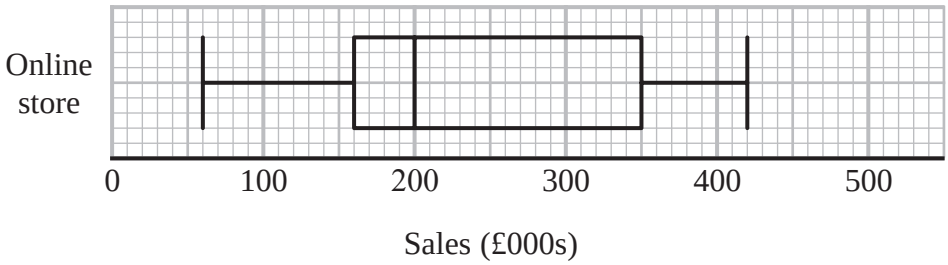
1 The box plot shows information about the sales, in thousands of pounds (£000s), of an online store each month.



Andrew says,

> "Three quarters of the given data lies between 160 000 and 350 000 because these are the values of the lower quartile and the upper quartile."

Andrew is wrong.

(a) Explain why.

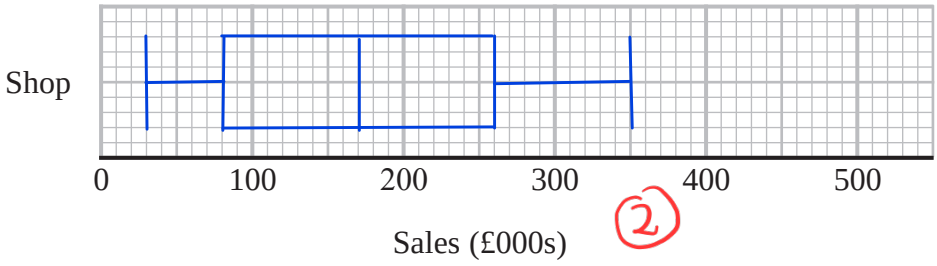
The interquartile range is half the data not $\frac{3}{4}$ (1)

(1)

The table shows information about the sales, in £000s, in a shop each month.

	Sales (£000s)
least value	30
lower quartile	80
median	170
upper quartile	260
greatest value	350

(b) On the grid below, draw a box plot for this information.



(2)

(2)

2 In an experiment, 60 students each completed a puzzle.

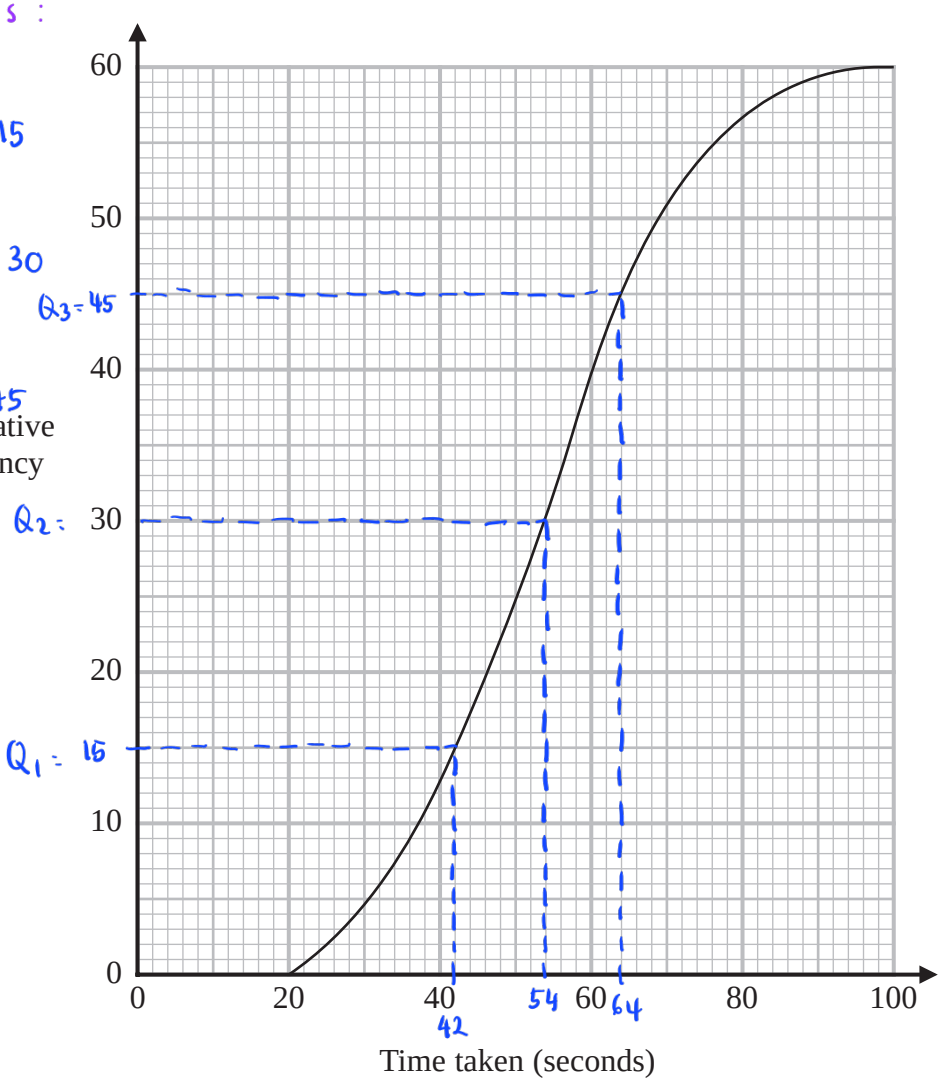
The cumulative frequency graph shows information about the times taken for the 60 students to complete the puzzle.

