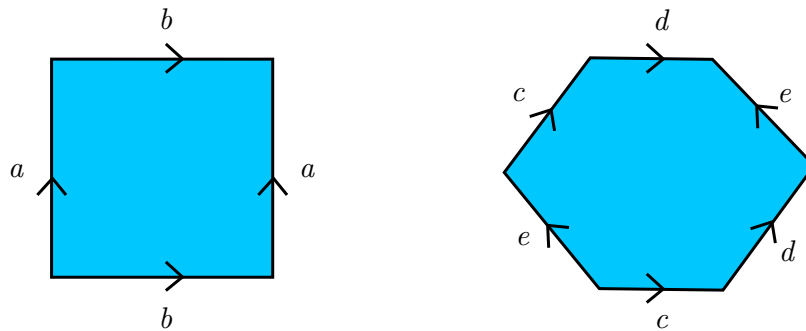


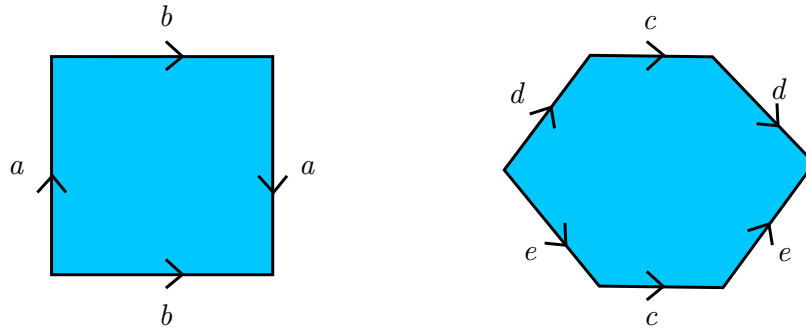
HOMEWORK 5

MATH 180, WINTER 2023

- (1) Suppose A and B are two surfaces represented by polygonal decompositions. If the Euler characteristic of A is x and the Euler characteristic of B is y , what is the Euler characteristic of their connected sum $A\#B$ in terms of x and y ?
- (2) Use your formula from the previous question and induction to calculate the Euler characteristic of the connected sum of g copies of the torus (i.e. the genus g surface).
- (3) Show that the two polygonal presentations below give homeomorphic surfaces.



- (4) Show that the two polygonal presentations below give homeomorphic surfaces.



- (5) Show that the two polygonal presentations below give homeomorphic surfaces.

