

## 411 REAL ANALYSIS II WEEKLY QUIZ 2

Feb 5, 2016

**Name:** \_\_\_\_\_

By printing my name I pledge to uphold the honor code.

No books, notes, internet, etc. This should take about a half of an hour.

# REMEMBER TO SIGN IN!

## 1. Connected

a) Please define what it means for a set to be connected.

b) List all of the connected sets in  $\mathbb{R}^1$ . Why is this everything? What about  $\mathbb{R}^n$ ?

c) Define the Cantor set. What are some interesting properties it has?

d) How exactly is the theorem that the continuous image of a connected set is connected related to the Intermediate Value Theorem from calculus?

**2. Uniform Continuity.** Let  $f : X \rightarrow Y$  with  $X$  and  $Y$  metric spaces.

- [illegible]