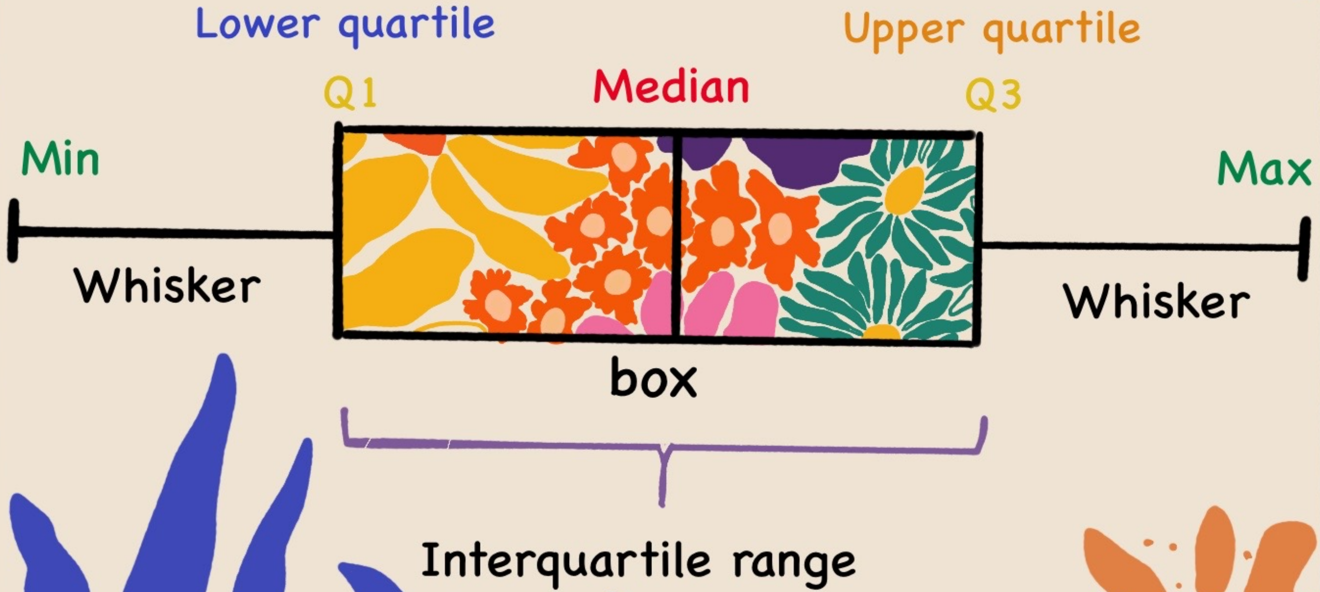
The Maths Society

Box Plot



Lower quartile

Upper quartile

Q1

Median

Q3

Min

Max

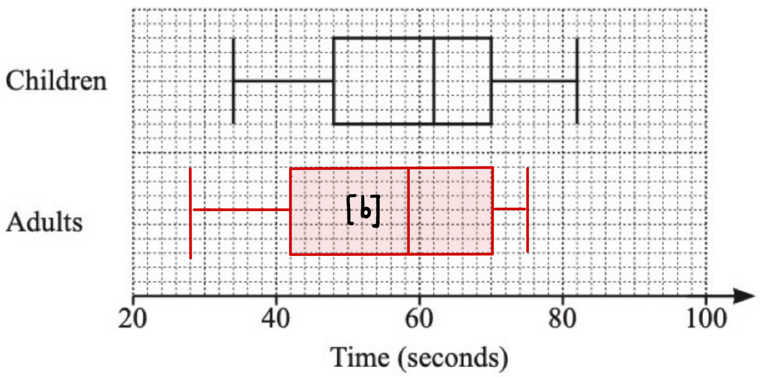
Whisker

Whisker

box

Interquartile range

12 Gemma records the times, in seconds, taken for a group of children and a group of adults to complete a puzzle.
The box-and-whisker plot shows information about the times taken for the children to complete the puzzle.



