

Math 54 Worksheet 2

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1. The matrices below are already in row echelon form. Solve the system by back-substitution.

(a) $\begin{pmatrix} 2 & -3 & 6 & 4 \\ 0 & 0 & 5 & -5 \\ 0 & 0 & 0 & 0 \end{pmatrix}$ (variables x, y, z)

(b) $\begin{pmatrix} 1 & 6 & -4 & 2 & 1 \\ 0 & 0 & -1 & 3 & -3 \\ 0 & 0 & 0 & 0 & 2 \end{pmatrix}$ (variables x_1, x_2, x_3, x_4, x_5)

2. In a system of 9 linear equations in 10 unknowns is it possible to have no solution? one solution? infinitely many solutions?
3. In a system of 9 *homogeneous* linear equations in 10 unknowns is it possible to have no solution? one solution? infinitely many solutions?