Name: _____ **Precalculus Unit 6, Lesson 2**

Aim: Practice with the Gauss-Jordan Elimination

I. Do Now: Solve each system using Gauss-Jordan Elimination. Be sure to indicate each row operation.

1. $3x - 4y = 10$
   $2x + 4y = 10$

2. $A + C = -4$
   $B + D = 2$
   $3A + C = -4$
   $3B + D = 6$

II. Special Cases:

A. Any system that results in a row with zeros except for the last entry has no solution.

Ex. $\left[\begin{array}{ccc|c} 1 & 4 & 3 & 7 \\ 1 & 4 & 3 & 5 \end{array}\right]$

B. When the number of unique equations is less than the number of variables, the system has infinite solutions.

Ex. $\left[\begin{array}{ccc|c} 1 & 0 & 1 & 5 \\ 3 & 3 & 8 & 12 \\ -3 & -3 & -8 & -12 \end{array}\right]$

III. Examples: Solve by Gauss-Jordan Elimination.

3. $2x + 3y + 4z = 14$
   $5x \quad - 2z = 14$
   $3y + 6z = 12$

4. $2x \quad + 3z = 3$
   $4x - 3y + 7z = 5$
   $8x - 9y + 15z = 9$

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

HW46
- p. 513: 11, 17, 56, 60
- p. 562: 81, 82
- Decompose: $\frac{x^2 + x + 2}{(x^2 + 2)^2}$