

The Dimension of a Subspace

It can be shown that if a subspace Φ has a basis of p vectors, then every basis of Φ must consist of exactly p vectors.

The **dimension** of a nonzero subspace Φ , denoted by $\dim(\Phi)$, is the number of vectors in any basis for Φ . The dimension of the zero subspace $\{\mathbf{0}\}$ is defined to be zero.