Problem 1

4 Nodes, 5000 iterations:
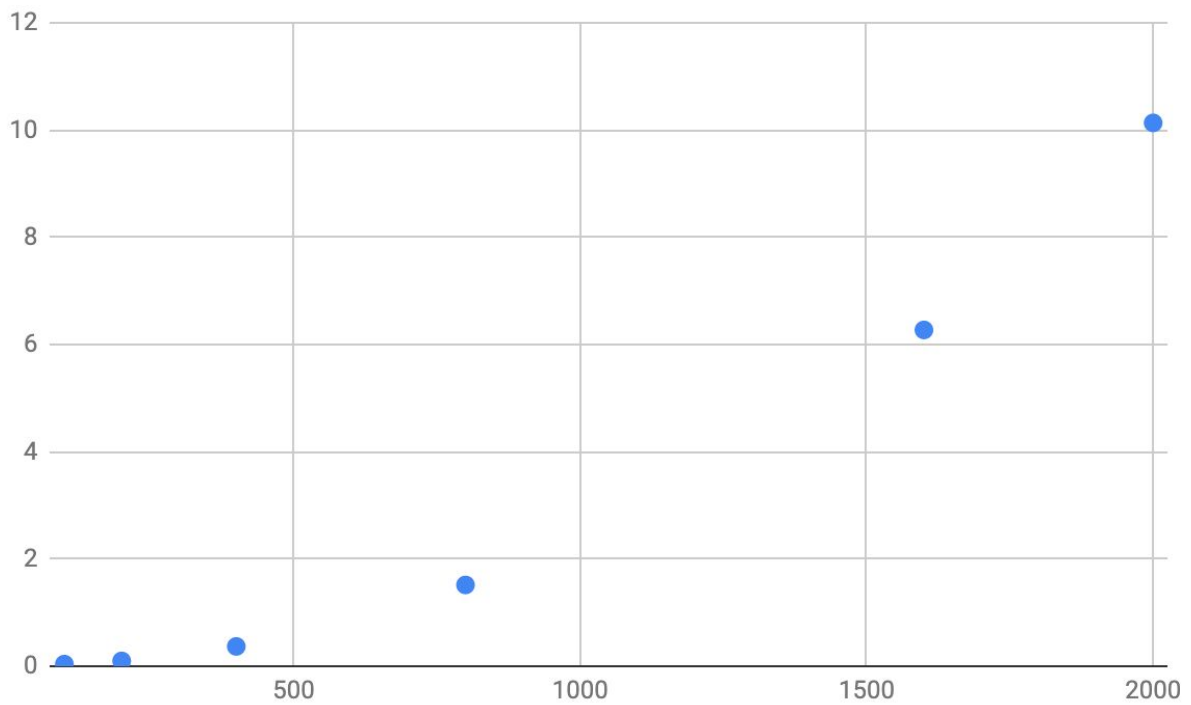N = 100, Time elapsed is 0.037661 seconds.
N = 200, Time elapsed is 0.097736 seconds.
N = 400, Time elapsed is 0.367611 seconds.
N = 800, Time elapsed is 1.514881 seconds.
N = 1600, Time elapsed is 6.272160 seconds.
N = 2000, Time elapsed is 10.135360 seconds.

