Math 31 Homework 4

Due July 20, 2018

1. Chapter 12
   (a) Exercise B2
   (b) Exercise C3
   (c) Exercise D1
2. Let n be a positive integer. Let $H = \{0, \pm 3, \pm 6, \pm 9, \dots\}$. Find all left cosets of H in $\mathbb{Z}$.
3. Chapter 13
   (a) Exercise C3
   (b) Exercise D1
4. Suppose that H and K are subgroups of G and there are elements $a, b \in G$ such that $aH \subseteq bK$. Prove that $H \subseteq K$.
5. Prove that A_n is normal in S_n.
6. Chapter 14 Exercise E5.