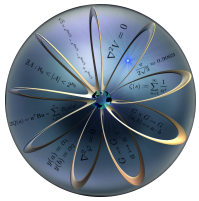

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identity map

Canonical name	IdentityMap
Date of creation	2013-03-22 14:03:43
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Entry type	Definition
Classification	msc 03E20
Synonym	identity mapping
Synonym	identity operator
Synonym	identity function
Related topic	ZeroMap
Related topic	IdentityMatrix

Definition If X is a set, then the **identity map** in X is the mapping that maps each element in X to itself.

0.0.1 Properties

1. An identity map is always a bijection.
2. Suppose X has two topologies τ_1 and τ_2. Then the identity mapping $I : (X, \tau_1) \to (X, \tau_2)$ is continuous if and only if τ_1 is finer than τ_2, i.e., $\tau_1 \subset \tau_2$.
3. The identity map on the n-sphere, is `http://planetmath.org/HomotopyOfMaps`homotopic to the antipodal map $A : S^n \to S^n$ if n is odd [**?**].

References

[1] V. Guillemin, A. Pollack, *Differential topology*, Prentice-Hall Inc., 1974.