Math 431   March 4, 2018

Assignment 7
(Due March 9)

Reading: (*from Reed*) §4.1

Problems: §3.1: #3, 7, 8, 10, 11
                   §3.2: #7, 8, 9, 11
                   §3.3: #1, 8

Additional Problem:

1. We needed the following in the proof that a continuous function on a closed interval is uniformly continuous. Let $\{a_n\}$ and $\{b_n\}$ be two bounded sequences of real numbers. By BW each has a convergent subsequence. Show that each has a convergent subsequence with the *same* index set: there is $\{n_1 < n_2, \dots\} \subseteq \mathbb{N}$ such that $\{a_{n_k}\}$ and $\{b_{n_k}\}$ converge. (*Suggestion*: Start by picking a convergent subsequence $\{a_{n_k}\}$; then $\{b_{n_k}\}$ is not necessarily convergent but has a convergent subsequence. This last index set $\subseteq \mathbb{N}$ works. Why?)