



## Homomorphism

### 1 Why

We name a function which preserves group structure.

### 2 Definition

A *homomorphism* from group  $(A, +)$  to group  $(B, \tilde{+})$  is a function  $f : A \rightarrow B$  such that  $f(e_A) = f(e_B)$  for identities  $e_A \in A$  and  $e_B \in B$  and  $f(a + a') = f(a) \tilde{+} f(a')$  for all  $a, a' \in A$ .

#### 2.1 Notation

TODO