1. Abbott 7.2.1

2. Abbott 7.2.4a

3. Suppose $f, g : [a, b] \to \mathbb{R}$ are bounded functions. Suppose also that $g(x) = f(x)$ for all x except at one point $c \in [a, b]$.

a) Prove that $U(f) = U(g)$ and $L(f) = L(g)$.

b) Prove that if f is integrable, so is g.

c) Suppose h is an integrable function and $\hat{h}(x) = h(x)$ except at finitely many points. Show that $\hat{h}$ is integrable.

4. Abbott 7.2.6

5. Abbott 7.4.1

6. Abbott 7.4.5

7. Abbott 7.2.5 **(Hand this one in to David.)**
For this problem, you will need to know the definition of **uniform convergence**. We say a sequence of functions (f_n) with domain $[a, b]$ converges uniformly to f if for any $\epsilon > 0$, there exists an $N \in \mathbb{N}$ such that if $n \geq N$ then $|f(x) - f_n(x)| < \epsilon$ for every $x \in [a, b]$.