Basic Definitions

Groups

Albelian

Commutative

Associative

A group $(G, *)$ is associative if, for any $\forall u, v, w \in G$:

$$(u * v) * w = u * (v * w)$$

Isomorphism

Let $(G, *)$ and $(H, *)$ be groups, if there exists a $f : G \to H$ which is bijective. Then G and H are isomorphic.

Basic Properties

Cancelation

Theorem 1.3: Let $(G, *)$ be a group, then:

1. The identity element e exists and is unique.

2. Any element a has a unique inverse b where $ab = ba = e$.