

## MAT 215: PROBLEM SET 2

DUE THURSDAY FEBRUARY 10

**Reading:** Abbot, Sections 3.2-3.4 (ignore the parts that deal with sequences).

**Problem 1:** Show that the composition of two injective maps is injective, the composition of two surjective maps is surjective and the composition of two bijective maps is bijective.

If  $g: A \rightarrow B$  is surjective and  $f: B \rightarrow C$  is injective, is  $f \circ g$  injective or surjective? What about if  $f$  is surjective and  $g$  is injective?

**Abbot exercises:** 1.3.6, 1.4.4, 1.4.8(a) and (c), 1.5.4, 1.5.9, 1.5.11.