Math 55: Discrete Mathematics, Fall 2008
Reading and Homework Assignment 7

Reading:

Lecture 19: 5.2

Lectures 20-21: 5.3-5.4

Homework (due Monday, 10/20):

Odd-numbered self-checking exercises:

5.2: 3, 13, 21, 25, 31

5.3: 9, 17, 19, 23

5.4: 7, 21

Problems to hand in:

5.2: 12, 14, 36 [Note/hint: although it's not clearly stated in the problem, you should assume that A knows B if and only if B knows A. In particular, it's impossible to have one person at the party who knows everyone and another person who knows no one], 40, Ch. 5 Suppl. Ex. 18.

5.3: 22(a, c, f), 24, 26, 38

5.4: 8, 14, 22, 24

(A) Using the binomial theorem and result of 5.4, Ex. 24, prove by induction on n that $n^p \equiv n \pmod{p}$ for every positive integer n, where p is prime. Then use this result to give a proof of Fermat's little theorem.