Problem Set 8
Due Wednesday, May 30.

Real Analysis

Math 131A, Spring Quarter 2012

1. Do problems 19.1, 19.2, 19.4, 19.5, 19.6, 19.7, 19.9, 19.10, 20.17, 20.18, 20.19 in the textbook.
2. Let $f\colon S \to \mathbb{R}$ be a uniformly continuous and bounded function. The function $\omega\colon (0, +\infty) \to \mathbb{R}$ given by

   $$\omega(\delta) := \sup\{|f(x) - f(y)| : x, y \in S,\ |x - y| < \delta\}$$

   is called the *modulus of continuity* of f. Show that ω is increasing and $\lim_{\delta \to 0^+} \omega(\delta) = 0$.