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NE 255

Homework 6

Problem 1: See attached below

Problem 2:

1. Relative Error using first function for the different samples (N) are:

|  |  |
| --- | --- |
| Number of Samples (N) | Relative Error (ϵ) |
| 10 | 0.6180 |
| 100 | 0.0578 |
| 1000 | 0.0196 |
| 10000 | 0.0034 |

1. Relative Error using second function for different samples (N) are:

|  |  |
| --- | --- |
| Number of Samples (N) | Relative Error (ϵ) |
| 10 | 0.1459 |
| 100 | 0.0186 |
| 1000 | 0.0158 |
| 10000 | 0.0029 |

Relative error decreases as a function of number of trials. Below is the graph of a sample run.

It’s important to note than when values are generating at random, it could be possible that small sample size (N) can converge faster than larger sample size (N). But the results from larger sample size will always be more consistent.