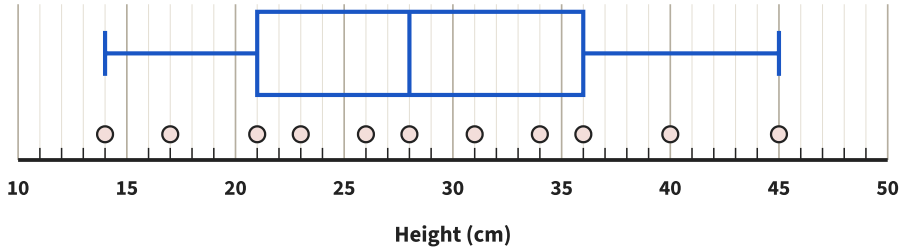
Box Plots

ANSWERS

1 The box is the middle half. The whiskers reach the lowest and the highest.

Each dot is one plant's height. Draw a box plot for the table.

Lowest	Lower quartile	Median	Upper quartile	Highest
14	21	28	36	45



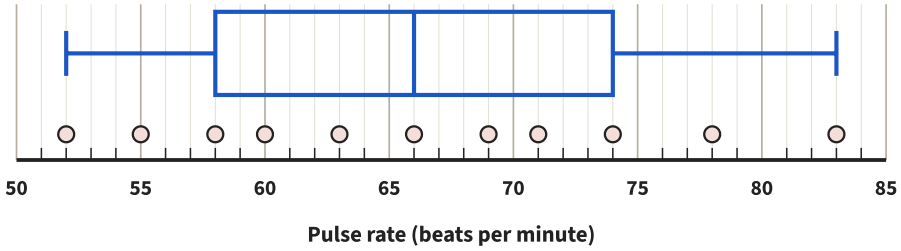
Interquartile range 36 – 21 = 15

2

The pulse rates of 11 runners, in order. Find the five values, then draw a box plot.

52, 55, 58, 60, 63, 66, 69, 71, 74, 78, 83

Lowest	Lower quartile	Median	Upper quartile	Highest
52	58	66	74	83



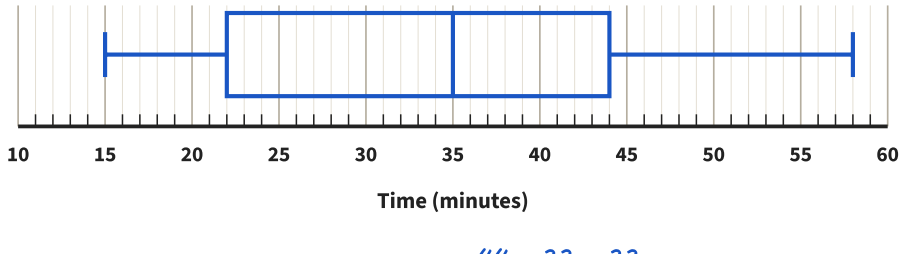
Interquartile range 74 – 58 = 16

3

The minutes 11 people spent exercising one day, in order. Find the five values, then draw a box plot.

15, 20, 22, 25, 30, 35, 38, 40, 44, 50, 58

Lowest	Lower quartile	Median	Upper quartile	Highest
15	22	35	44	58



Interquartile range 44 – 22 = 22

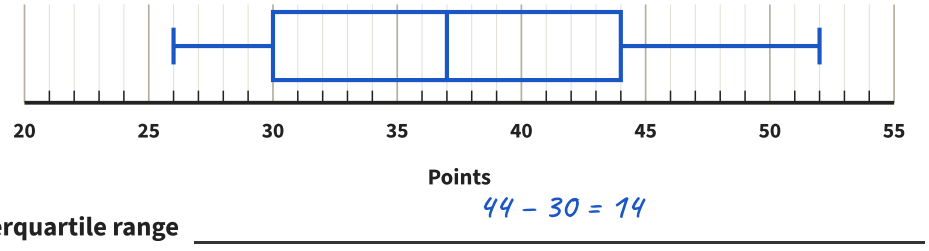
4 Notice the change!

The points a basketball team scored in 11 games. Find the five values, then draw a box plot.

