

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. (2 marks) Is $x_2 + 2x_3 + x_4 = 2 - x_1$ a linear equation, justify.

Question 2. (2 marks) Find the coefficient matrix and augmented matrix of the following system of linear equations.

$$\begin{array}{rclcl} x_1 & & + & 2x_3 & = & 0 \\ -2x_1 & & - & x_3 & = & 2 \\ x_1 & - & 3x_2 & + & 4x_3 & = & -11 \end{array}$$

Question 3. (1 mark) Find the system of linear equations corresponding to the augmented matrix.

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

Question 4. (2 marks) Is the following matrix under row echelon form, justify.

$$\left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 1 & 0 \end{array} \right]$$

Question 5. (3 marks) Is the following matrix under reduced row echelon form, justify.

$$\left[\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 1 & 2 \\ 0 & 0 & 0 \end{array} \right]$$