

Special problem 2

Suppose that \mathcal{B} is a spanning list of n vectors in a vector space V of dimension n . Prove that \mathcal{B} must also be linearly independent and so, \mathcal{B} is a basis for V . [Hint: Proceed by showing that the assumption that \mathcal{B} is linearly dependent leads to a contradiction of the theorem that asserts that the number of vectors in any spanning list is always at least the number in any linearly independent list.]