Why

We name a function which preserves algebraic structure.

Definition

A *group homomorphism* between two groups $(A, +)$ and $(B, \tilde{+})$ is a bijection $f : A \to B$ such that $f(1_A) = 1_B$ for $1_A \in A$ and $1_B \in B$ and $f(a + a') = f(a) \tilde{+} f(a')$ for all $a, a' \in A$. We define a *ring homomorphism* and *field homomorphism* similarly.

Homomorphisms

Rings   Fields

Groups   Rational Numbers

Integer Additive Inverses   Integer Arithmetic

Inverse Elements   Integer Sums   Natural Additive Identity   Natural Multiplicative Identity

Element Functions   Identity Elements   Arithmetic

Function Inverses   Algebras   Natural Powers   Integer Products

Function Images   Function Composites   Operations   Natural Products

Functions   Integer Numbers   Natural Sums

Equivalence Relations   Recursion Theorem

Relations   Peano Axioms

Cartesian Products   Natural Induction

Set Powers   Natural Numbers

Unordered Triples   Partitions   Successor Sets   Intersection of Empty Set

Ordered Pairs   Pair Unions   Set Intersections

Set Unions   Set Differences

Unordered Pairs   Empty Set   Pair Intersections

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities   Sets

Names

Letters   Objects