

# 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 #6 Write a system of linear equations consisting of three equations in three unknowns with

- (1 mark) no solutions.
- (1 mark) exactly one solution.
- (1 mark) infinitely many solutions.

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

$$\left[ \begin{array}{cccc|c} 3 & 0 & -2 & 5 & \\ 7 & 1 & 4 & -3 & \\ 0 & -2 & 1 & 7 & \end{array} \right]$$

**Question 3.** §1.1 #14c (1 mark) Find the augmented matrix for the given system of linear equations

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

**Question 4.** §1.1 #7b (2 marks) Determine whether the given vector  $(3, -1, 1)$  is a solution of the linear system

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

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

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