King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics

Semester (121) September 19, 2012

Math 302-02
Quiz 1

Name: .....

ID: .....

Exercise 1. Is the set $S = \{(x, y) \in \mathbb{R}^2 \mid y = 3x + 1\}$ a subspace of $\mathbb{R}^2$?.

Exercise 2. Determine whether the vectors $U = (1, 1)$, $V = (0, 1)$ and $W = (2, 5)$ are linearly dependent or linearly independent in the vector space $\mathbb{R}^2$.

Exercise 3. Let $S = \{(a, b, c, d) \in \mathbb{R}^4 \mid a - b + 2c - d = 0\}$. Show that S is a subspace of $\mathbb{R}^4$ and evaluate $\dim(S)$.

Exercise 4. Use Gauss-Jordan Elimination to solve the following system:

$$\begin{cases} x + 2y + 3z = 1 \\ 2x + 5y + 3z = 4 \\ x + 8z = 1 \end{cases}$$