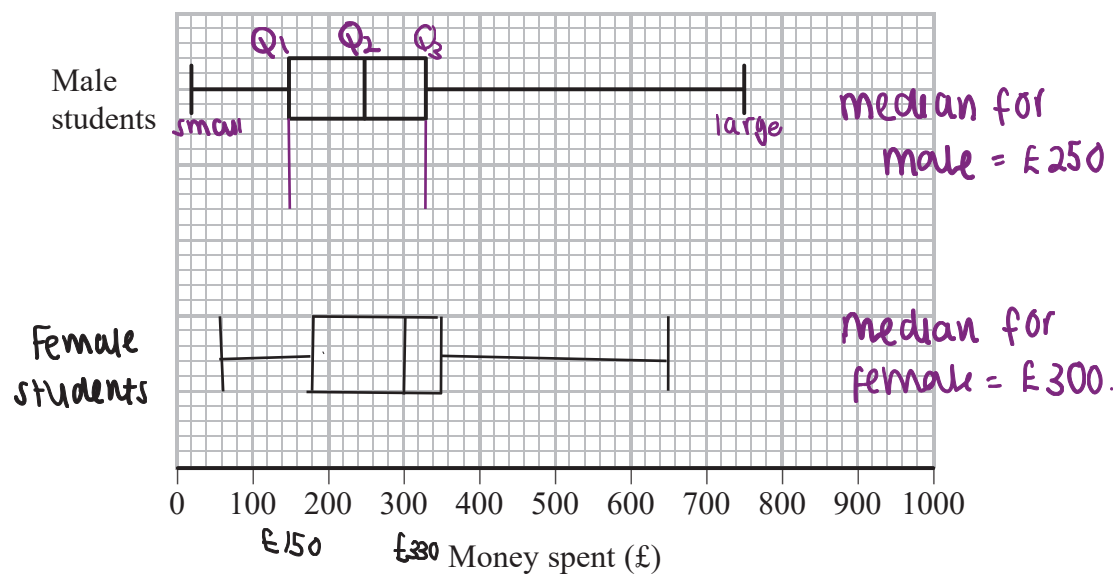


1. The box plot shows information about the distribution of the amounts of money spent by some male students on their holidays.



- (a) Work out the interquartile range for the amounts of money spent by these male students.

$$IQR = Q_3 - Q_1 = £330 - £150 = \underline{\underline{£180}}$$

£ 180
(2)

The table below shows information about the distribution of the amounts of money spent by some female students on their holidays.

	Smallest	Lower quartile	Median	Upper quartile	Largest
Money spent (£)	60	180	300	350	650

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

(2)

Chris says,

“The box plots show that the female students spent more money than the male students.”

(c) Is Chris correct?

Give a reason for your answer.

Yes, Chris is correct because the median for the female students is greater than the median for the male students. (1)

(1)

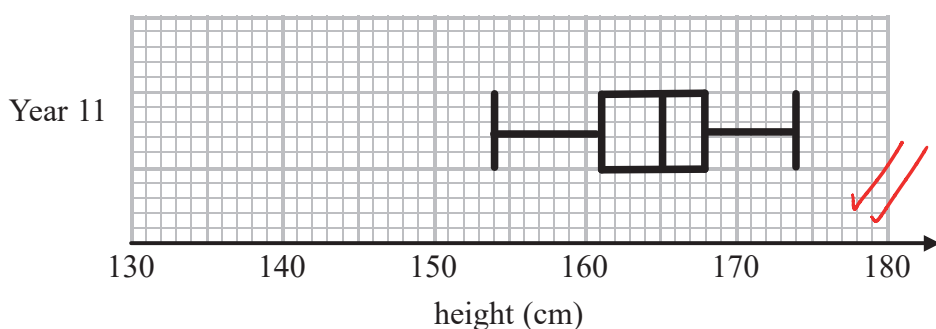
(Total for Question is 5 marks)

2. The table shows information about the heights, in cm, of a group of Year 11 girls.

	height (cm)
least height	154
median	165
lower quartile	161
interquartile range	7
range	20

