

Textbook

This lecture discusses section 15 of the textbook.

Homework

The homework is due Thursday, December 2, 2010.

From Section 15 of the textbook, do exercises 5, 6, 7, and 8.

Infinite hotel

Bijections

Write $A \approx B$ if there exists a bijection from A to B .

show that $[a, b] \approx [0, 1]$.

Diagonalization

a triumph of humanity!

there is no bijection from \mathbb{N} to \mathbb{R} .

(there is no bijection from \mathbb{N} to $\mathcal{P}(\mathbb{N})$.)

produce an irrational number by listing rationals, and exhibiting a number not on the list.

produce a *transcendental* number by listing algebraic numbers, and exhibiting a number not on the list.

CH

CH is the first of Hilbert's twenty-three problems presented in the year 1900.