
Problem Statement:

Refer to the uniform random variates that you had generated using the linear congruence generator. Consider N sub-intervals of $[0, 1]$ of equal length, and denote this collection of sub-intervals by $\mathcal{A}$. Determine the Discrepancy of the point set $\{x_1, x_2, \ldots, x_n\}$ relative to $\mathcal{A}$, given by, $\sup_{A \in \mathcal{A}} \left| \frac{\#\{x_i \in A\}}{n} - \text{vol}(A) \right|$, in case of $N = 10$, $N = 20$, $N = 50$ and $N = 100$, and tabulate them.

Submission Deadline: 25th November 2020, 11:59 PM