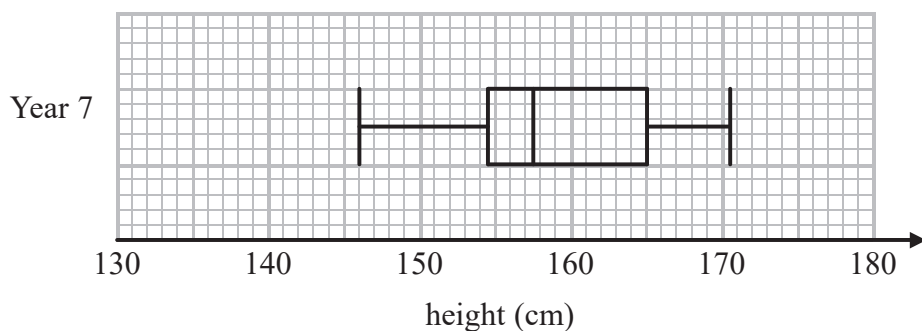
lowest 154
 LQ 161
 Median 165
 $161 + 7 = 168$
 UQ
 Highest $154 + 20 = 174$

- (a) Draw a box plot for this information.



(3)

The box plot below shows information about the heights, in cm, of a group of Year 7 girls.



Median
 1Q

- (b) Compare the distribution of heights of the Year 7 girls with the distribution of heights of the Year 11 girls.

Year 11 have a higher median height than the year 7 students
 Year 7 have a larger interquartile range than the year 11's

(2)

(Total for Question is 5 marks)

3. The table gives some information about the heights of 80 girls.

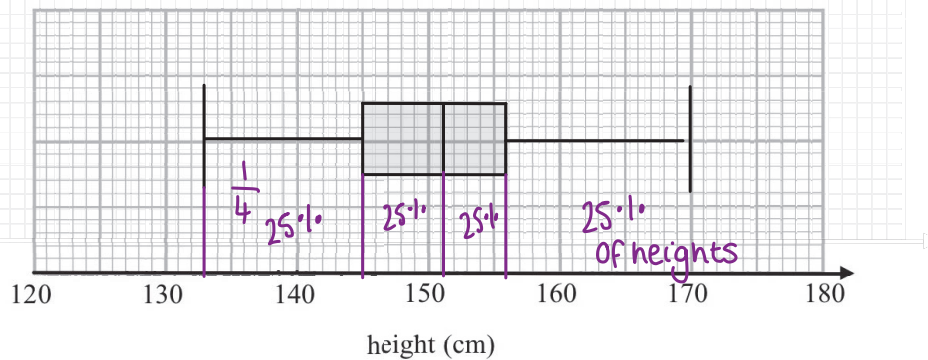
Least height	133 cm
Greatest height	170 cm
Lower quartile	145 cm
Upper quartile	157 cm
Median	151 cm

Bottom tail

Top tail

Central line of box

- (a) Draw a box plot to represent this information.



- (b) Work out an estimate for the number of these girls with a height between 133 cm and 157 cm.

$\frac{1}{4}$ of the heights sit between the lowest value and the lower quartile

$\frac{3}{4}$ sit between the lowest value (133cm) and the upper quartile (156cm)

$$80 \times \frac{3}{4} = 60$$

total number of heights recorded.

