D4.3 Mode and range

This spread will show you how to:

- Calculate the mode and range of small sets of data

Keywords

Average
Modal
Mode
Range
Representative value
Spread

You can use an **average** to represent a set of data.
One **representative value** is called the mode.

- The **mode** is the value that occurs most often.

Example

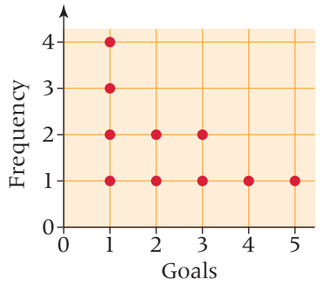
In the last ten football matches, Matlock Town scored
2, 5, 2, 3, 4, 1, 3, 1, 1, 1 goals.
Calculate the modal number of goals.

The mode is also called the **modal** value.

1 goal occurred most often.
Mode = 1 goal

The modal number of goals scored is 1.

You can represent the goals on a diagram.



- You can measure the **spread** of the numbers by calculating the range.
- The **range** is the highest value minus the lowest value.

The range measures the spread of the data.

Example

Find

a the range
b the mode of these numbers of goals.

1, 1, 1, 1, 2, 2, 3, 3, 4, 5, 3, 3

a Range = highest value − lowest value
= 5 − 1
= 4 goals
b There are 2 modes: 1 and 3

Exercise D4.3

1 The shop Tops4U sells 25 tops in one day.
The sizes sold are

L	M	L	M	XL	L	M	M	XL	M
M	XL	XL	L	M	M	L	L	M	L
L	L	XL	M	M					

M = Medium
L = Large
XL = Extra large

a Copy and complete the frequency table for the tops.

Size	Tally	Frequency
Medium (M)		
Large (L)		
Extra large (XL)		

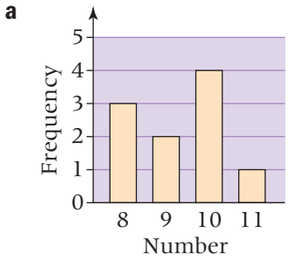
b State the modal size.

2 Calculate the mode and range of each set of numbers.

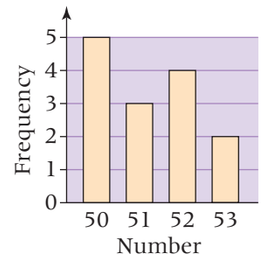
a 0, 0, 1, 1, 1, 1, 2, 2, 2, 3, 3, 4, 4
b 5, 5, 6, 6, 6, 7, 7, 7, 7, 8, 8, 8, 8, 8
c 10, 11, 11, 11, 12, 12, 13, 14
d 21, 22, 23, 24, 24, 25, 25, 25, 26
e 8, 8, 8, 9, 9, 10, 11
f 4, 3, 5, 5, 6, 6, 4, 3, 4, 5, 6, 5, 3

3 Calculate the mode and range of these sets of numbers.

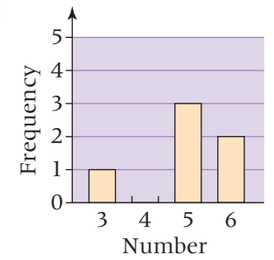
a



b



c



4 The mean monthly temperature, in °F, is shown for Leeds.

Average temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	41	41	44	46	54	58	62	61	56	52	45	44

Source: www.weatherbase.com

Calculate the range of the temperatures.

5 The range of five weights is 18 kg.
The five weights in order are 35 kg, 42 kg, 43 kg, 51 kg, ? kg.
Calculate the value of the unknown weight.

6 The mode of these five numbers is 4.
Find the missing number and calculate the range.

6	4	6	4	?