Homomorphisms and isomorphisms

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The notion of an *isomorphism* is that two groups have the same gorup-theoretic structure (any property that can be derived from the axioms of the group holds for both groups). Let $(G, *)$ and $(H, \cdot)$ be groups. A map $\phi : G \to H$ such that $\phi(x*y) = \phi(x)\cdot\phi(y)$ for all $x, y \in G$ is a homomorphism. For this map to be considered an ismorphism, it must be bijective. The symbol $\cong$ represent the equivalence isomorphic relation. Since $\cong$ is an equivalence relation in the set $\mathfrak{G}$ of all groups, it follows that there are equivalence clases that are isomorphic. This is important for the classification of groups using isomorphisms.

1 Excercises