Homework #4:
Using Random Numbers

Avoid those mistakes

1. In MATLAB or Python, use the awful IBM Linear Congruential Random Number Generator that produces highly correlated random numbers. Which tests (as listed in *RandomNumbers.ipynb*) does this generator fail?

Explore the Metropolis Algorithm

2. Modify the code for the metropolis algorithm in the python notebook *RandomDistribution.ipynb* to study the equilibration "time" for different step sizes δ. Run the program with an array of δ's. How does the equilibrium time change with δ. Analyze the acceptance ratio in terms of δ. Create of plot of acceptance ratio vs δ.