

Handout #3. Rectifiable sets

3. RECTIFIABLE SETS

Exercise 3.1. Prove that the (Euclidean) balls are rectifiable sets.

Exercise 3.2. Show that a subset $S \subset \mathbb{R}^n$ is rectifiable if and only if it is bounded and $\text{Bd } S$ has measure zero.

Exercise 3.3. Prove the following properties of rectifiable sets:

- (a) If S is rectifiable, then $v(S) \geq 0$.
- (b) If S_1 and S_2 are rectifiable, then $S_1 \cup S_2$ and $S_1 \cap S_2$ are rectifiable. If S_1 and S_2 are disjoint and rectifiable, then $v(S_1 \cup S_2) = v(S_1) + v(S_2)$.
- (c) Suppose that S is rectifiable. Then $v(S) = 0$ if and only if S has measure zero.
- (d) If S is rectifiable, then so is the set $\text{Int } S$, and $v(S) = v(\text{Int } S)$.