

P5 Iteration Three Test Results

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Here we set the number of darts thrown to 200 million, which takes approximately 5 seconds to run in 1 thread. Based on the number of concurrent threads we will analyze how long it takes for the code to calculate the estimates concurrently.

Threads	Average Estimate of Pi	Average Delta from true Pi	Time Taken for 200000000 Darts
1	3.141562	0.000031	5.777694292s
2	3.158396	0.0168035	54.198472875s
3	3.15489133333	0.012632	2m19.379622333s
4	3.141738	0.000145	4m0.231393417s
5	3.1415744	0.0000762	6m16.16973275s

The biggest difference we see here is the time it takes to calculate the estimate rises significantly as the concurrent threads are increased. I've tested this a few times and the time seems consistent, the first use of concurrency at 2 threads always takes about 10x longer than the first thread, if not 10x, a significant leap. From there the time seems like the time starts to double as a thread is added. Overall it seems like it is best to use one thread, in this situation at least, since it is the most efficient, and the most accurate.