

Homework 2, due Friday 9/10

Note: You can use Gauss elimination or Gauss Jordan elimination or any ‘in between’ method for the homework problems.

1. p. 93, problems 1 (a), 4
2. p. 94, problems 8 (a), 10
3. p. 99, problem 1
4. Find all solutions for the following equation system:

$$\begin{aligned}2x_1 + 2x_2 + 4x_3 &= 0 \\x_1 + 2x_2 + 3x_3 &= 5 \\2x_2 + 2x_3 &= 7\end{aligned}$$

5. Find all solutions for the following equation system:

$$\begin{aligned}2x_2 + 2x_3 &= 10 \\2x_1 + 2x_2 + 4x_3 &= 0 \\3x_1 + 4x_2 + 7x_3 &= 5\end{aligned}$$

6. p. 102, problem 1

7. Does the inverse of $A = \begin{pmatrix} 0 & 1 & 1 \\ 1 & -1 & 0 \\ 1 & 0 & 1 \end{pmatrix}$ exist? If yes, then compute it.

8. Recall that we defined $\det(A) = a_{11}a_{22} - a_{12}a_{21}$ for a 2×2 -matrix $A = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix}$. Show that $\det(AB) = \det(A)\det(B)$ for any 2×2 -matrices A and B .