Exercise 1

In a Mathematics class, 23 learners completed a test out of 25 marks. Here is a list of their results:

14; 10; 23; 21; 11; 19; 13; 11; 20; 21; 9; 11; 17; 17; 18; 14; 19; 11; 24; 21; 9; 16; 6.

Calculate the mean of this data.

Exercise 1

Solution

$$\text{mean } (\bar{x}) = \frac{\text{sum of values in set}}{\text{number of values in set}}$$

$$= \frac{14 + 10 + 23 + 21 + 11 + 19 + 13 + 11 + 20 + 21 + 9 + 11 + 17 + 17 + 18 + 14 + 19 + 11 + 24 + 21 + 9 + 16 + 6}{23} \checkmark$$
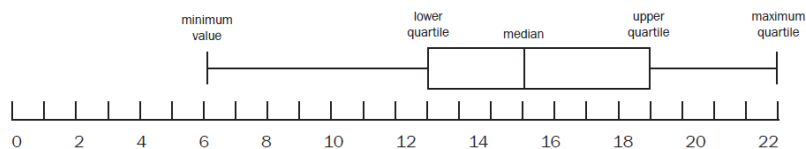
$$= 15{,}4347\ldots \checkmark \ (2)$$

Exercise 2

What is the five number summary for the set of data we have used so far?

6; 9; 9; 10; 11; 13; 13; 13; 13; 14; 14; 16; 17; 17; 18; 19; 19; 20; 21; 21; 21; 23; 24.

- the minimum value: 6
- the lower quartile: 13
- the median: 16
- the upper quartile: 20
- the maximum value: 24

2. Box and whisker plot

Exercise 3

In an English class, 30 learners completed a test out of 20 marks. Here is a list of their results:
14; 10; 11; 19; 15; 11; 13; 11; 9; 11; 12; 17; 10; 14; 13; 17; 7; 14; 17; 13; 13; 9; 12; 16; 6; 9; 11; 11; 13; 20.

Mark out of 20	Tally	Frequency (number of learners)	Cumulative frequency
6	/	1	1
7	/	1	1 + 1 = 2
8		0	2 + 0 = 2
9	///	3	2 + 3 = 5
10	//	2	5 + 2 = ⑦
11	////-/	⑥	⑬
12	//	2	15
13	////-	5	20
14	///	3	23
15	/	1	24
16	/	1	25
17	///	3	28
18		0	28
19	/	1	29
20	/	1	㉚

With this data set, it would be more useful to **group** the data.

We can use intervals of 5 and make a cumulative frequency table for **grouped data**.

Class interval	Frequency	Cumulative frequency
$1 < x \leq 5$	0	0
$5 < x \leq 10$	7	7
$10 < x \leq 15$	17	24
$15 < x \leq 20$	6	30

hint

To plot ogive:
- x-coordinate - use upper limit of each interval.
- y-coordinate - cumulative frequency
- If the frequency of the first interval is not 0, then include an interval before the given one and make use 0 as its frequency.