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 many groups of order 4 are there up to isomorphism?

2. Name or give the Cayley table for an acyclic group of order 4.

3. What must be true about H and G separately in order for $H \oplus G$ to be cyclic?

4. Name 4 groups that are isomorphic to $\mathbb{Z}_2 \oplus \mathbb{Z}_3 \oplus \mathbb{Z}_5$.

5. (True/False) For any divisor k of n, we have the subgroup relationship

$$U_k(n) := \{x \in U(n) \mid x \bmod k = 1\} \leq U(n).$$