Statistics

Statistical knowledge helps you use the proper methods to collect data and effectively present the results. Statistics helps in making discoveries in science, making decisions based on data and in making predictions.

Basic statistical terms

- **normal distribution** - any of a family of continuous probability distributions such that the probability density function is the Gaussian function
- **set of data** - a collection of data used for statistics
- **a bell curve** - a bell-shaped curve that is typical of the normal distribution
- **standard deviation** - average difference from the norm
- **average** - any measure of central tendency, especially any mean, the median, or the mode
- **mode** - the most frequently occurring value in a distribution
- **median** - the number separating the higher half of a data sample from the lower half
- **at random** - randomly, by chance
- **probability distribution** - a distribution of all possible values of a random variable together with an indication of their probabilities
- **ratio** - indicates how many times one number contains another, the relative magnitude of two quantities (represented as a quotient)
- **valid** - (of a formula or system) such that it evaluates to true regardless of the input values
- **sample** - subjects of the research, the larger the sample the more precise results are expected, for example, high school students → more students → more reliable results

Exercise 26.3

1. The ratio of males to females is **2:1**. The male proportion of the class is **two thirds.**
2. **Collect more data samples,** as with the increase of data collected, the more reliable the result will be.
3. If the data show that students have a tendency to choose the type of clothing their friends choose, it means that they **often** choose similar clothes.
4. If you repeat an experiment three times and the results are **not consistent**, your method **is not reliable**.
5. 20 students out of 200 are **10%.**
6. If Average score is 56, and Barbara scores 38 she deviated from the norm **by 18 points.**
7. If the volume of court cases increases, then the **total number of cases** has changed.
8. The standard deviation tells us **what the average difference from the norm is**.
9. If a general survey of teenage eating habits asks questions about what teenagers eat, the survey is likely to be **valid.**
10. Scores are normally distributed and the shape of the graph is called **a bell curve.**