41, 28, 35, 52, 30, 47, 33, 39, 26, 44, 37

In order 26, 28, 30, 33, 35, 37, 39, 41, 44, 47, 52

Lowest	Lower quartile	Median	Upper quartile	Highest
26	30	37	44	52



Interquartile range 44 – 30 = 14

Box Plots

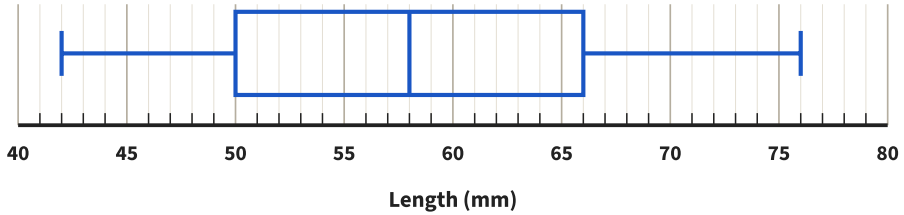
ANSWERS

5

The lengths of 15 worms, in order. Find the five values, then draw a box plot.

42, 45, 47, 50, 51, 53, 55, 58, 60, 61, 64, 66, 68, 71, 76 mm

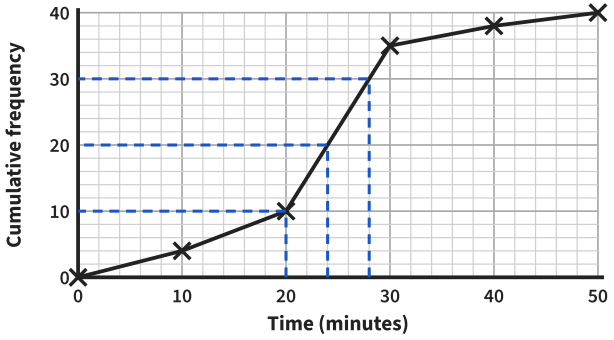
Lowest	Lower quartile	Median	Upper quartile	Highest
42	50	58	66	76

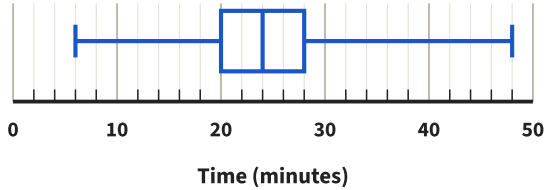


Interquartile range 66 – 50 = 16 mm

6

The graph shows the journey times of 40 students. Draw a box plot.





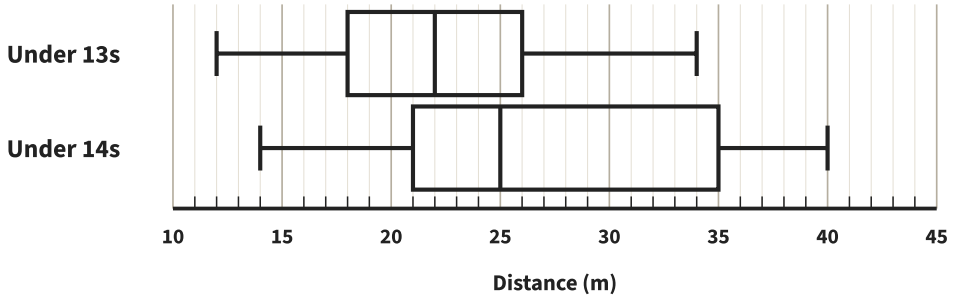
Lowest **6**, highest **48**

	How far up	Read across
Lower quartile	10	20
Median	20	24
Upper quartile	30	28

Interquartile range 28 – 20 = 8

7

The distances two groups threw a ball. Compare the groups. Use the medians and the interquartile ranges.

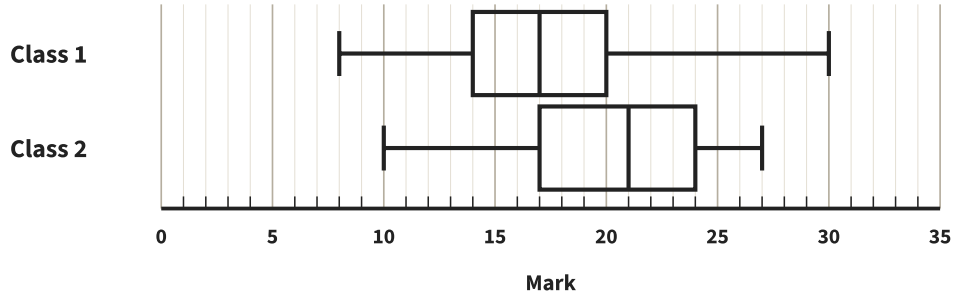


On average the Under 14s threw further (median 25 m, not 22 m)

More consistent the Under 13s (IQR 8 m, not 14 m)

8

Two classes did a quiz. Kofi says class 1 did better, because their highest mark is higher. Explain why Kofi is wrong, then compare the classes.



