

Instructions. Write all answers clearly on one piece of paper, and put all group members' names on the top of the paper. If you talk, you must do so **very quietly!**

1. Explain what property distinguishes a group isomorphism from a group homomorphism.
2. What is the definition of the kernel of a group homomorphism?
3. (True/False) The kernel of a homomorphism from G to some other group is a subgroup of G .
4. (True/False) Let $\phi : G \rightarrow \overline{G}$ be a homomorphism that is *onto* \overline{G} . Let $x, y \in \overline{G}$. It is possible for the preimages of x and y under ϕ to have different sizes. (That is, it is possible for $|\phi^{-1}(x)| \neq |\phi^{-1}(y)|$.)
5. (True/False) All group isomorphisms are group homomorphisms.