Math 525

Homework due 01/20/2010

Reading from Stein & Shakarchi: Chapter 3: sections 3.

Problem 1: Let f be a continuous real-valued function on [0, 1]. Let k be a fixed positive integer. Suppose that for each $y \in \mathbb{R}$ the set $\{x \in [0,1] : f(x) = y\}$ contains at most k points. Prove that $f \in BV[0,1]$.

Exercises from Stein & Shakarchi: Chapter 3: 7, 9, 11.

Problem from Stein & Shakarchi: Chapter 3: 1 (Note: a cover in the Vitali sense means a fine cover).