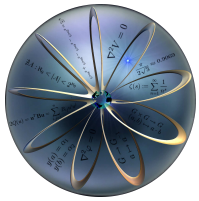

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coordinate vector

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Defines	components

Let V be a vector space of dimension n over a field K. If $(b_1, \ldots, b_n)$ is a basis of V, then any element v of V can be uniquely expressed in the form

$$v = \xi_1 b_1 + \ldots + \xi_n b_n$$

with $\xi_1, \ldots, \xi_n \in K$. The `http://planetmath.org/OrderedTuplet`$n$-tuplet $(\xi_1, \ldots, \xi_n)$ is called the *coordinate vector* of v with respect to the basis in question. The scalars ξ_i are the *coordinates* (or the *components* of v).

It's evident that the correspondence

$$v \mapsto (\xi_1, \ldots, \xi_n)$$

provides a linear isomorphism between the vector space V and the vector space formed by the Cartesian product K^n.