Problem 62. Let $G$ be an Abelian group and let $H = \{x \in G \mid x = x^{-1}\}$, that is, $H$ is the set of all elements in $G$ that are their own inverses. Show that $H \leq G$.

Problem 63. In the group $(\mathbb{Z}_{10}, +_{10})$, compute the set $\langle x \rangle$ for every $x \in \mathbb{Z}_{10}$. Given $n \in \mathbb{N}$, conjecture, but do not prove, a condition on $k$ and $n$ such that $\langle k \rangle = \mathbb{Z}_n$.

Problem 64. Show that if $\frac{a}{b} \in \mathbb{Q}^*$, then $0 < \frac{ab}{ab + a} < 1$. 