Name: _____

Student ID: _____

Quiz 1

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. §1.1 #1b *(1 mark)* Determine whether the equation is linear in x_1, x_2, and x_3:

$$x_1 + 3x_2 + x_1 x_3 = 2$$

Question 2. §1.1 #2d *(1 mark)* Determine whether the equations form a linear system.

$$\begin{aligned} 3z + x &= -4 \\ y + 5z &= 1 \\ 6x + 2z &= 3 \\ -x - y - z &= 4 \end{aligned}$$

Question 3. §1.1 #11b *(2 marks)* Find a system of linear equations correcponding to the given augmented matrix.

$$\begin{bmatrix} 3 & 0 & -2 & 5 \\ 7 & 1 & 4 & -3 \\ 0 & -2 & 1 & 7 \end{bmatrix}$$

Question 3. §1.1 #14c *(2 marks)* Find the augmented matrix for the given system of linear equations

$$\begin{aligned} x_1 + 2x_2 \quad - \quad x_4 + x_5 &= 1 \\ 3x_2 + x_3 \quad - \quad x_5 &= 2 \\ x_3 + 7x_4 \quad &= 1 \end{aligned}$$

Question 4. §1.1 #8 *(2 marks)* Determine whether the given vector $(3, 1, 1)$ is a solution of the linear system

$$\begin{aligned} 2x_1 - 4x_2 - x_3 &= 1 \\ x_1 - 3x_2 + x_3 &= 1 \\ 3x_1 - 5x_2 - 3x_3 &= 1 \end{aligned}$$

Question 5. §1.1 #10a *(2 marks)* Find the solution set of the linear equation by using parameters as necessary

$$3x_1 - 5x_2 + 4x_3 = 7$$