

Group Members Names: _____

Fall 2025 Math 310 Schwitzerlett Worksheet # 2 September 9, 2025

Work each problem thoroughly, show all necessary work. Each group should turn in 1 paper.

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1. Rewrite the system of equations below in the form $A\vec{x} = \vec{b}$.

$$2x + 3y = 1$$

$$10x + 9y = 11$$

2. Choose a coefficient b that makes the system **singular** (no solutions or infinitely many solutions). Then choose a right side g that makes it solvable. Find two solutions in that case.

$$2x + by = 16$$

$$4x + 8y = g$$

3. Solve the system of equations by writing an augmented matrix, reducing the matrix to row-echelon (i.e. upper triangular) form, translating back to equations and performing back substitution.

$$\begin{cases} x - y - 2z = 1 \\ 2x - y - 5z = -2 \\ -3x + 3y + 7z = 0 \end{cases}$$

4. Find:

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ -5 & 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 2 & 1 \\ 3 & -1 & 1 & 2 \\ 5 & -1 & 5 & 3 \end{bmatrix}$$