

During week 1, a group of 60 athletes were asked to record the amount of water, X litres, that they consumed in that week. Here are the results

$$\sum x = 1470$$

$$\sum x^2 = 36\,132.6$$

Calculate

- the mean of X
- the standard deviation of X

During week 2, as part of a programme to improve their performance, the athletes were instructed to drink 10% more water. Assuming that they do this, find for week 2

- the new mean
- the new standard deviation

---

a.  $\text{Mean} = \frac{\sum x}{n} = \frac{1470}{60} = 24.5$

b.  $\text{Standard deviation} = \sqrt{\frac{\sum x^2}{n} - \bar{x}^2}$

$$= \sqrt{\frac{36\,132.6}{60} - 24.5^2}$$
$$= 1.4$$

If every athlete drinks 10% more, then each piece of data is multiplied by 1.1

Mean is multiplied by 1.1

Standard deviation is multiplied by 1.1

- Mean =  $24.5 \times 1.1 = 26.95$
- Standard deviation =  $1.4 \times 1.1 = 1.54$