

MATH 132 - REVIEW FOR TEST 2

The test will be based on class notes, homework, and collected homework.

The corresponding material in the book is: 2.5 page 71-73; 2.6 page 77-80; 2.7 page 84-85; 2.8 page 88-89; 2.10 class notes; 3.2 all; 3.3 all

MAIN TOPICS

Normal Subgroups

Know how to use and prove the conditions.

Factor Groups

Be able to work with G/N . Know its order.

Homomorphism Theorems

Be able to state and use the 1st Homomorphism Theorem.

Cauchy's Theorem

Know how to work with orbits.

Be able to state and use Cauchy's Theorem.

Finite Abelian Groups

Know how to state and use the Order Lemma.

Know how to use the Fundamental Theorem of Finite Abelian Groups to list "all" finite abelian groups of a given order and to identify a given finite abelian group as a product of cyclic groups.

Cycle Decomposition

Know disjoint cycle and 2-cycle decomposition.

Know how to use it to find inverses, order, and parity.

Be able to work with A_n and other subgroups of S_n .

BIG PROOFS

Cauchy's Theorem

Be able to prove Claim 1.

Parity Proofs (Theorem 3.3.1)

Be able to use Claim 2 to prove Claim 3 of Theorem 3.3.1.

Also be familiar with the proof of Claim 1.