

Exercise Series No 3

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.

- ❶ What is the probability distribution followed by the random variable X : the number of left-handed children.
- ❷ What is the probability of having exactly 2 left-handed children in this family?
- ❸ What is the probability of having at least 2 left-handed children?
- ❹ Determine $E(X)$, $V(X)$ and δ_x .

Exercise 2

On a highway, there is an average of two accidents per week. Let X denote the number of accidents per week.

- ❶ What is the probability distribution followed by the random variable X .
- ❷ What is the probability of there being five accidents during a weekend?
- ❸ What is the probability of having at most 3 accidents?
- ❹ Determine $E(X)$, $V(X)$ and δ_x .

Exercise 3

A researcher studied the average age at which children start saying their first words. A study conducted with a thousand children shows that the first words appear, on average, at 2 months, with a standard deviation of 1.5 months. Knowing that the age distribution is normal, we want to:

- ❶ Evaluate the proportion of children who acquired their first words before 5 months.
- ❷ Evaluate the proportion of children who acquired their first words after 6 months.
- ❸ Evaluate the proportion of children who acquired their first words between 3 and 5 months.