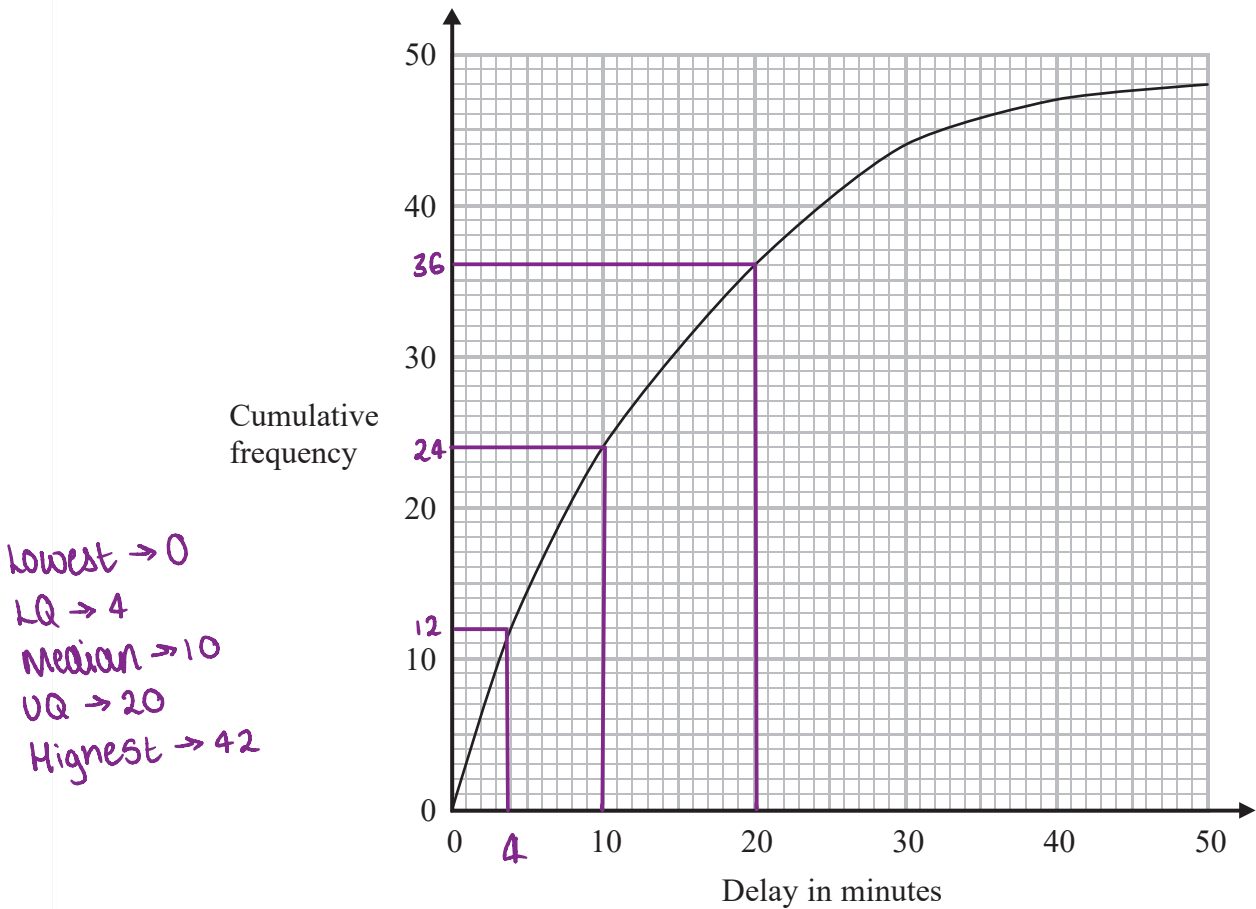
60

(2)

(Total for Question is 5 marks)

4. The times that 48 trains left a station on Monday were recorded.

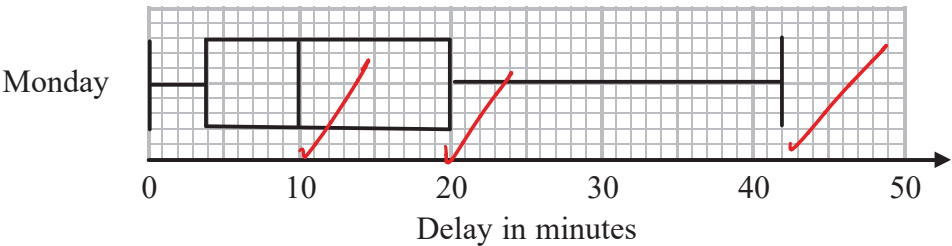
The cumulative frequency graph gives information about the numbers of minutes the trains were delayed, correct to the nearest minute.



The shortest delay was 0 minutes.

The longest delay was 42 minutes.

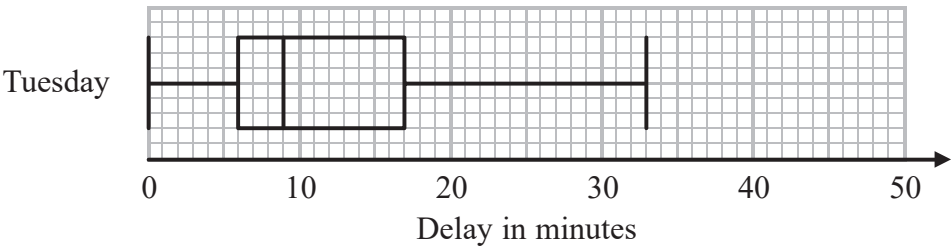
(a) On the grid below, draw a box plot for the information about the delays on Monday.



(3)

48 trains left the station on Tuesday.

The box plot below gives information about the delays on Tuesday.



- (b) Compare the distribution of the delays on Monday with the distribution of the delays on Tuesday.

· Median
· Measure of spread

The median on Monday is greater than on Tuesday ✓

The range on Monday is greater than on Tuesday ✓

(2)

Mary says,

“The longest delay on Tuesday was 33 minutes.

