Linear Algebra I

F11

Homework 8

due on 10/31/11

Section Exercises

6.2 1,2,9,12,16,21

A. Let *I* be a set, *V* a vector space and F(I, V) the set of function from *I* to *V*. For $r \in \mathbb{R}$ and $f, g \in F(I, V)$ define the functions f + g and rf from *I* to *V* by

(f+g)(i) = f(i) + g(i) and (rf)(i) = r(f(i))

for all $i \in I$. Prove that F(I, V) with these operations is a vector space.

B. Let $T: V \to W$ be linear and let Y be a subspace of W. Put

$$X = \{x \in V \mid T(x) \in Y\}$$

Show that X is a subspace of V.