Math 401: Homework 2

1. For a group $G$, recall that we say $y$ is an inverse element of $x$, if $y \cdot x = e$, where $e$ is the identity element. Prove that $x \cdot y = e$.

2. Let $G = \{(a, b) | a \neq 0\}$ with a binary operation $\cdot$ on $G$, such that $(a, b) \cdot (c, d) = (ac, ad + b)$. Prove or disprove that $G$ is a group.

3. Armstrong 2.3, 2.6–2.8.

4. Armstrong 3.1–3.4

5. Armstrong 4.6, 4.9