

**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. If  $H$  is a subgroup of  $G$ , then what is a coset of  $H$  in  $G$ ?
2. Suppose  $|G| = 10$  and  $|H| = 5$ , where  $H$  is a subgroup of  $G$ . How many distinct cosets of  $H$  are there in  $G$ ?
3. What is the difference between a left coset and a right coset of  $H$  in  $G$ ?
4. (True/False) All cosets of  $H$  in  $G$  are the same size.
5. (True/False) If  $G$  is non-Abelian, then it is possible for distinct cosets of  $H$  in  $G$  to overlap but not be equal.
6. Suppose a group  $G$  has  $|G| = p$ , where  $p$  is a prime. what do you know about  $G$ ?