

SOME PRACTICE PROBLEMS FOR TEST 2

- Suppose that G has a normal subgroup H of index 5. What is the quotient group G/H ?
- Let H be a subgroup of a group G . Find an equivalence relation on the set G such that the equivalence classes are the left cosets of H in G . Prove that your relation is an equivalence relation.
- Does $D_5 \times D_7$ contain a subgroup of order 35? Is it normal, and if so, what is the quotient group?
- Let Q be the 8-element quaternion group. Find all the subgroups of $Q \times \mathbb{Z}_2$.
- Let H be a normal subgroup of G . Prove that G/H (the set of left cosets) is isomorphic to the set of right cosets, using the first isomorphism theorem.