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linear isomorphism

Canonical name	LinearIsomorphism
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Entry type	Definition
Classification	msc 15A04
Synonym	invertible linear map
Synonym	bijective linear map
Synonym	non-singular linear map

Definition 1. Suppose V and W are vector spaces and $L: V \rightarrow W$ is a linear map. Then L is a linear isomorphism if L is bijective.

Properties

1. Compositions and of linear isomorphisms is a linear isomorphism.
2. The inverse of a linear isomorphisms is a linear isomorphism.
3. If either V or W is finite dimensional, then $\dim V = \dim W$. (This is a consequence of the rank-nullity theorem.)