Why the highest is one student; compare the medians

On average class 2 did better (median 21 > 17)

More consistent class 1 (IQR 6 < 7)

Box Plots *further practice*

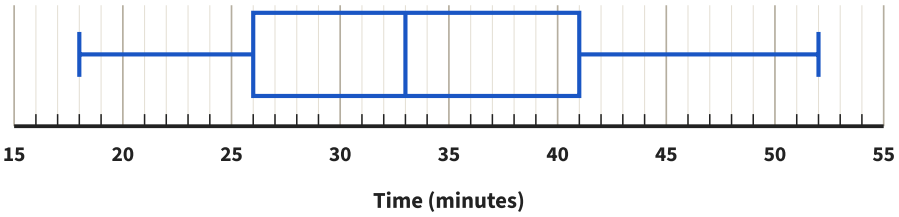
ANSWERS

9

The minutes 15 customers spent in a shop. Find the five values, then draw a box plot.

23, 41, 18, 35, 29, 52, 26, 44, 31, 38, 20, 47, 33, 27, 39

Lowest	Lower quartile	Median	Upper quartile	Highest
18	26	33	41	52

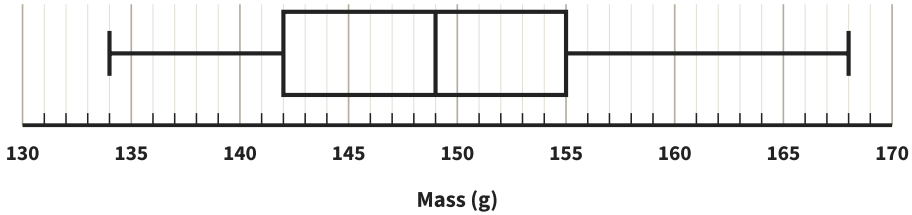


Interquartile range 41 – 26 = 15

10

The box plot shows the masses of some apples. Complete the table. Work out the interquartile range and the range.

Lowest	Lower quartile	Median	Upper quartile	Highest
134	142	149	155	168



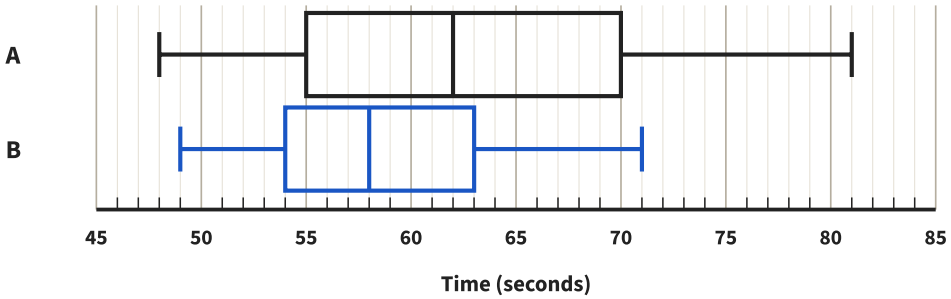
Interquartile range 155 – 142 = 13 g

Range 168 – 134 = 34 g

11

Team A's times on an obstacle course are drawn. Team B's 11 times are below. Draw team B's box plot, then compare the teams.

52, 58, 49, 61, 56, 66, 54, 59, 63, 57, 71 seconds

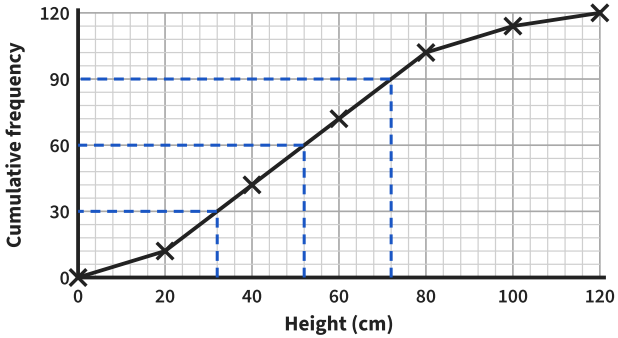


On average B were quicker (median 58 < 62)

More consistent B (IQR 9 < 15)

12

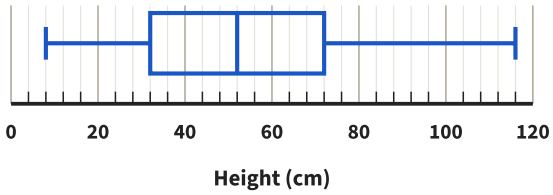
The graph shows the heights of 120 young trees. Draw a box plot.



