

Linear Algebra
Exam I
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1. Solve the following system of linear equations.

$$\begin{aligned}a + 5b + 4c + 3d + 5e &= -1 \\b + c + 2d + 3e &= 1 \\d + 4e &= 2\end{aligned}$$

2. Find the inverse of A if it exists.

$$\begin{pmatrix} 2 & 5 & 3 \\ 1 & 2 & 3 \\ 1 & 0 & 8 \end{pmatrix}$$

3. Prove without evaluating the determinant:

$$\begin{vmatrix} b+c & a+c & a+b \\ 2 & 2 & 2 \\ a & b & c \end{vmatrix} = 0$$