

1 Describing one-variable data – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English

Write it 3 times (English)

mean

median

standard deviation

Recall

You have worked with data before:

- You have found the average (mean) of a set of numbers.
- You have drawn bar charts and other graphs.
- Some data sets are more spread out than others.

This sheet lines up how to describe one set of data. Each idea has a worked example.

New ideas

■ 1 The center

Two measures of the “middle” of data:

- the **mean** – the average (add up, divide by how many),
- the **median** – the middle value when the data are in order.

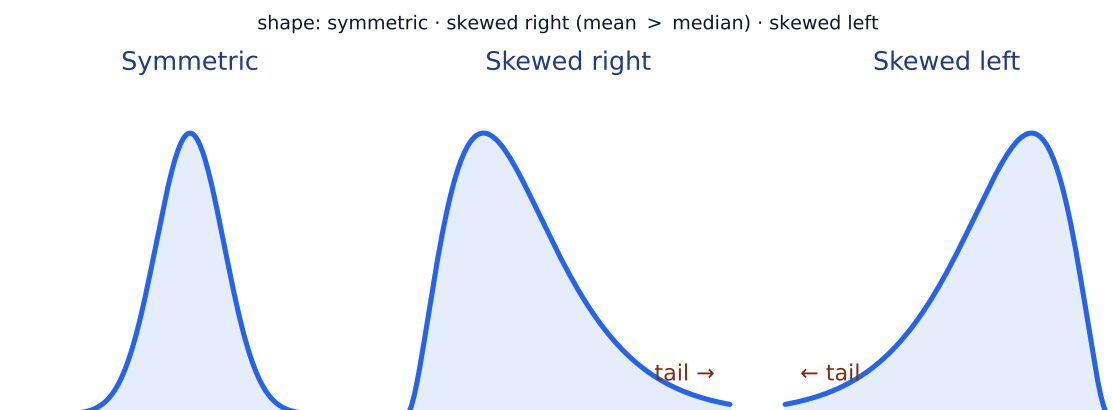
Worked example. For 2, 4, 4, 6, 9: mean = $\frac{2 + 4 + 4 + 6 + 9}{5} = 5$; median = 4 (the middle one).

■ 2 The spread

How spread out the data are: the **range** (largest minus smallest) and the **standard deviation** (a typical distance from the mean).

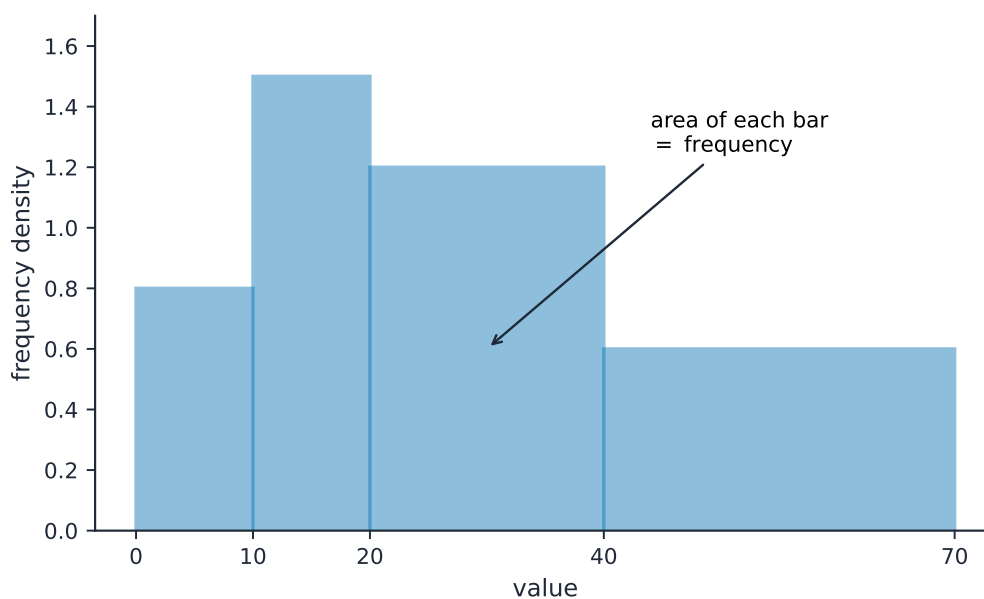
■ 3 The shape

Data can be **symmetric** (even on both sides) or **skewed** (a long tail one way).



■ 4 Pictures of data

A **histogram** shows the shape; a **box plot** shows the median and spread at a glance.



Watch out: the **mean** is pulled toward outliers (extreme values), but the **median** is not. For very skewed data (like incomes), the median often describes the “typical” value better.

Practice

Try these in order. The methods are all above.

2.1 State the difference between the mean and the median. [2]

2.2 Find the mean of 3, 5, 7, 9, 11. [2]

2.3 Find the median of 3, 5, 7, 9, 11. [1]

2.4 Find the range of 3, 5, 7, 9, 11. [1]

2.5 A data set has one very large outlier. State whether the mean or the median is more affected by it, and why. [2]
