

HMWK 4; DIFFERENTIAL GEOMETRY, FALL 2009

NAME :

Due on Monday, Nov. 9 2009
Justify all answers in detail!!!

Problem 1. Let $A \subset \mathbb{R}^n$ be an open set and $g : A \rightarrow \mathbb{R}^n$ be a Lipschitz map (i.e. $|g(x) - g(y)| \leq M|x - y|$ for all $x, y \in A$). Show that the image $g(E)$ of any set $E \subset A$ of measure zero has also measure zero.

Problem 2. Show that if $A \subset \mathbb{R}^n$ is a non-empty, rectifiable open set then $v(A) > 0$.

Problem 3. Show that the set $\mathbb{R}^{n-1} \times \{0\}$ has measure zero in \mathbb{R}^n .