

## MAT 215: PROBLEM SET 3

DUE THURSDAY FEBRUARY 17

**Reading:** Abbot, Sections 2.2-2.4.

**Problem 1:** Prove that every closed set in  $\mathbb{R}$  is a countable intersection of open sets.

**Problem 2:** Prove that if  $A$  is a connected subset of  $\mathbb{R}$ , then  $A$  is a point or an interval (possibly unbounded).

**Abbot exercises:** 3.2.2, 3.2.11, 3.3.8, 3.3.11 (except (c)), 3.4.5, 3.4.7