Finding quartiles :

$Q_1 : \frac{1}{4}(60) = 15$

$Q_2 : \frac{1}{2}(60) = 30$

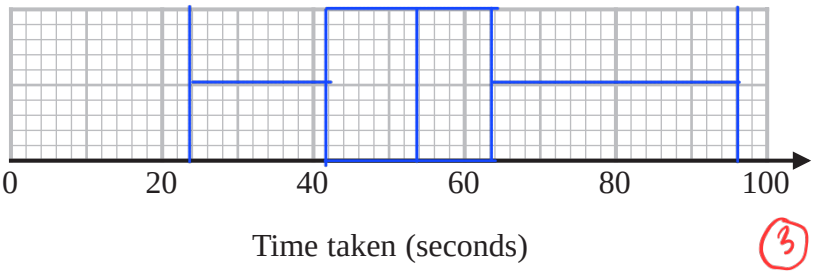
$Q_3 : \frac{3}{4}(60) = 45$



For these 60 students,

the least time taken was 24 seconds
the greatest time taken was 96 seconds.

On the grid below, draw a box plot for the distribution of the times taken by the students.



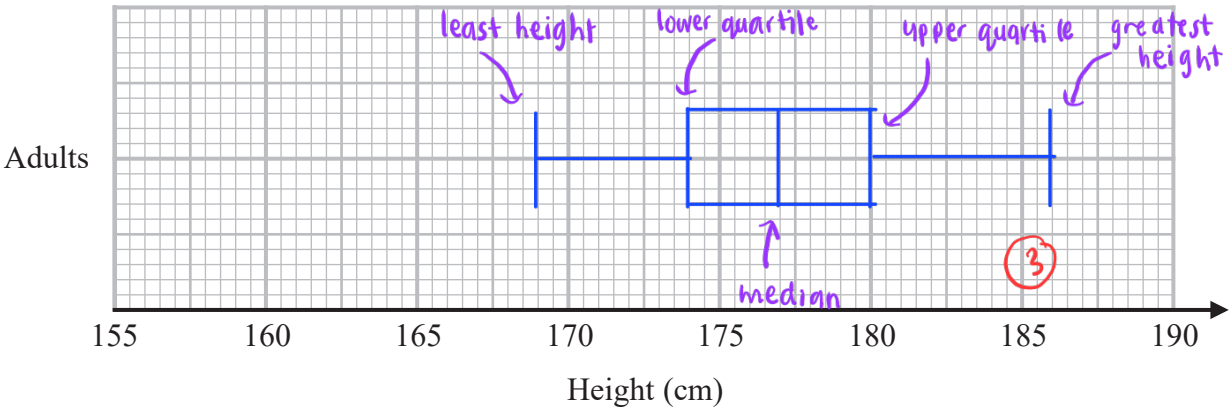
(3)

(Total for Question 2 is 3 marks)

