

CENG 22
Probability and Statistics
HOMEWORK 1
Basic Probability

DUE DATE: 12.03.2022 - 23:59

Instructions:

5 dice are rolled. Following probabilities are defined:

- P_1 : The probability that at least one dice is 3.
- P_2 : The probability that at least one dice is 3 given one of the dice is even.
- P_3 : The probability that at least one dice is 3 given only one of the dice is even.

Write a small code in Python:

- to compute the theoretical probabilities P_i
- to compute the empirical probabilities P'_i by simulating the experiment and repeating it $N=[10, 50, 100, 500, 1000, 5000, 10000, 50000, 100000, 500000, 1000000]$ times.
- to plot the P'_i vs N graphs. Include a $P'_i = P_i$ line 'n your graph to show your theoretical finding. Use log scale for N axis.