



VECTOR SPACE ISOMORPHISMS

Why

In some sense, \mathbf{R}^n is the only finite-dimensional vector space. In what sense?

Definition

An *isomorphism* is an invertible linear transformation between two vector spaces. Two vector spaces are *isomorphic* if there exists an isomorphism between them.

Key Result

PROPOSITION 1. *Two finite-dimensional vector spaces are isomorphic if and only if they have the same dimension.*

COROLLARY 2. *Two finite-dimensional vector spaces are isomorphic if and only if they have the same dimension.*

