

Box Plots

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **27**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 Here are 15 test scores in order.

12 15 17 19 20 22 25 27 29 30 33 36 38 41 45

(a) Work out the median.

[1 mark]

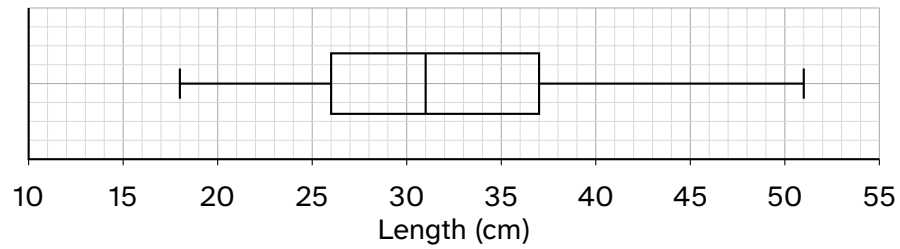
Answer _____

(b) Work out the interquartile range.

[2 marks]

Answer _____

- 2** The box plot shows information about the lengths of some fish caught in a river.



- (a) Circle the median value.

[1 mark]

26

31

34.5

37

- (b) Work out the interquartile range.

[1 mark]

Answer _____ cm

- (c) Work out the range.

[1 mark]

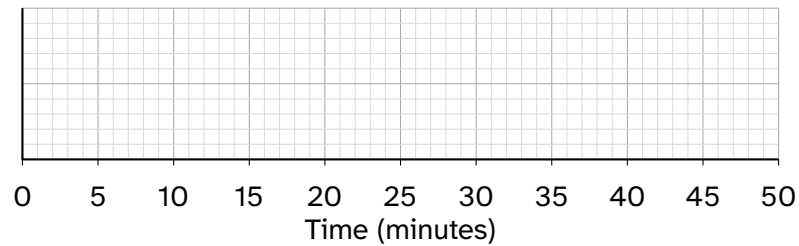
Answer _____ cm

- 3** A box plot has a lower quartile of 40 and an interquartile range of 25
Work out the upper quartile.

[1 mark]

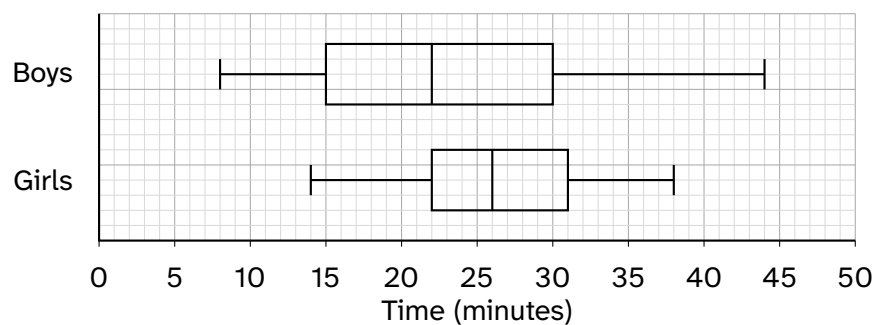
Answer _____

- 4** Some students each did a puzzle. Here is some information about the times they took. The shortest time was 12 minutes and the longest was 40 minutes. The median was 24 minutes. The lower quartile was 18 minutes and the upper quartile was 31 minutes.
Draw a box plot to show this information.



[2 marks]

- 5** The box plots show the times some boys and girls spent on homework.



- (a) Work out the interquartile range for the boys.

[1 mark]

Answer _____ minutes

- (b) Compare the times of the boys and the girls.

[2 marks]

- 6 Two machines, *A* and *B*, fill bags of rice.
50 bags filled by each machine are weighed.
The table shows information about the masses, in grams.

	Median	Interquartile range	Range
Machine <i>A</i>	502	6	15
Machine <i>B</i>	499	4	20

Using this data, which statement **must** be true?

Tick **one** box.

