Solve the following systems of equations. With questions 1 and 5, use all three of our new techniques. With questions 2, 3, and 4, merely use *Gauss-Jordan Elimination*.

1.

$$2x - 2y - 4z = -6$$
$$2x + y - z = -3$$
$$x + y + 2z = 5$$

2.

$$x + y - z = 2$$
$$y + z = 3$$
$$-2x + 3y + 7z = 11$$

3.

$$2x - 2y - 4z = -6$$
$$-x + y + 2z = 3$$
$$x - y - 2z = -3$$

4.

$$2x - 2y - 4z = -6$$
$$-x + y + 2z = 3$$
$$x - y - 2z = 3$$

5.

$$2x - 2y - 4z = 0$$
$$2x + y - 2z = 8$$
$$x + y + 2z = 4$$

6. Determine the solutions to the system of linear equations for which the following augmented matrix represents:

$$\begin{bmatrix} 1 & 0 & -4 & 2 & 1 & | & 3 \\ 0 & 1 & 5 & -3 & 2 & | & -1 \\ 0 & 0 & 0 & 0 & 0 & | & 0 \end{bmatrix}$$

7. Determine the solutions to the system of linear equations for which the following augmented matrix represents:

$$\begin{bmatrix} 1 & 0 & -4 & 2 & 1 & | & 3 \\ 0 & 1 & 5 & -3 & 2 & | & -1 \\ 0 & 0 & 0 & 0 & 0 & | & 1 \end{bmatrix}$$

8. Determine the solutions to the system of linear equations for which the following augmented matrix represents:

$$\left[\begin{array}{ccccc|c} 1 & 0 & -4 & 2 & 1 & 3 \\ 0 & 1 & 5 & -3 & 2 & -1 \\ 0 & 0 & 0 & 0 & 1 & 0 \end{array}\right]$$