Name: _____ Section: _____

Math 54 Lec 006 Quiz 1

Friday, June 22, 2018

Justify your assertions; include detailed explanation, and show your work. Closed book exam, no sheet of notes and no calculator. This quiz is worth 9 points total.

1. (3 points) Let

$$A = \begin{pmatrix} 1 & -2 & 4 & 0 \\ 3 & -7 & 10 & 2 \\ 2 & -5 & 6 & 2 \end{pmatrix}$$

(a) Describe the Null of A. Is $\begin{pmatrix} 4 \\ 4 \\ 1 \\ 3 \end{pmatrix}$ in the Null of A?

(b) Does $Ax = b$ have a solution for all $b \in \mathbb{R}^3$?

2. (3 points) Let

$$A = \begin{pmatrix} 1 & 1 & 2 \\ 1 & 0 & 3 \\ 3 & x & 1 \end{pmatrix}$$

(a) For what x are the columns of A linearly independent?

(b) For what x do the columns of A span $\mathbb{R}^3$?

3. (3 points) True of False: Suppose $\{v_1, v_2, v_3\}$ is linearly independent, then so is $\{v_1 + v_2, v_1 - v_2, v_3\}$.