

Homework 4

1.
 - a. Prove that the Cantor set C consists of precisely those numbers in $[0, 1]$ that can be written as $\sum_{k=1}^{\infty} \frac{a_k}{3^k}$ with all $a_k \in \{0, 2\}$.
 - b. Prove using the definition of the Cantor-Lebesgue function given in class that it is constant on every interval contained in $[0, 1] \setminus C$.
2. Royden, Section 2.7, Exercise 41.
3. Royden, Section 2.7, Exercise 44.
4. Royden, Section 2.7, Exercise 46.
5. Royden, Section 2.7, Exercise 47.