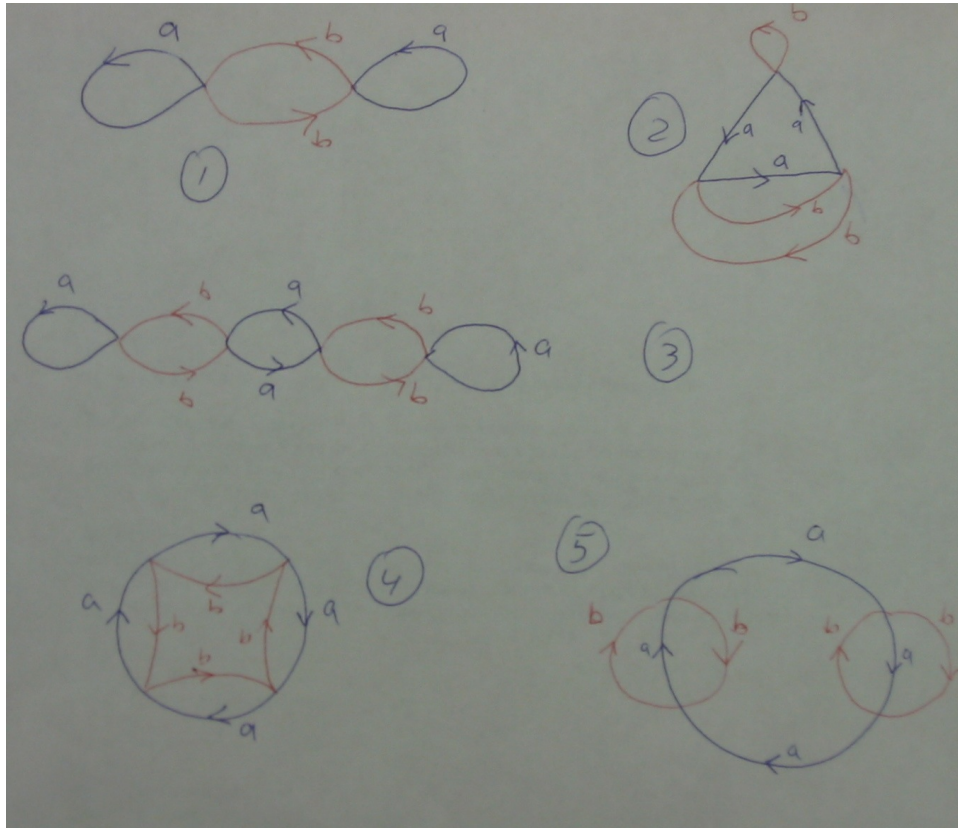# Math 8062 Homework 6

Due Thursday, 3/10/22

1. Consider the following covering spaces of $S^1 \vee S^1$.

a) Which of the above covers are regular, i.e. correspond to normal subgroups?
b) For each irregular cover $\widetilde{X}$, identify the normalizer $N(H)$ where $H = p_* \pi_1(\widetilde{X}, \widetilde{x}_0)$.

2. Do problem 18 on page 80 of Hatcher.

3. Do problem 20 on page 81 of Hatcher.