(a) Find the interquartile range of the times taken for the children to complete the puzzle.

70−48

22 .... seconds [2]

(b) The table shows some information about the times, in seconds, taken for the adults to complete the puzzle.

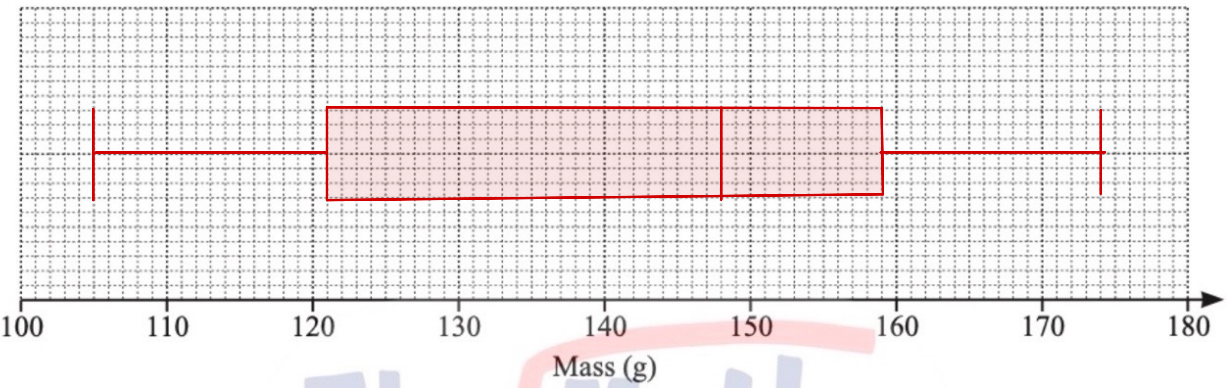
Minimum	Lower quartile	Median	Upper quartile	Maximum
28	42	58	70	75

On the grid above, draw the box-and-whisker plot for the adults. [2]

3 **(a)** Here is some information about the masses of potatoes in a sack:

- The largest potato has a mass of 174 g.
- The range is 69 g.
- The median is 148 g.
- The lower quartile is 121 g.
- The interquartile range is 38 g.

On the grid below, draw a box-and-whisker plot to show this information.



[4]

(b) The table shows the marks scored by some students in a test.

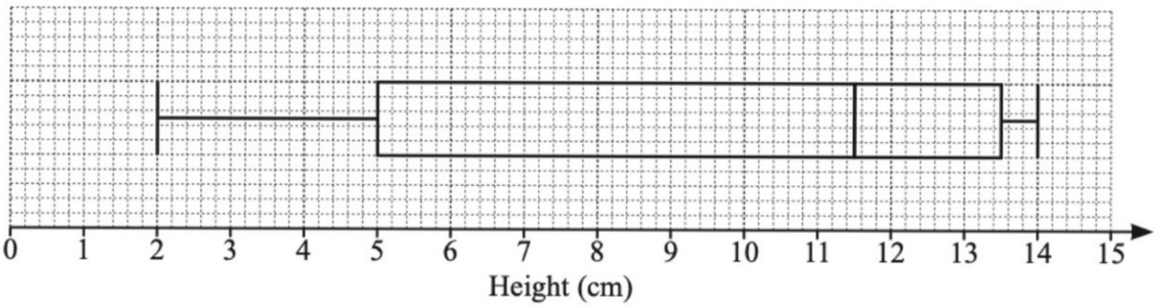
Mark	5	6	7	8	9	10
Frequency	8	2	12	2	0	1
	40	12	84	16	0	10

Calculate the mean mark.

$$\text{mean} = \frac{162}{25}$$

6.48 .... [3]

14 The box-and-whisker plot gives information about the heights, in centimetres, of some plants.



(a) Write down the median.

