Homework 2 (due April 14)

1. Produce results as in Figs. 6.5, 6.7 and 6.10
2. Implement the generation of a Binomial rv in the three ways we saw in class (CDF inversion, using a sequence of n Bernoulli variables, using geometric strings of zeros), and then compare the time it takes to produce a large number of iid variates for different values of n and p
3. Implement the generation of a Poisson rv in the three ways we saw in class (CDF inversion, using exponential until sum >1, using uniforms as long as product is > exp(-lambda)), and then compare the time it takes to produce a large number of iid variates for different values of lambda
4. Consider the two LCGs: LCG1: a = 18, m = 101; LCG2: a = 2, m = 101
   a. Check whether they are full period
   b. Plot all pairs (Ui, Ui+1) in a unit square and comment the results
5. Consider the LCG with a = 65539, m = 2^31
   a. Plot all pairs (Ui, Ui+1) in a unit square and comment the results
   b. Plot all triples (Ui, Ui+1, Ui+2) in a unit cube and comment the results