

Homework 2. Due October 31
Math 254a. Topics in Real Analysis, Fall 2007

1. Compute the Hausdorff dimension of the Von-Koch snow flake.
2. Compute the Hausdorff dimension of the Garnett example.
3. Prove Lemma 4.6 in Mattila
4. Suppose $E \subset \mathbb{R}^n$ has Hausdorff dimension 1. **ASSUME E HAS FINITE ONE DIMENSIONAL HAUSDORFF MEASURE.** Suppose further that $E = \cup \Gamma_i$ is a countable union of images Γ_i of 1-Lipschitz functions defined on \mathbb{R} . Show that for $H^1 - a.e.$ $x \in E$ we have $\theta^{*1}(E, x) = 1$. (Hint: This is very easy)