Day 23

Factor Groups

1. What is the order of $14 + \langle 8 \rangle$ in $Z_{24}/\langle 8 \rangle$?

2. Let $H = \langle 12 \rangle$ in $G = U(13)$. What is the order of $4H$ in G/H?

3. Prove that, if $\mathrm{Aut}(G)$ is cyclic, then G is abelian.

4. Suppose G is a group and H is a subgroup of odd order and index 2. Show that H contains every element of G that has odd order.