

Linear Algebra, EE 10810/EECS 205004

Quiz 1.5 – 1.6

Student ID:; Your Name:
(Dated: October 7th, 2020)

Integrity: There is NO space to cross the **Red Line** !!

1. Show that if S_1 and S_2 are subsets of a vector space \mathcal{V} such that $S_1 \subseteq S_2$, then $\text{span}(S_1) \subseteq \text{span}(S_2)$.

2. Determine whether the following sets are linearly dependent or linearly independent

$$\left\{ \begin{pmatrix} 1 & -2 \\ -1 & 4 \end{pmatrix}, \begin{pmatrix} -1 & 1 \\ 2 & -4 \end{pmatrix} \right\} \quad \text{in } \overline{M}_{2 \times 2}(\mathcal{R}) \quad (1)$$

3. Prove that, let \mathcal{V} be a vector space, and let $\mathcal{S}_1 \subseteq \mathcal{S}_2 \subseteq \mathcal{V}$. If \mathcal{S}_1 is linearly dependent, then \mathcal{S}_2 is linearly dependent.