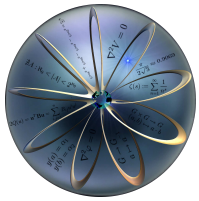

planetmath.org

Math for the people, by the people.

endomorphism

Canonical name	Endomorphism
Date of creation	2013-03-22 15:33:34
Last modified on	2013-03-22 15:33:34
Owner	porton (9363)
Last modified by	porton (9363)
Numerical id	11
Author	porton (9363)
Entry type	Definition
Classification	msc 18A20
Classification	msc 18A05
Related topic	TypesOfHomomorphisms
Related topic	Morphism
Related topic	Category
Related topic	CategoryTheory
Related topic	Automorphism
Related topic	GroupHomomorphism
Defines	endomorphism
Defines	automorphism

Endomorphism is such morphism (morphism is another for homomorphism) whose source and destination are the same object.

That is a morphism f is *endomorphism*, when $\mathrm{Src}f = \mathrm{Dst}f = A$ where A is some object (e.g. A may be an abstract algebra). Then one can say, the object of endomorphism f is A.

In the most general case endomorphisms are encountered in category theory. As a special case of this endomorphisms are also encountered in abstract algebra.

A morphism which is both an endomorphism and an isomorphism is called *automorphism*.

The sets of endomorphisms and automorphisms for an object A of a category are often denoted correspondingly as $\mathrm{End}(A)$ and $\mathrm{Aut}(A)$ or sometimes as $\mathrm{end}(A)$ and $\mathrm{aut}(A)$.

Endomorphisms also can be considered as objects of `http://planetmath.org/Pseudomorphism` of intermorphisms and (if the set of morphisms of our category is preordered) also of `http://planetmath.org/PseudomorphismsAndIntermorphisms`category of pseudomorphisms.