

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. How is an internal direct product different than an external direct product?
2. Suppose a group G is to be written as $H \times K$. What must be true about $H \cap K$?
3. Suppose a finite group G is to be written as $H \times K$. What must be true about $|H|$ and $|K|$?
4. Suppose H_1, H_2, \dots, H_n are subgroups of G . What is the definition of the product $H_1 H_2 \cdots H_n$?