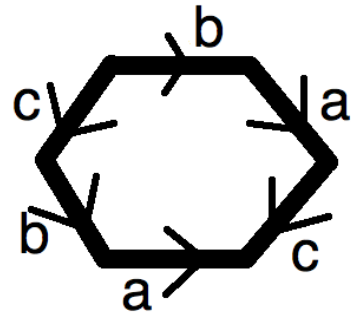
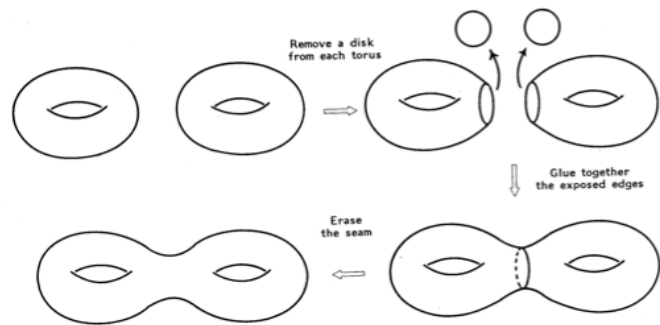


Connect Sums

1. Determine what the object to the right is topologically equivalent to.



2. Below are the steps for finding $\mathbb{T}^2 \# \mathbb{T}^2$ from page 71 of your text. Repeat the steps using a flat torus diagram instead.



3. Use flat torus diagrams to find $\mathbb{T} \# \mathbb{T} \# \mathbb{T}$.

4. Let $n\mathbb{T}^2$ denote an n holed torus. Draw a flat torus diagram for $n\mathbb{T}^2$.

5. Find $\mathbb{P}^2 \# \mathbb{P}^2$ using the flat projective plane diagram.

6. Find $\mathbb{P}^2 \# \mathbb{P}^2 \# \mathbb{P}^2$ using the flat projective plane diagram.

7. Let $n\mathbb{P}^2$ be the connect sum of n projective planes.
Draw a flat projective plane diagram for $n\mathbb{P}^2$

8. Recall that $\mathbb{P}^2 \# \mathbb{P}^2$ is topologically equivalent to \mathbb{K}^2 . Transform your answer in problem 5 into the standard flat \mathbb{K}^2 diagram.