11.5 cm [1]

(b) Find

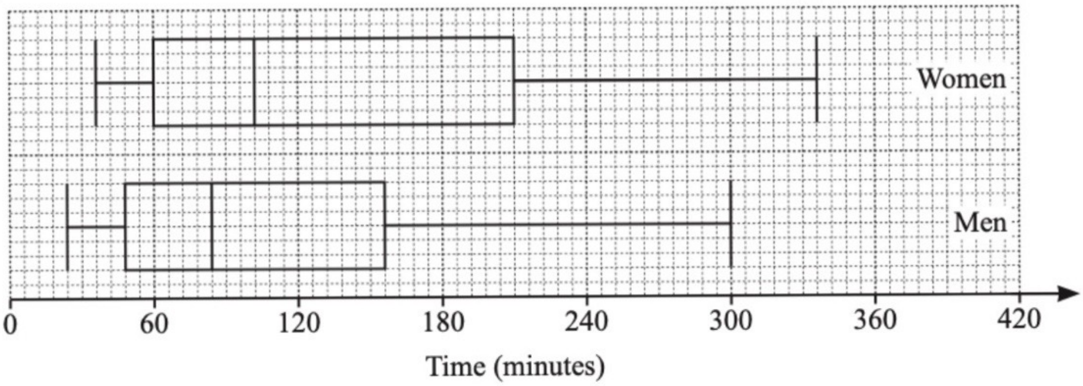
(i) the range,

12 cm [1]

(ii) the interquartile range.

8.5 cm [1]

3 **(a)**



The box-and-whisker plots show the times spent exercising in one week by a group of women and a group of men.

Below are two statements comparing these times.
For each one, write down whether you agree or disagree, giving a reason for your answer.

Statement	Agree or disagree	Reason
On average, the women spent less time exercising than the men.	disagree	median for women is more than for men
The times for the women show less variation than the times for the men.	disagree	IQR for women is greater than that of men.

[2]

(b) The frequency table shows the times, t minutes, each of 100 children spent exercising in one week.

Time (t minutes)	$0 < t \leqslant 60$	$60 < t \leqslant 100$	$100 < t \leqslant 160$	$160 < t \leqslant 220$	$220 < t \leqslant 320$
Frequency	41 ×30	24 ×80	23 ×130	8 ×190	4 ×270

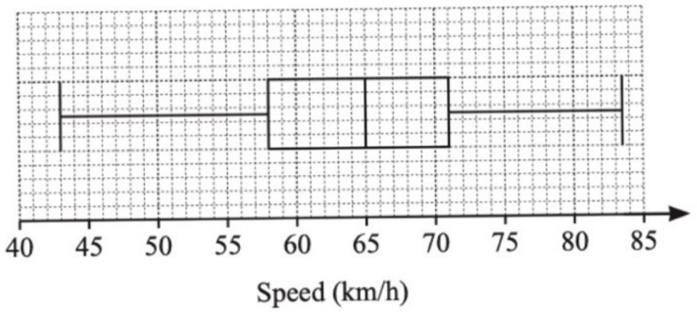
(i) Calculate an estimate of the mean time.

$$\text{mean} = \frac{1230 + 1920 + 2990 + 1520 + 1080}{100}$$

$$= 87.4$$

87.4 .... min [4]

3 **(a)** The average speeds, in km/h, of cars travelling along a road are recorded.
The box-and-whisker plot shows this information.



Find

(i) the lowest speed recorded,

43 .... km/h [1]

(ii) the median,

65 .... km/h [1]

(iii) the interquartile range.

13 .... km/h [1]

(b) Another car takes 18 seconds to travel 400 m along this road.

Calculate the average speed of this car in km/h.

$$A.S = \frac{d}{t} = \frac{400\,m}{18\,sec} = \frac{0.4}{0.005}$$

$$= 80 \text{ km/h}$$

80 .... km/h [3]

.... min [4]