

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 #1d (1 mark) Determine whether the equation is linear in x_1 , x_2 , and x_3 :

$$x_1^{-2} + x_2 + 8x_3 = 5$$

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

$$\begin{array}{rclclcl} -2x & + & 4y & + & z & = & 2 \\ 3x & - & \frac{2}{y} & & & = & 0 \end{array}$$

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

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

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

$$\begin{array}{rclcl} 3x_1 & - & 2x_2 & = & -1 \\ 4x_1 & - & 5x_2 & = & 3 \\ 7x_1 & + & 3x_2 & = & 2 \end{array}$$

Question 4. §1.2 #2c (2 marks) Determine whether the matrix is in row echelon form, reduced row echelon form, both, or neither.

$$\left[\begin{array}{ccc|c} 1 & 3 & 4 & \\ 0 & 0 & 1 & \\ 0 & 0 & 0 & \end{array} \right]$$

Question 5. §1.2 #3d (2 marks) Suppose that the augmented matrix for a system of linear equations has been reduced by row operations to the given row echelon form. Solve the system.

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