Exercise 1 Calc. : ✓

Value of a house in one of the European capitals can be described using a model

$$V(t) = 425\ 000 \cdot 1.025^t$$

where t is the number of years since it was purchased by its current owner, Mr Anderson, and $V(t)$ is expressed in euros.

1. **Determine** how much did Mr Anderson pay for this house. — 1 mark
2. **Calculate** what the house will be worth 6 years after it was purchased by Mr Anderson (rounded to two decimals) — 2 marks
3. **Calculate** what the house will be worth 18 months after it was purchased by Mr Anderson (rounded to two decimals). — 3 marks
4. **Calculate** how many years after the purchase by Mr Anderson, the value of the house will exceed 600,000 euro. — 4 marks

Mr Johnson has just bought a house in different European capital for 350,000 euros. The value of houses in this city increases by 7% per year.

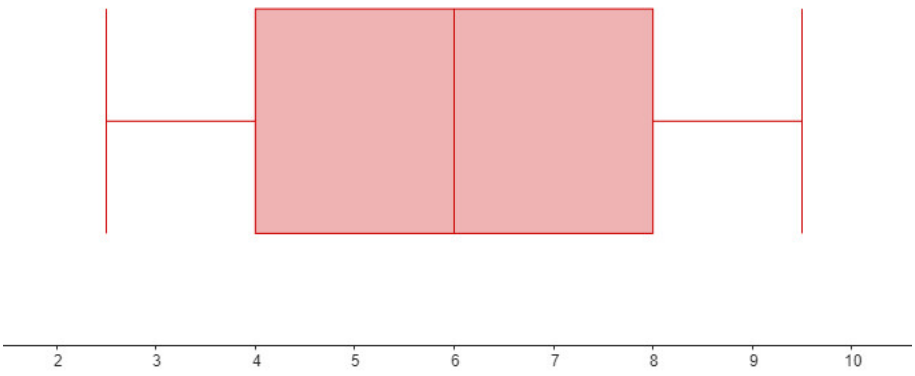
5. **Calculate** what will the value of the house be in 5 years. — 4 marks

Exercise 2 Calc. : ✓

A teacher wants to analyze the performance of two classes (Class A and Class B) in a recent math exam. The exam scores for class A are recorded as follows:
Class A: {3, 4, 5, 5, 6, 6.5, 7, 7, 7, 8.5, 9, 10}

1. **Calculate** the mean and **interpret** it. — 2 marks
2. **Give** the standard deviation and **interpret** it. — 2 marks
3. **Draw** a boxplot of the data set. — 4 marks

The teacher accidently deleted the exam scores for class B and just has the Boxplot, that he plotted of the scores, left. The boxplot looks like this:



4. **Compare** the two boxplots and describe what it means for the results of the two different classes. **Give** at least two important conclusions. — 3 marks

Exercise 3 Calc. : ✓

Imagine you're an engineer tasked with designing a water storage system for a remote village. You decide to construct a cylindrical water tank. It has a radius of 3 meters and a height of 8 meters.

1. **Calculate** the total surface area of the cylindrical tank, including the curved surface and the two circular bases, to determine the amount of material needed for construction. — 5 marks

The formula for the volume of a cylinder is

$$V = \text{Base area} \cdot \text{Height}$$

2. **Determine** how many liters of water are there in the cylindrical tank if it's filled up to 3/4 of its height (1 liter = 1 dm^3). — 5 marks