Name: _____ Section: _____

Math 54 Lec 006 Quiz 2

Tuesday, June 26, 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 be the matrix

$$A = \begin{pmatrix} 5 & 8 & 7 \\ 0 & 1 & -1 \\ 1 & 3 & 0 \end{pmatrix}$$

Is the matrix transformation $\mathbf{x} \mapsto A\mathbf{x}$ one to one?

2. (3 points) Suppose $T : \mathbb{R}^2 \to \mathbb{R}^2$ is a linear transformation that flips the plane along the $y = x$ line.

   (a) Find the standard matrix of T.

   (b) Where does T send the vector $A = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$?

3. (3 points) True of False: If A and B are two square matrices, then $(A + B)(A - B) = A^2 - B^2$.