

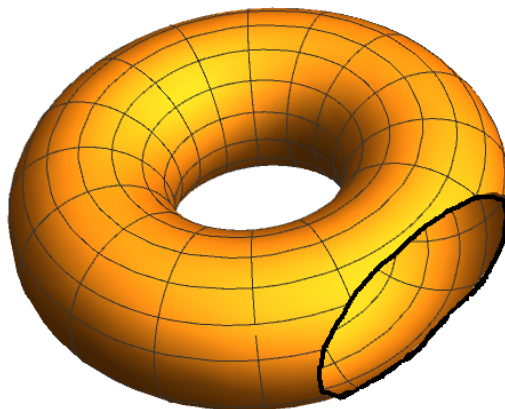
Math 10460 - Honors Mathematics II

Homework 10b - Due Wednesday, April 6

You must show your work in all of the problems!!!

Recall that S^2 is the sphere, \mathbb{T} is the torus, and \mathbb{K} is the Klein bottle

- (5) Sketch the surface $\mathbb{T} \# \mathbb{K}$.
- (6) Sketch the surface $\mathbb{K} \# \mathbb{T}$.
- (7) Are the surfaces in (5) and (6) the same? Why or why not?
- (8) Is the following surface closed? Why or why not?



- (9) We write $n\mathbb{T}$ for $\underbrace{\mathbb{T} \# \mathbb{T} \# \cdots \# \mathbb{T}}_{n\text{-times}}$. Show, using pictures, that

$$m\mathbb{T} \# n\mathbb{T} = (m + n)\mathbb{T}.$$