This means that there must be some delays of between 25 minutes and 30 minutes.”

- (c) Is Mary right?

You must give a reason for your answer.

No, because the upper 25% of trains may be delayed between 17 and 25 mins or 30 and 35 mins. ✓

(1)

$$\frac{x-1}{5(x-1)^2} \div \frac{(x-1)}{(x-1)} = \frac{1}{5(x-1)}$$

$$\frac{1}{5(x-1)} \checkmark$$

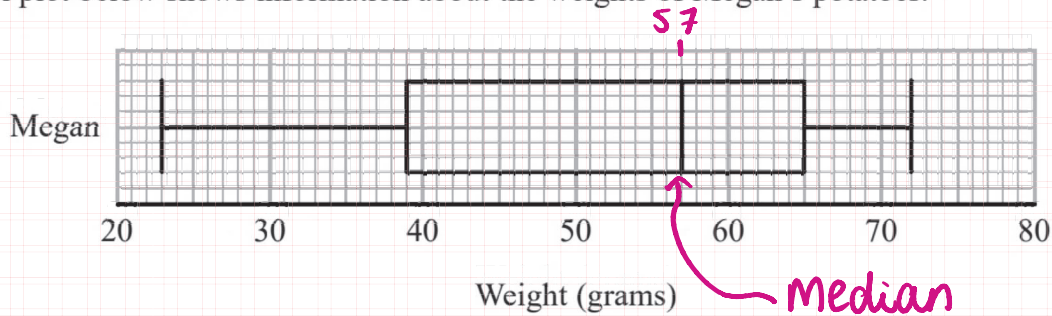
$$2(25 - 4^2) \checkmark$$

$$2(5-4)(5+4)$$

$$2(5-4)(5+4) \checkmark$$

5. Megan grows potatoes.

The box plot below shows information about the weights of Megan's potatoes.



Megan says that half of her potatoes weigh less than 50 grams each.

- (a) Is Megan correct?

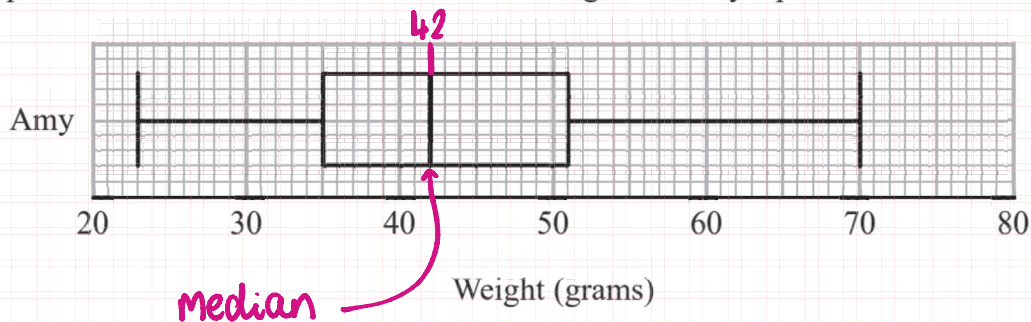
Give a reason for your answer.

No since the median is 57 ①

(1)

Amy also grows potatoes.

The box plot below shows information about the weights of Amy's potatoes.



- (b) Compare the distribution of the weights of Megan's potatoes with the distribution of the weights of Amy's potatoes.

The median weight of Amy's potatoes is less than Megan's ①

The interquartile range of weights for Megan was greater than the interquartile range of weights for Amy ①

(2)

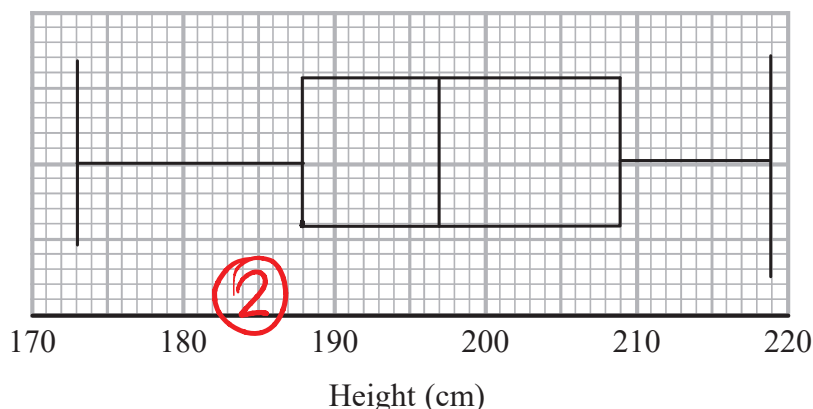
6. The stem and leaf diagram shows information about the heights, in cm, of 23 sunflowers.

