PROBLEM SET 7, 347, FALL 2005
DUE WEDNESDAY 10/19

(1) (10 points) Let $\underline{n}$ denote the set

$$\underline{n} = \{1, \ldots, n\}.$$

(a) Prove (for example by induction) that the power set $\mathcal{P}(\underline{n})$ of $\underline{n}$ has 2^n elements.
(b) Now prove the following formula:

$$2^n = \sum_{k=0}^{n} \binom{n}{k}$$

(2) (20 points) Read Chapter 5 of the book. Then do questions 5.50, 5.10, 5.13 and 5.23 from the book.

Date: October 14, 2005.