
The beginning of section 8 of chapter 1 was not too difficult, as it mostly reviewed the topics earlier discussed in class.

I found the proof of theorem 8.8 clever in the use of the sequence $b - \frac{1}{n}$ to converge (from within the set $f(D)$) to the least upper bound, showing that $b \in f(D)$ since a closed set contains all its limit points.

The book states that $f : D \to \mathscr{R}$ is uniformly continuous if given $\varepsilon > 0$, there exists $\delta > 0$ such that $\mathbf{x}, \mathbf{y} \in D$, $|\mathbf{x} - \mathbf{y}| < \delta$ implies $|f(\mathbf{x}) - f(\mathbf{y})| < \varepsilon$. This is nearly the same definition as for continuous, with the only difference being that $\mathbf{y}$ is not fixed, however I am having trouble visualizing how this would change the result.

I am unsure what theorem 8.10 is asserting due to the book's wording and notation.
