University of Colorado
Department of Mathematics

2022/23 Semester 1   Math 6310 Real Analysis 1   Assignment 4

Due uploaded to Canvas Friday October 28, 2022 at 11:59 p.m.

1. Read the Royden-Fitzpatrick textbook, the rest of Chapter 4, including 4.2, 4.3, 4.4, 4.5, and 4.6.

2. Do problems in Royden-Fitzpatrick pp. 84–85, $\#22, 25, 27$; pp. 89–90 $\#29, 32, 33, 36$; pp. $95 - 96$, $\#44$.

3. Let f be the function defined on $[0, 2]$ by

$$f(x) \;=\; \begin{cases} \frac{1}{\sqrt{2-x}}, & \text{if } x \in [0, 2), \\ 0, & \text{if } x = 2. \end{cases}$$

Prove that f is Lebesgue integrable over $[0, 2]$.