

Math 601B Homework # 3  
Due Wednesday, March 10

1. Show that the number of ends is a quasi-isometry invariant of connected simplicial complexes.
2. Let  $T$  be a simplicial tree and let  $\{T_1, \dots, T_n\}$  be a collection of subtrees such that  $T_i \cap T_j \neq \emptyset$  for all  $i, j$ . Show that  $\bigcap_{i=1}^n T_i \neq \emptyset$ .
3. Show that the free product of any two hyperbolic groups is hyperbolic.