HOMEWORK 8 - MATH 111 DUE DATE: Wednesday, November 13 INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 1 point. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Solve the systems

by the substitution method.

2. Solve the system $\begin{cases} x - 2y + z = -6 \\ -x + 2y + z = 8 \\ 2x - 3y + 2z = -10 \end{cases}$ by using allowable operations on the equations (Gauss elimination).

- 3. Solve the system $\begin{cases} x + y + z = -2 \\ -x 2y + 3z = 1 \\ 2x + y 2z = 3 \end{cases}$ by using the Gauss-Jordan method (matrix row operations).
- 4. Solve the system $\begin{cases} x + 2y z = 1 \\ -3x y + z = 1 \\ 2x + 4y 2z = 2 \end{cases}$ by using the Gauss-Jordan method (matrix row operations).
- 5. Let $A = \begin{bmatrix} 1 & -2 \\ 3 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 6 \\ -8 & 5 \end{bmatrix}$. Compute A + B, A B and 3A 2B.
- 6. Let $A = \begin{bmatrix} 1 & 2 & 3 \\ -1 & 5 & 7 \end{bmatrix}$ and $B = \begin{bmatrix} -10 & 2 & -7 \\ 3 & 2 & 0 \end{bmatrix}$. Compute A B and -2A + 5B.

7. Let
$$A = \begin{bmatrix} -1 & 3 & -5 & 0 \\ 2 & 6 & -1 & 1 \end{bmatrix}$$
 and $B = \begin{bmatrix} 1 & 0 & -2 \\ 3 & 2 & 0 \\ -1 & 7 & -3 \\ 1 & -5 & 9 \end{bmatrix}$. Compute $A \cdot B$ and $B \cdot A$.

8. Compute the inverses of the matrices $A = \begin{bmatrix} -1 & 2 \\ 1 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 \\ 6 & -3 \end{bmatrix}$.