3 The table shows some information about the heights of a group of adults.

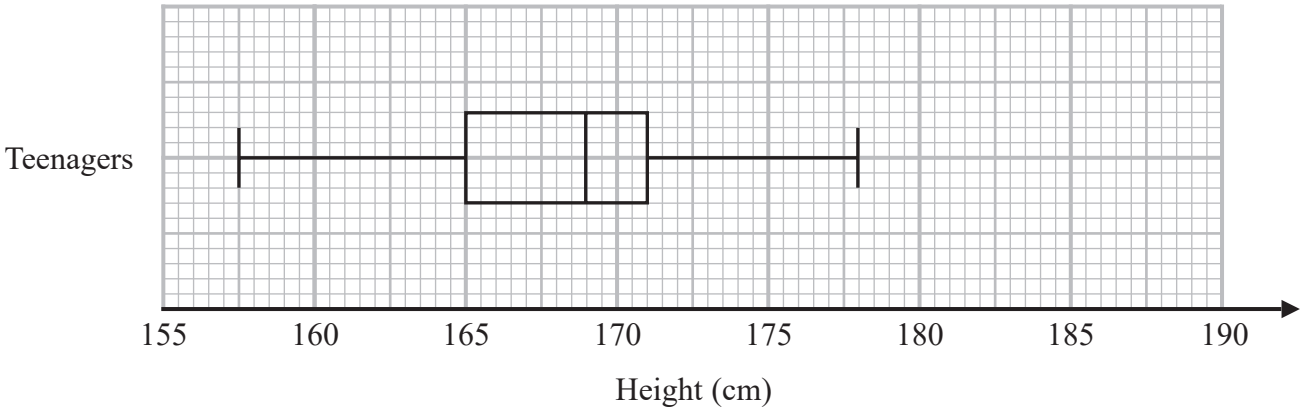
least height	169 cm
greatest height	186 cm
median	177 cm
lower quartile	174 cm
upper quartile	180 cm

(a) On the grid, draw a box plot for the information in the table.



(3)

The box plot below shows the distribution of the heights of a group of teenagers.



(b) Compare the distribution of the heights of the adults with the distribution of the heights of the teenagers.

- Adults have higher median compared to teenagers which means average adults have a greater height than teenagers. (1)
- Interquartile range of adults is the same as teenagers. But teenagers have large range than adult. (1)

(2)

(Total for Question 3 is 5 marks)

4 Mina records the speeds, in mph, of some cars on a road on Friday.
She uses her results to work out the information in this table.

	Speed (mph)
Lowest speed	25
Lower quartile	35
Median	40
Interquartile range	12
Range	37

Upper quartile :

$Q_1 + IQR$

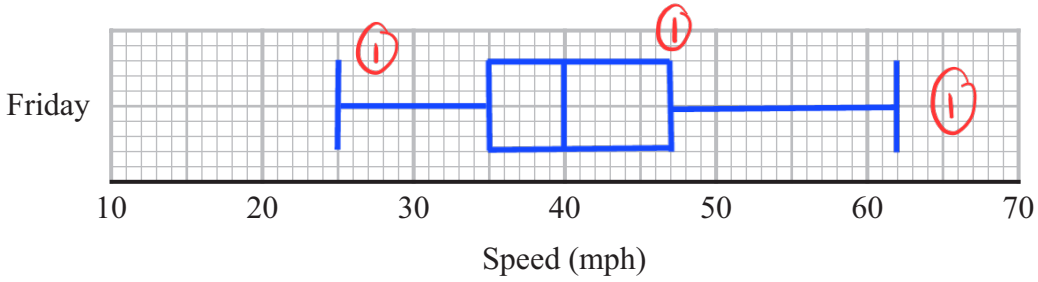
Upper quartile :

$35 + 12 = 47$

Highest value = Lowest value + Range

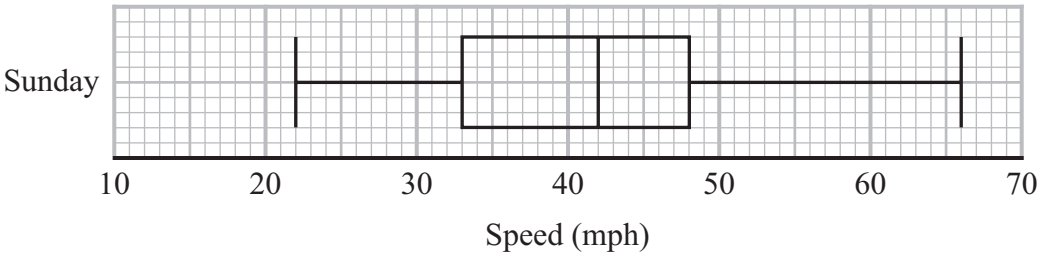
Highest speed = $25 + 37$
$= 62$

(a) On the grid, draw a box plot to show the information in the table.



(3)

Mina also records the speeds of some cars on the same road on Sunday.
She uses her results to draw this box plot.



(b) Compare the distribution of the speeds on Friday with the distribution of the speeds on Sunday.

The median speed for Sunday was greater than the median speed for Friday. The interquartile range of the speeds on Sunday is greater than the interquartile range of speeds on Friday.

(2)

(Total for Question 4 is 5 marks)