18.781, Fall 2007 Problem Set 1
Due: FRIDAY, September 14

1. Complete the following problems from Niven-Zuckerman-Montgomery (henceforth NZM):

   NZM 1.2: 2, 3 (part a and c only), 9, 11, 13, 34, 36, 46, 50

   NZM 1.3: 5, 10, 26, 27, 31, 33, 41, 48

2. Using the PARI program written in class as an example, use a computer program to test for when a given polynomial $f(x)$ represents infinitely many primes. That is, are there infinitely many x for which $f(x)$ is prime? (Our in-class example showed this to be true when $f(x) = 5x + 2$.) Test a few examples and try to come up with conditions on f as to when this can happen. When it happens, can you determine how fast this quantity is approaching infinity? Does the growth condition depend on f?

   Give a print-out of your computer investigations and then add comments according to your conclusions about the above questions or other interesting ideas that occurred in the course of your experimentation.