Problem Set 6, Math 54-Lec 3, Linear Algebra, Fall 2017

September 15th, 2017

Problem 1. For vector spaces V, W, let $T : V \to W$ be a linear transformation. Additionally let U be a subspace of V. Recall $T(U)$ is the set of all $\vec{w} \in W$ such that $\vec{w} = T(\vec{u})$ for some $\vec{u} \in U$. Prove that $T(U)$ is a subspace of W.

Problem 2. Let V be a vector space and let $\vec{v_1}, \ldots, \vec{v_n}$ be vectors in V. Prove from the definition that $Span\{\vec{v_1}, \ldots, \vec{v_n}\}$ is a subspace of V.