

*The assignment is due at the beginning of class on February 16, 2012.*

**Problem 1 (10 points)** Exercise 2.3.10

**Problem 2 (10 points)** Exercise 2.4.2

**Problem 3 (10 points)** Exercise 2.5.6

**Problem 4 (10 points)** Let  $X$  be a non-empty set that is bounded from above. Show that there is a sequence  $(x_n)$  of elements in  $X$  that converges to  $\sup X$ .