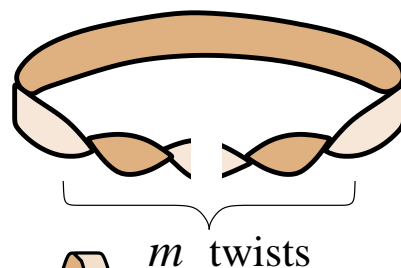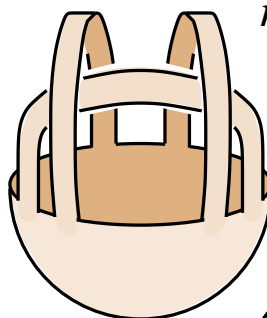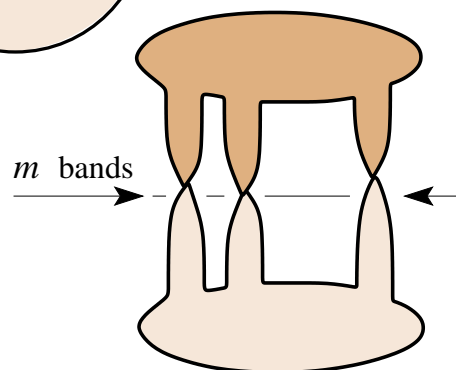**1.** Describe the result of cutting a band with m twists along n lines parallel to its edge.
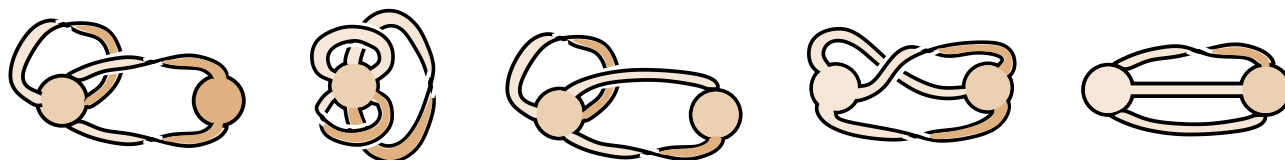
2. Find the genus and the number of boundary components of the surface.

3. Consider the surface consisting of two discs and m twisted bands between them. Is it orientable? Find the genus and the number of boundary components.

4. Find the numbers of cross-caps and the numbers of boundary components for the following surfaces.

5. Prove that the Euler characteristics χ and the genus g of a closed orientable surface are related as $\chi = 2 - 2g$.

6. Prove that the Euler characteristics χ and the number of cross-caps μ of a closed non-orientable surface are related as $\chi = 2 - \mu$.

7. Find a minimal triangulation of a torus.

8. Find a minimal triangulation of a Klein bottle.