

Quiz Seven

Lecture: 8:30 **SI:** Alex Ashley
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No notes. Calculators are allowed.

Write clearly and explain your reasoning.

1 (6 points) Consider the matrix $A = \begin{bmatrix} 3 & 2 & 1 \\ -2 & & \\ 2 & & \end{bmatrix}$. Something is wrong with our printer,

because we're missing some of the entries. We're told that one of the following matrices (which our printer has also misprinted) is actually the inverse matrix A^{-1} . Decide which matrix is actually A^{-1} . Justify your answer with some computations.

$$B = \begin{bmatrix} 1 & 2 & 1 \\ 2 & & \\ -6 & & \end{bmatrix} \quad C = \begin{bmatrix} 2 & 0 & 1 \\ 6 & & \\ -1 & & \end{bmatrix} \quad D = \begin{bmatrix} 1 & 1 & -1 \\ 2 & & \\ -6 & & \end{bmatrix}$$

2 (4 points) For what values of c does the matrix $A = \begin{bmatrix} 2 & 6 \\ 5 & c \end{bmatrix}$ have an inverse? Explain your reasoning.

3 (10 points) Solve the following system by finding the reduced row echelon form of the associated augmented matrix. If there is no solution, say that the system is inconsistent.

$$x_1 + 2x_2 - x_4 = 4$$

$$2x_1 + 5x_2 + x_3 + x_4 = 0$$

$$3x_1 + 6x_2 + 2x_3 + 5x_4 = -4$$

Note:

- You must show the details of your computation to receive full credit!
- You must put the matrix in *reduced* row echelon form, not simply row echelon form!