Math 2135: Linear Algebra
Quiz #1

1. List all eight axioms of a vector space.

2. Prove that $2 \triangleright v = v + v$, for any v.

3. Prove that the axiom [A4] is superfluous—i.e., that it can be proven from the other axioms.

4. Let W be the set of all polynomials satisfying $p(1) = p(3)$. Show that W is a subspace of $\mathbb{P}$.

5. Let W be the set of all vectors $\begin{pmatrix} a \\ b \\ c \end{pmatrix}$ satisfying $ab = 0$. Show that W is *not* a subspace of $\mathbb{R}^3$.