Supplementary problems (assigned 10/10/03)

1. Prove directly from Definition 4.5 that the function $f : [0, \infty) \to [0, \infty)$ given by $f(x) = \sqrt{x}$ is continuous at every point in its domain.

2. Prove each item in Theorem 4.4 directly from Definition 4.1—i.e. do not use the corresponding facts about limits of sequences.