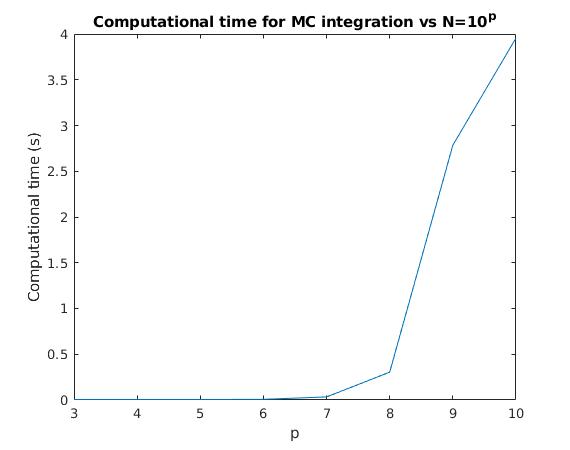
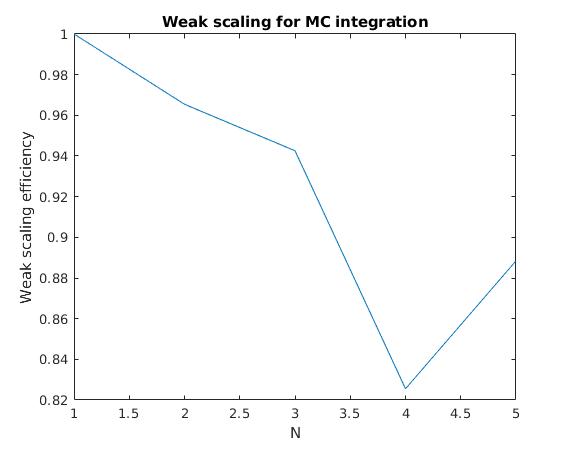
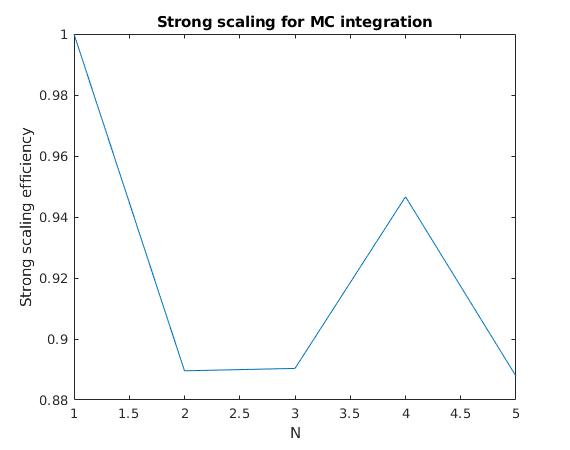
1. **MC integration.**

Below is the timing plot of N=10^p vs time. Note that on this graph, 32 processes were used (4 nodes with 8 processes each):



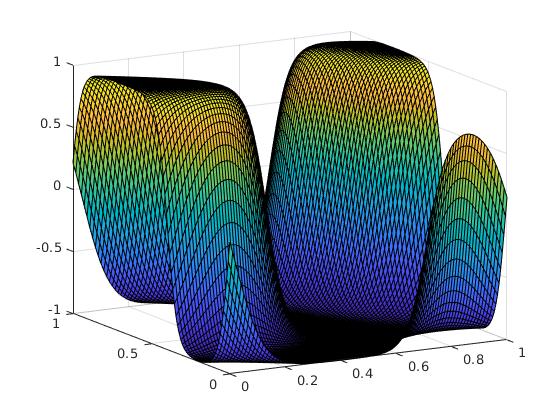
Since computing a solution that is accurate to within 10^(-5) with 99.5% confidence will require N>=10^12 samples, I imagine the computational time being from 6-30 s (it’s hard to tell if the growth will remain exponential, or become more linear, like in the last step).

Below are plots of the weak and strong scaling of MC integration:

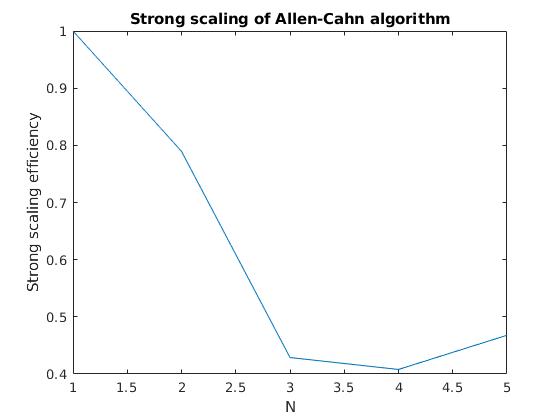
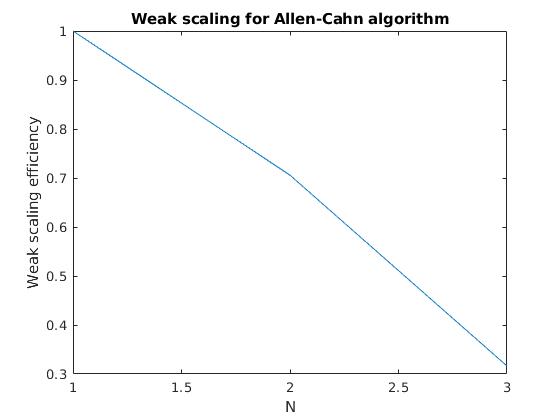


**2. Allen-Cahn**

As can be seen below, phase separation does occur in the time evolution of the Allen-Cahn equation:



Plots of the weak and strong scaling can also be seen below:



Lastly, a plot of the computational time for the Allen-Cahn equation on 10 processors is given below:

