MATH 240 - Coordinate Systems

Terminology

Coordinates of v

- The coordinates of v relative to B are the weights
  c1, c2, ... cn such that v = c2b1+c2b2+ ... +cnbn

Coordinate vector relative to B

- The column in Rn built of these weights

A vector space V and a basis B that contains n vectors

Then every vector in the vector space can be expressed uniquely as a linear combination v = c1b1 + ... + cnbn.
So, the only information we need to describe v are the weights(c1, ..., cn) that can be seen as a vector in Rn

The coordinate mapping

Let B be a basis for a vector space V. The coordinate mapping or coordinate transformation given be B is the mapping
V->Rn
given by the rule
V->[V]_B