Math F401: Homework 8 Supplement

1. (Hand in to David)

Prove the following "Shrinking Lemma".

Suppose $A \subseteq \mathbb{R}$, $f: A \to \mathbb{R}$, and c is a cluster point of A. Let $\rho > 0$, let $A_{\rho} = A \cap (c - \rho, c + \rho)$, and let g be the restriction of f to A_{ρ} . Then c is a cluster point of A_{ρ} , and if $\lim_{x \to c} g(x) = L$, then $\lim_{x \to c} f(x) = L$.

Due: October 27