < t \leq 20$	18	
$20 < t \leq 30$	18	
$30 < t \leq 50$	6	



Upper quartile _____

16

Is Ava right? Show how you decide.

Ava says that half of the 80 runners finished in under 30 minutes.

