

Worksheet 7: Groups of order 6

Let G be a group of order 6. *What could it be (up to isomorphism)?*

Questions:

1. What are the possible maximal orders of elements in G (you may assume Cauchy's Theorem)?
2. Let $g \in G$ be an element of maximal order. Construct the partition we used in the proof of Lagrange's Theorem using $\langle g \rangle \subseteq G$ as your subgroup.
3. For all possible cases, construct isomorphisms to familiar groups.

Group write-up. Write up a complete classification of groups of order 1, 2, 3, 4, 5, 6, and 7.