Math 453, Section X, Spring 2008
HW Assignment 3, due Monday, 2/11/2008

Name (print please):

- **Write your name on the cover sheet and staple the sheet to the assignment.** Do the problems in order, and make sure that each problem is clearly labelled.
- **Deadline:** The assignment is due in class next Monday; late homework, or homework dropped off in mailboxes, will not be accepted. (You can, of course, turn in the homework early, in my office, any time before the due date).
- **Open House Hours:** Wednesdays, 5 pm – 6 pm (longer, if needed), in 141 Altgeld. For those who can't make it to the Wednesday hour, I will also be available Thursday, 5 pm, in the same room, 141 Altgeld. The Open House is an informal office hour for students in my classes. It is intended as the main point of contact, and the place to go, for questions about the homework, or other questions about the course.

HW 3 Problems

All problems are from Chapter 2 or Strayer, Section 2.1, except for the last one (1.6, Problem 7). As usual, only turn in the asterisk problems, but you should know how to do the other problems as well, and be prepared for such problems in exams.

The last of the graded problems is a fun problem, taken from the Student Projects section of Chapter 1. You can find the answer by looking up the cited reference, googling, search engines, a certain specialized online tool..., but that would take away most of the fun and the reward you'll gain out of working it on your own. At least give it an honest try—it's not that hard, and despite the size of the numbers it doesn't require a calculator or computer (I figured it out in my head).

The repunit numbers defined in 22 (repunits are numbers consisting of all 1's in decimal) have developed somewhat of a cult following. Dozens of articles, with titles like "The mystique of repunits", and even an entire book, have been devoted to these numbers. Look it up if you are curious, but to solve the problem (which is rather easy), you don't need any of that.

1. * 11
2. * 14
3. * 18
4. * 22(a)(b)(c) (Hint: You may use the various divisibility tests given in Section 2.1 and in Problems 18 and 19.)
5. * 26 (Hint: There is a theorem from Chapter 1 that applies here. Is the result true without the hypothesis that p is prime?)
6. * 1.6:7 (page 37)
7. 1(a)(b)
8. 2(a)(c)
9. 3(a)
10. 4(a)(c)(e)