Dawson College: **Linear Algebra**: 201-105-DW-S5: Fall 2022: **Quiz 1** name: _____

Books, watches, notes or cell phones are **not** allowed. The **only** calculators allowed are the Sharp EL-531**. You **must** show all your work, the correct answer is worth 1 mark the remaining marks are given for the work.

Question 1. *(2 marks)* Determine whether the equations form a linear system.

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

Question 2. *(3 marks)* Find all values of k for which the given augmented matrix corresponds to a consistent linear system.

$$\begin{bmatrix} 3 & -4 & k \\ -6 & 8 & 5 \end{bmatrix}$$

Question 3. *(3 marks)* Determine whether the given vector $(3,1,1)$ 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 4. *(4 marks)* Find the solution set of the linear equation by using parameters as necessary

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

Also find two particular solutions.