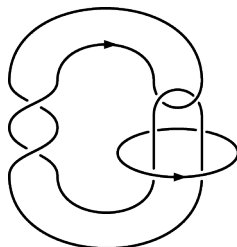


## Math 9023 Homework 4

Due Wednesday, 10/17/18

1. Find a braid representative for the following link.



2. Compute the P.T. Homfly polynomial of the figure-8 knot.
3. What is the braid index of the figure-8 knot? Prove your answer.
4. Prove that the braid group  $B_3$  is isomorphic to the fundamental group of the trefoil complement.
5. Let  $w : B_n \rightarrow \mathbb{Z}$  be the homomorphism that sends every generator  $\sigma_i$  to 1. Prove that  $w$  is the abelianization homomorphism.