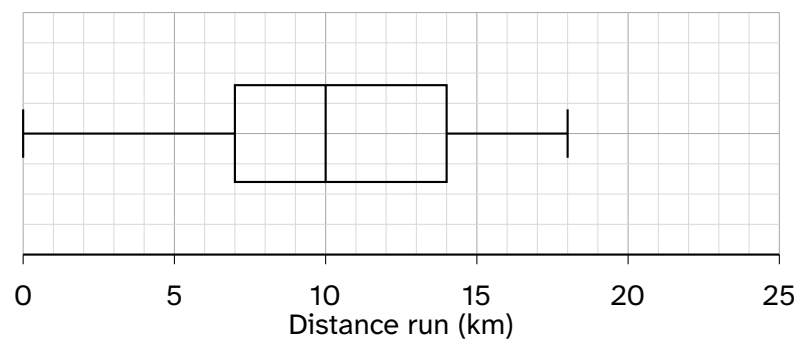
[1 mark]

- ☐ Machine *A* filled the heaviest bag
- ☐ On average, the bags from machine *A* were heavier
- ☐ The masses of the bags from machine *A* were more consistent
- ☐ Machine *B* filled the lightest bag

- 7 Here is some information about the distances members of a running club ran one Sunday.

Shortest distance	3 km
Lower quartile	7 km
Median	10 km
Upper quartile	14 km
Range	18 km

Priya draws this box plot to show the information.



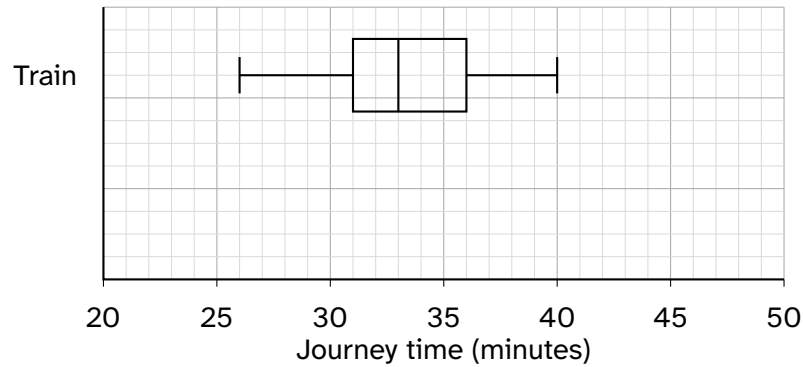
Make **two** criticisms of her box plot.

[2 marks]

- 8 Lena travels to work by bus or by train.
She records her bus journey time, in minutes, on 15 days.

31 25 38 29 22 34 31 27 41 30 36 24 47 28 33

The box plot shows information about her train journey times.



- (a) On the grid, draw a box plot for Lena's bus journey times.

[4 marks]

- (b) Lena says,
‘On average, my bus journey is quicker than the train journey.
But the train journey times are more consistent.’
Is Lena correct?
Use statistical measures to support your answer.

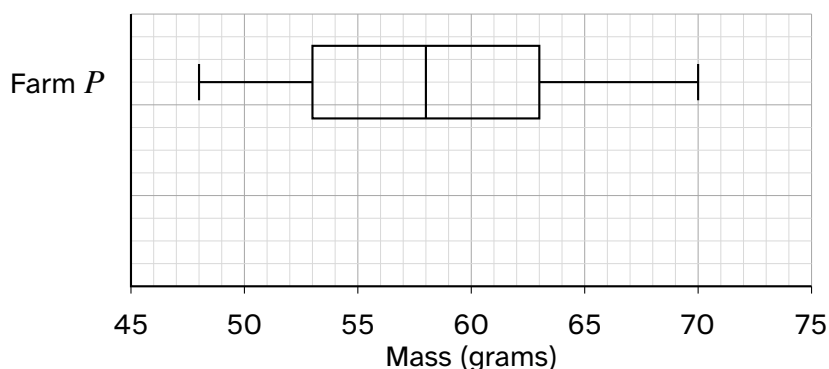
[2 marks]

- 9 Eggs from two farms, P and Q , are weighed.
The box plot for farm P is shown on the grid.

For farm Q ,

- the lightest egg was 4 grams heavier than the lightest egg from farm P
- the median was equal to the upper quartile for farm P
- the lower quartile was 60 grams
- the interquartile range was half of the interquartile range for farm P
- the range was 20 grams.

Draw the box plot for farm Q on the grid.



[4 marks]

- 10 Jodie writes seven whole numbers in order of size, smallest first.
She covers up four of them: the two quartiles, the median and the largest number.

5 10 17

- lower quartile + upper quartile = 28
- interquartile range = 12
- median = lower quartile + 5
- range = 20

Work out the four covered numbers.
Write them in the boxes.

[2 marks]