**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 #TF *(2 marks)* Determine whether the statement is true or false, and justify your answer.
The linear system

$$\begin{aligned} x - y &= 3 \\ 2x - 2y &= k \end{aligned}$$

cannot have a unique solution, regardless of the value of $k$.

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

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

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

$$\begin{array}{rcrcrcl} 2x_1 & & & + & 2x_3 & = & 1 \\ 3x_1 & - & x_2 & + & 4x_3 & = & 7 \\ 6x_1 & + & x_2 & - & x_3 & = & 0 \end{array}$$

**Question 4.** §1.1 #8b *(2 marks)* Determine whether the given vector $\left(\frac{5}{7}, \frac{22}{7}, 2\right)$ is a solution of the linear system

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

**Question 5.** §1.1 #TF *(2 marks)* Determine whether the statement is true or false, and justify your answer.
The linear system with corresponding augmented matrix

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

is consistent.