Exercise 1. Let f be a continuous function on the interval $[0, 1]$. Show that

$$\int_0^1 f(x)dx = \lim_{n\to\infty} U(P_n, f),$$

where $P_n = \{0, \frac{1}{n}, \ldots, \frac{n}{n}\}$.

[Hint: use that a continuous function on a compact set is uniformly continuous.]

Exercise 2. Prove Theorem 1.2 in the book.

Also complete exercises 2.1, 2.2 and 2.3.