



5. a. GPU more beneficial at $N=10000$, because the problem size is large enough to fully utilize GPU parallelism and amortize memory transfer + launch overhead.
5. b. Speedup lowest at small N ($N=100, 500, 1000$) because the fixed GPU overhead (kernel launch & memory transfers) dominates, and the CPU can compute small grids faster.
5. c. Speedup highest at large N ($N=10000$) because more computations per iteration allow the GPU to run thousands of threads in parallel, making overhead negligible compared to compute time.
6. a. GPU more beneficial at $N=10000$ (and grows with more iterations).
6. b. Speedup lowest at small N ($N=100, 500$), same reason: overhead dominates.
6. c. Speedup highest at large N ($N=10000$); doubling iterations improved the top speedup from $\sim 16\times \rightarrow \sim 29\times$ in my data.
7. Increasing the number of iterations increases GPU speedup (all else equal).