

Exercise 1 In a family, the probability of a child being left-handed is: $\frac{1}{5}$. It is known that this family has 9 children.

- What probability law does the random variable X (number of left-handed children) follow?
- What is the probability of having exactly 2 left-handed children in this family?
- What is the probability of having at least 2 left-handed children?
- Determine $E(X)$, $V(X)$, and the standard deviation σ_X .

Exercise 2 On a highway, there is an average of two accidents in week. Let X be the number of accidents in week.

- What probability law does the random variable X follow?
- What is the probability of having five accidents during a weekend?
- What is the probability of having at most 3 accidents?
- Determine $E(X)$, $V(X)$, and the standard deviation σ_X .

Exercise 3 A researcher studied the average age at which children's first words appear. A study conducted with a thousand children shows that the first words appear, on average, at 2 months old, with a standard deviation of 1.5 months. Given that the age distribution is normal, we want to:

- Evaluate the proportion of children who said their first words before 5 months.
- Evaluate the proportion of children who said their first words after 6 months.
- Evaluate the proportion of children who said their first words between 3 and 5 months.