HOMEWORK SET 6
SPRING 2021

INSTRUCTOR: YI LIU

* Due Monday June 7, 2021.

1. Let G be a finitely generated group. Recall that G is said to be word hyperbolic if the Cayley graph of G with respect to some finite generating set S is a δ–hyperbolic space for some constant $\delta > 0$. Show that the notion of being word hyperbolic does not depend on the choice of S.

2. If M is an aspherical closed orientable Seifert fibered space, show that $\pi_1(M)$ is not word hyperbolic.

3. Let $G = \langle a_1, b_1, a_2, b_2 \colon [a_1, b_1][a_2, b_2] = 1 \rangle$ and H be the subgroup of G generated by a_1 and b_1. Show that H is quasiconvex in G.

4. Raise a (non-obvious) question about word hyperbolic groups or their quasiconvex subgroups. Find out the current status of your question by literature search.