535A SPRING 2021 PROBLEM SET #4

Problem 1. Fix $n \in \mathbb{Z}_{\geq 1}$, and let $\mathbb{T}^n$ denote the n-dimensional torus. Recall that this is a Lie group. Let $e \in \mathbb{T}^n$ denote the identity element, let $\mu : \mathbb{T}^n \times \mathbb{T}^n \to \mathbb{T}^n$ denote the multiplication map, and let $\iota : \mathbb{T}^n \to \mathbb{T}^n$ denote the inversion map. Describe the differential of μ at (e, e), and describe the differential of ι at e.

Problem 2. Lee *second edition* 4-4

Problem 3. Lee *second edition* 4-5

Problem 4. Lee *second edition* 4-6

Problem 5. Lee *second edition* 4-10

Problem 6. Lee *second edition* 4-13