

Homework N°1

Exercise 0.1.

- A waiting time X has an exponential distribution.
 1. Find $E[X]$ and $Var(X)$.
 2. Verify that the exponential distribution has the memoryless property.
 3. Prove that $p(X > E[X])$ is independent of his parameter.
- Consider the following (incomplete) transition matrix:

$$\begin{pmatrix} ? & 0.2 & 0.5 \\ 0 & ? & 0.5 \\ 0.3 & 0.2 & ? \end{pmatrix}$$

1. Fill in the missing values in the transition matrix.;
 2. Draw the Markov chain.;
 3. Obtain the steady state probabilities.
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