Exercises on Lie groups
Spring term 2018, Sheet 13

Exercise 1
Show that every connected abelian Lie group is of isomorphic with $\mathbb{R}^m \times \mathbb{T}^n$ for some $m, n \in \mathbb{N}$.

Exercise 2
Show that every connected simply connected solvable Lie group is contractible.

Exercise 3
Show that every Lie group is homotopic to a compact Lie group, making use of the Iwasawa decomposition of semi-simple Lie groups.