

Study Guide for Exam 2

You are still responsible for all of the material from Exam 1. This study guide is not guaranteed to be comprehensive.

Definitions you should know

- Subgroup
- Closed Under $*$
- Closed Under Inverses
- Center of a Group, $Z(G)$
- Direct Product of Two or More Groups
- Function, $f : S \rightarrow T$
- Domain
- Onto Function
- One-To-One Function
- Bijection
- Inverse Function
- Identity Function on a Set
- Composite Function, $f \circ g$
- Permutation
- Symmetric Group, S_n
- Cycle
- Transposition
- Even Permutation
- Odd Permutation
- Alternating Group, A_n
- Group of Symmetries of the Square, D_4
- Left Coset
- Right Coset
- Index

Theorems You Should Know How to Prove and Use

Theorems 5.1, 5.2, 5.3, 5.4, 5.6, 5.7, 8.5, 9.4, 10.2, 10.4, 10.5, from the book.
All theorems we proved in class or on a worksheet.

Theorems You Should Know How to Use

Theorems 5.5, 6.1, 8.1, 8.2, 8.3, 8.4, 10.1, 10.3.

Methods of Proof You Should Know

Proving:

- A subset of a group is a subgroup
- The direct product of two or more groups is/is not cyclic
- A function is a bijection
- Two sets are the same size (cardinality)