Homework 3 for Math 131AH Honors Analysis

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Due on Tuesday, October 11.

Rudin, p. 43 (ch. 2): 2, 3, 6, 7, 9.

(1) Let E be a nonempty set. Show that E is infinite if and only if there is a proper subset S of E that has the same cardinality as E.

(2) Let E be any collection of disjoint intervals in $\mathbf{R}$ (where we do not consider a point as an interval). Show that E is countable.

(3) Find a bijection between $[0,1]$ and $(0,1)$.