1 Results

1.1 Gauss-Legendre

Solving our integral with Legandre polynomials gives unstable results for $N \in [-5, 5]$ as seen in the table below. Though when choosing N = 27 and a = -2.9 and b = 2.9 our results are precice with 3 leading digits after the decimal point.

Legandre		
N	Value	Error
11	0.297447	0.104681
15	0.315863	0.123098
21	0.268075	0.075310
25	0.240135	0.047370
27	0.229623	0.036858

Table 1: Fill me in!

Laguerre		
N	Value	Error
11	0.183021	0.009743
15	0.193285	0.000520
21	0.194807	0.002050
25	0.194804	0.002030
27	0.194795	0.002029

Table 2: Fill me in!

1.2 Paralellization

Our paralellization results was achieved using a quad core Intel Core i5-8250U processor with 6MB cache at 1.6GHz base clock, which boosted to 3.4GHz during testing. Thermal throttling was avoided. The memory was 4GB 1866MHz LPDDR3 soldered on board. See table 3

We also ran this test on an octa-core processor with memory of 8GB 1866MHz, and achieved no noticable speedup compared to the abovementioned computer. See table 4

For runtime imputs the number of samples was set to 10^8, with an approximation of infity of $\lambda = 5$.

Compile flags	-O3 -fopenMP	-O3	-fopenmp	no optimzation
Naive MC	12s	31s	71s	173s
Improved MC	15s	38s	79s	200s

Table 3: Shows the time spent on the same calculations with different compile parameters on a quad core processor.($N = 10^8, \lambda = 5$)

Compile flags	-O3 -fopenMP
Naive MC	12s
Improved MC	15s

Table 4: Shows the time spent on the Monte-Carlo calculations on an octa-core system.($N = 10^8, \lambda = 5$)