Math 31 Homework 3

Due July 13, 2018

1. In Chapter 6, do problems:
   (a) Exercise A3
   (b) Exercise B4
   (c) Exercise B5 (and prove that your function is bijective).
   (d) Exercise C4 (note that $a \in G$ is fixed).
2. Let A be a finite set. Prove that a function $f : A \to A$ is injective if and only if it is surjective.
3. Chapter 7, exercise A1.
4. Chapter 7, exercise B2.
5. Prove that the set of even permutations is a subgroup of S_n.
6. Prove that S_n is non-abelian for all $n \geq 3$.
7. Chapter 9, exercise A2.
8. Chapter 9, exercise I4.