18.781, Fall 2007 Problem Set 2
Due: FRIDAY, September 21

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

   NZM 2.1: 5, 9, 17, 25, 28, 46, 54, 55

   NZM 2.2: 6, 8, 11, 12, 13

   NZM 2.3: 7

2. CHOICE OF PARI PROGRAMS:

   - Find a large integer that's probably prime. That is, pick a relatively big integer (at least 15 digits) and explain (without factoring, or asking PARI via "isprime") why you think it is probably prime.
   - Write a PARI program which tests for Carmichael numbers – those numbers N for which:

     $$a^{N-1} \equiv 1 \pmod{N} \qquad \text{for all } a \text{ with } \gcd(a, N) = 1$$

     and find at least 3 of them.