

MATH 30A: QUIZZES

Rules: All quizzes and practice quizzes are open book and notes. If you can't answer the question you can give partial answers or change it to get some credit. ("I can't answer the question, but here is something that I can say about the particular example you asked about.") What I want to see is not the general formula in the book but anything you can say in reference to the particular example.

Write answers on a separate piece of paper or on the back of this page.

PRACTICE QUIZ I

1. Find an example of a group with 8 elements which is not cyclic.
2. Find a specific example of a group G which is nonabelian and a subgroup H which is abelian. (Abelian is the same as commutative.)
3. If $g \in G$ has order 6 then show that g^2 has order 3. Give an example where $G = S_6$.
4. Verify that the following is a group. X is a set with 1,000,000 elements. G is the set of all subsets of X . (So, G has $2^{1000000}$ elements. You don't have to prove that.) The binary operation on G is symmetric difference:

$$A \oplus B = (A - B) \cup (B - A)$$

This is the set of all elements in either A or B but not both. You may use Venn diagrams to prove associativity.