Name: _____ Section: _____

Math 54 Lec 006 Quiz 3

Friday, June 29, 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) Use Cramer's Rule to solve the system

$$\begin{cases} 2x_1 + x_2 & = 7 \\ -3x_1 + x_3 & = -8 \\ x_2 + 2x_3 & = -3 \end{cases}$$

2. (3 points) Let

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

(a) Find the determinant of A (as a function of x).

(b) For what x is the matrix A invertible?

3. (3 points) True of False: Suppose A is square. If $A^T A$ is invertible, then A is also invertible.