4 Nodes, N = 1600

Iterations = 200, Time elapsed is 0.260067 seconds.
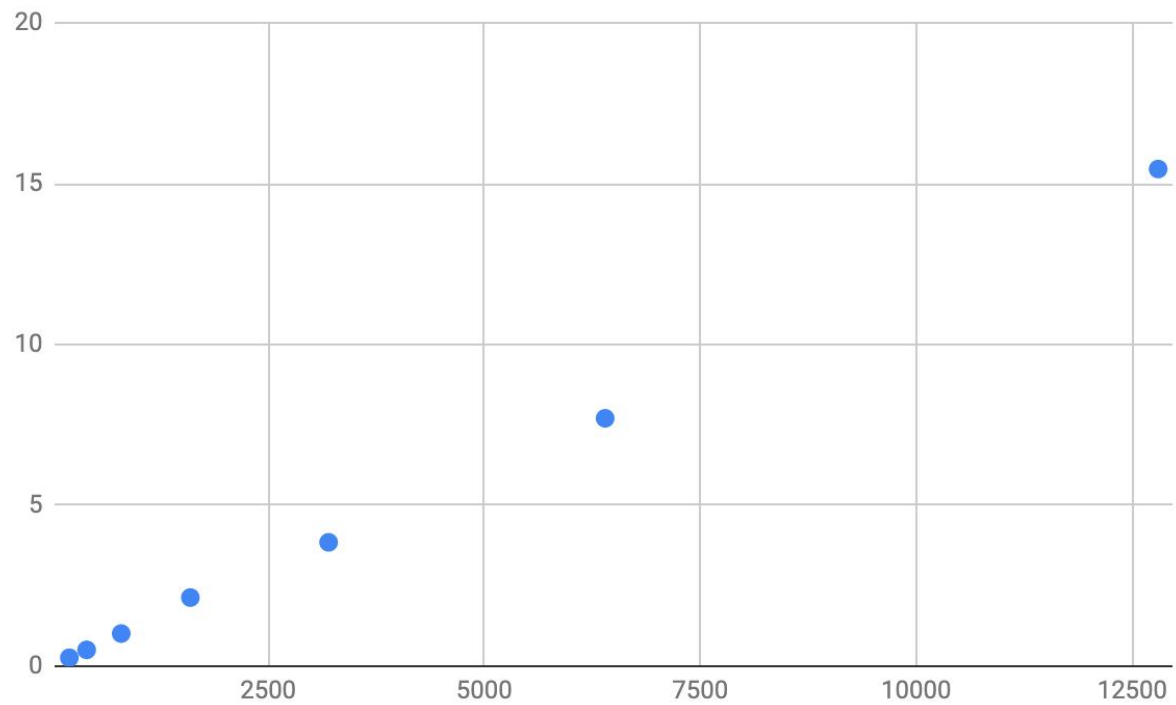Iterations = 400, Time elapsed is 0.505922 seconds.
Iterations = 800, Time elapsed is 1.013221 seconds.
Iterations = 1600, Time elapsed is 2.132999 seconds.
Iterations = 3200, Time elapsed is 3.849805 seconds.
Iterations = 6400, Time elapsed is 7.706946 seconds.
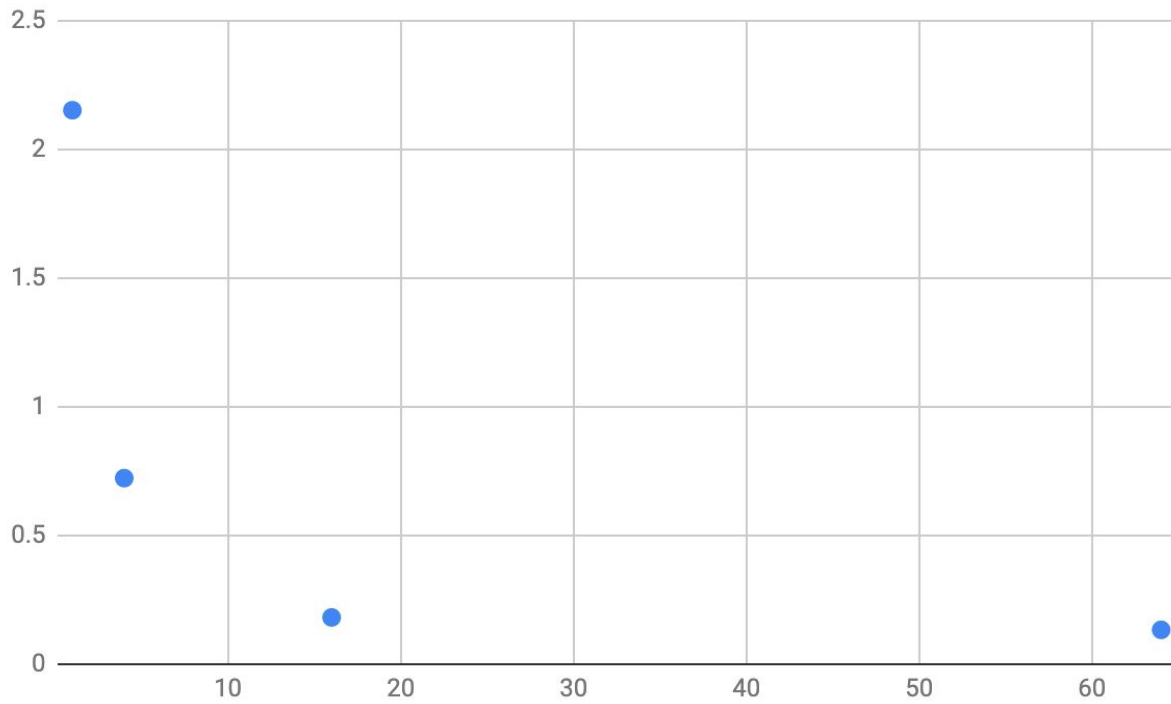Iterations = 12800, Time elapsed is 15.456915 seconds.

N = 512, Iterations = 5000
Nodes = 1, Time elapsed is 2.152994 seconds.
Nodes = 4, Time elapsed is 0.722910 seconds.
Nodes = 16, Time elapsed is 0.181524 seconds.
Nodes = 64, Time elapsed is 0.133372 seconds.

Problem 2

Nodes = 64:
N = 128000, Time elapsed is 0.795244 seconds.
N = 1280000, Time elapsed is 0.777238 seconds.
N = 12800000,Time elapsed is 0.901338 seconds.