

Instructions: Write complete legible solutions to the following problems in the space provided. Be sure to supply all the necessary steps that lead to your answers.

Solve the given systems of equations. If there are infinite number of solutions, give the parametric form of the solution, otherwise state No Solution.

1. 
$$\begin{cases} x + y - z = 2 \\ x - y + z = 2 \\ 2x + y + z = 6 \end{cases}$$

2. 
$$\begin{cases} x + y + z = 5 \\ x + y - z = 3 \\ 3x + 3y + z = 13 \end{cases}$$

$$3. \quad \begin{cases} x + 2y + z = 0 \\ x - y + z = 0 \\ 2x + y + 2z = 4 \end{cases}$$

$$4. \quad \begin{cases} x_1 + x_2 + 2x_3 - x_4 = 3 \\ x_1 + 2x_2 + x_3 + x_4 = 5 \\ -x_2 + x_3 - 2x_4 = -2 \\ 3x_1 + 3x_2 + 3x_3 = 9 \end{cases}$$