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

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