

Textbook

This lecture discusses section 15 of the textbook.

Homework

The homework is due Friday, December 3, 2010.

From Section 15 of the textbook, do exercise 9.

Comparing cardinality

To say that the cardinality of A is less than or equal to the cardinality of B means that A is equinumerous to a subset of B.

Diagonalization generally

Suppose $f : A \rightarrow P(A)$. Then consider

$$S = \{x \in A : x \notin f(x)\}.$$

If S is in the range of f , then there is an $a \in A$ so that $S = f(a)$. Is $a \in S$? If $a \in S$, then $a \notin f(a) = S$, and vice versa! So S cannot be in the range of f .