

Additional Problems Assignment 23

The following problem involves mathematical induction. If you have no experience with induction here are a couple of reference that I have found that might help: <http://people.richland.edu/james/lecture/m116/sequences/induction.html> and <http://www.cs.odu.edu/~toida/nerzic/level-a/induction/examples.html>. Depending on your background, some will find this problem very easy and other will not know what to do, but just try your best.

1. A vector space is assumed to be closed under addition and scalar multiplication. That is if V is a vector space and $f, g \in V$ and k is a scalar then $f + g \in V$ and $kf \in V$. That all finite linear combinations of vectors in V are in V . That is if $f_1, f_2, \dots, f_n \in V$ and k_1, k_2, \dots, k_n are scalars then: $k_1f_1 + k_2f_2 + \dots + k_nf_n \in V$.