

Assignment 10
(Due April 3, 2008)

Reading: (*from Reed*) §5.1, 5.2

Problems: §4.6: #2, 3, 5(c,d,e) (give reasons), 6
§5.1: #1, 4, 11

Additional Problems:

1. Let $\{f_n(x)\}$ be a sequence of functions which converges pointwise to a function $f(x)$ on some subset $E \subseteq \mathbb{R}$. Suppose there exists a sequence $\{x_n\} \subseteq E$ and a positive number c such that $|f_n(x_n) - f(x_n)| > c$, for all n . Prove that $\{f_n(x)\}$ does not converge uniformly to $f(x)$ on E .
2. Let $C \subseteq \mathbb{R}^k$. Prove that if $\mathbb{R}^k - C$ is open, then C is closed.