MA 521
Study Guide

1 Groups

Definition. A *group* is a set G together with a law of composition which is an associative and has an identity element, and such that every element of G has an inverse.

2 Subgroups

Definition. A *subgroup* H of a group G satisfies (a) closure, (b) identity, and (c) inverse.

3 Isomorphisms

Definition. An isomorphism is a bijective correspondence between two groups that preserves the laws of composition, i.e. $\varphi : G \to G'$ satisfies $\varphi(ab) = \varphi(a)\varphi(b)$.

4 Homomorphisms

5 Equivalence Relations and Partitions

x is conjugate to y in G if and only if $x = byb^{-1}$ for some $b \in G$.