

Quiz 1

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1. Below is an augmented matrix for a system of linear equations:

$$\left[\begin{array}{cccc} 1 & 1 & 4 & 2 \\ -1 & -1 & 3 & 1 \\ -2 & -1 & -3 & 4 \end{array} \right]$$

- (a) Use Gaussian elimination to find a row equivalent matrix in row echelon form.

- (b) Is the system of linear equations corresponding to the augmented matrix consistent? If so, how many solutions does it have?

2. Below is an augmented matrix for a system of linear equations:

$$\left[\begin{array}{ccccc} 1 & 1 & 4 & 2 & a \\ 0 & 0 & 3 & 1 & b \\ 0 & 0 & 0 & 0 & c \end{array} \right]$$

- (a) What are the conditions on a , b and c for the system to be consistent?
- (b) If the system is consistent, how many solutions does it have?
- (c) What are the pivot columns of the matrix?
- (d) Which columns corresponding to the free variables?
- (e) Do the first four columns of the matrix span $\mathbb{R}^3$?