Lowest **8**, highest **116**

	How far up	Read across
Lower quartile	30	32
Median	60	52
Upper quartile	90	72

Interquartile range 72 – 32 = 40

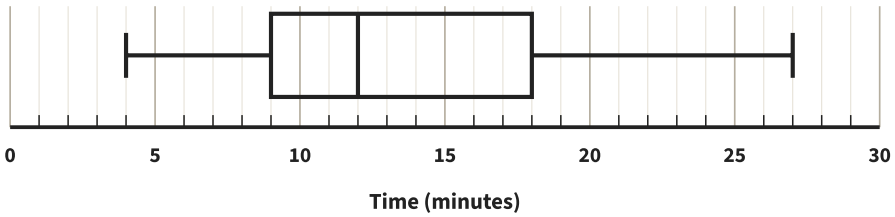


Box Plots *further practice*

ANSWERS

13

The box plot shows the times 60 people took to solve a puzzle.



About how many took more than 18 minutes? *a quarter of 60: about 15*

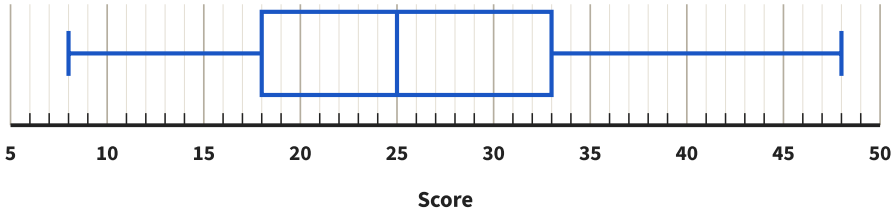
About how many took between 9 and 18 minutes? *half of 60: about 30*

14

Use the clues to draw the box plot.

The lowest value is 8. The range is 40. The median is 25.
The lower quartile is 7 less than the median. The interquartile range is 15.

Lowest	Lower quartile	Median	Upper quartile	Highest
8	18	25	33	48



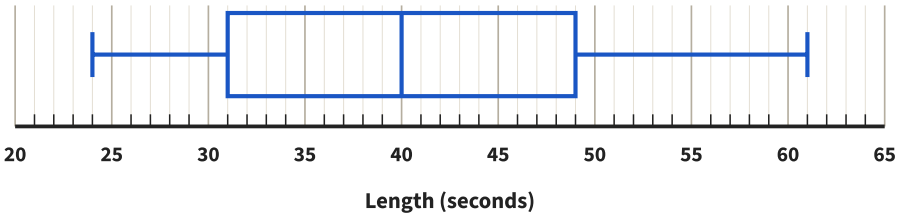
15

The stem-and-leaf diagram shows the lengths of 15 video clips. Draw a box plot.
Work out the interquartile range.

2	4 7 9
3	1 3 5 8
4	0 2 4 6 9
5	3 5
6	1

Key: 2 | 4 means 24 seconds

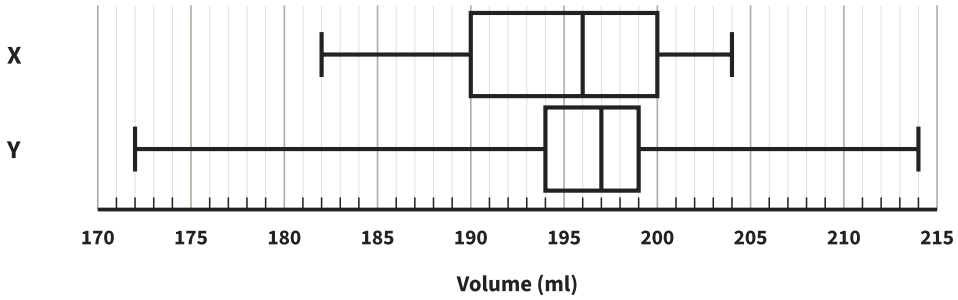
Lowest	Lower quartile	Median	Upper quartile	Highest
24	31	40	49	61



Interquartile range *49 – 31 = 18 seconds*

16

Two machines fill cups of coffee. Maya says machine X is more consistent, because its range is smaller. Is she right? Explain.



Answer *No: Y's IQR is 5 ml and X's is 10 ml, so Y is more consistent*

Why *one very big or small cup stretches the range*