King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 280 (131) - Quiz II

Name: ID: Serial No.:

1. Let A be a particular vector in $\mathbb{R}^{2\times 2}$ and let $S = \{B \in \mathbb{R}^{2\times 2} : AB + B = 0\}$. Is S a subspace of $\mathbb{R}^{2\times 2}$.

2. Let $\{v_1, \cdots, v_n\}$ be a spanning set for the vector space V, and let v be any vector in V. Show that $v, v_1, \cdots, v_n$ are linearly dependent.

3. Find a set of vectors spanning the null space of

$$A = \begin{bmatrix} 1 & 1 & 2 & -1 \\ 2 & 3 & 6 & -2 \\ -2 & 1 & 2 & 2 \\ 0 & -2 & -4 & 0 \end{bmatrix}$$

4. Pare down the set $\{x_1, x_2, x_3, x_4, x_5\}$ to form a basis for $\mathbb{R}^3$, where The vectors: $x_1 = \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix}$, $x_2 = \begin{bmatrix} 2 \\ 1 \\ 1 \end{bmatrix}$, $x_3 = \begin{bmatrix} 1 \\ 2 \\ 5 \end{bmatrix}$, $x_4 = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$ and $x_5 = \begin{bmatrix} 1 \\ 4 \\ 7 \end{bmatrix}$, span $\mathbb{R}^3$.