17	3	4	9				
18	6	8	8				
19	0	0	1	4	6	7	8
20	1	4	7	7	9	9	
21	4	8	8	9			

Key: 17|3 represents 173 cm

① lowest = 173 cm UQ = 188
 Highest = 219 cm LQ = 209
 Median = 197 cm

On the grid, draw a box plot for this information.



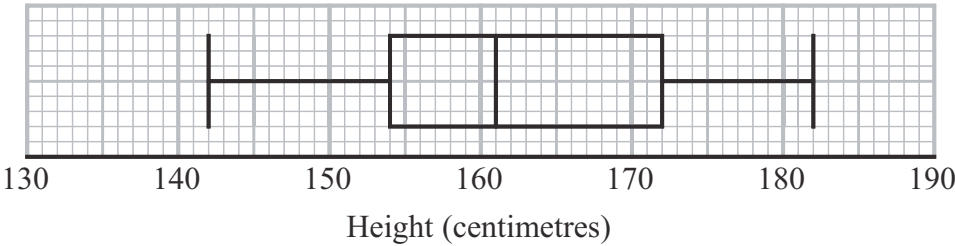
at position
 $\frac{23+1}{2} = 12$ in data
 \therefore LQ at position
 $\frac{12}{2} = 6$ in data
 UQ at position
 $12+6 = 18$ in data

7. Aisha recorded the heights, in centimetres, of some girls.
She used her results to work out the information in this table.

Least height	142 cm
Lower quartile	154 cm
Interquartile range	17 cm
Median	162 cm
Range	40 cm

U. quartile = $154 + 17$
 $= 171 \text{ cm}$

Aisha drew this box plot for the information in the table.
The box plot is **not** fully correct.



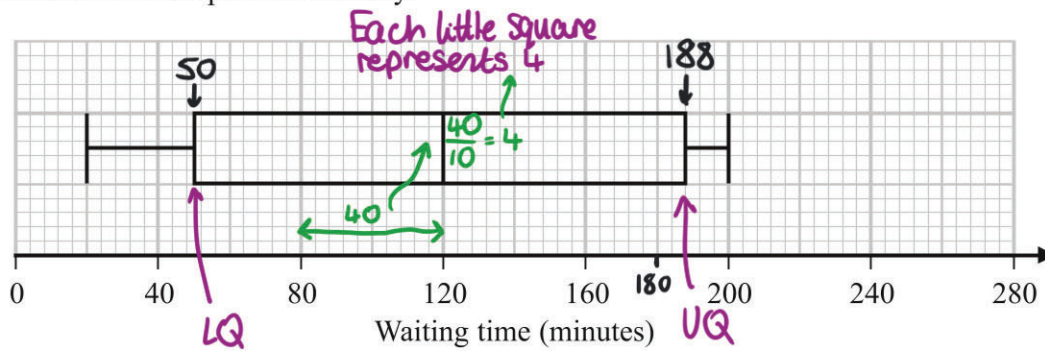
Write down the two things Aisha should do to make the box plot fully correct.

1 Median should be at 162, not 161

2 Upper quartile should be at 171, not 172.

(Total for Question is 2 marks)

8. The box plot shows information about the length of time, in minutes, some people waited to see a doctor at a hospital on Monday.



- (a) Work out the interquartile range of the information in the box plot.

$$IQR = UQ - LQ \rightarrow IQR = 188 - 50 = 138 \text{ minutes}$$

(1)

(2)

Becky says,

“50% of the people waited for at least 2 hours.”

- (b) Is Becky correct?

Explain why.

Yes because the median is at 2 hours so 50% of the people waited 2 or more hours (1)

(1)

The table gives information about the length of time, in minutes, some people waited to see a doctor at the same hospital on Tuesday.

	Waiting time (minutes)
Shortest time	20
Lower quartile	50
Median	100
Upper quartile	140
Longest time	210

Median for Monday (Part a) is 120

Becky was asked to compare the distribution of the lengths of times people waited on Monday with the distribution of the lengths of times people waited on Tuesday.

She wrote,

“People had to wait longer on Tuesday than on Monday.”

(c) Give **one** reason why Becky may be wrong.

The median is lower on Tuesday (100) compared to Monday (120) ①

(1)