Name:_____ Lab # 6 October 26, 2016

The lab is due by 4pm on October 31, 2016.
Adding, subtracting, and multiplying a matrix by a number are operations that are fairly standard. Write the formula for the first cell in the matrix and then copy and paste the formula to the other cells. Multiplying matrices, **MMULT**, or computing the inverse of a matrix, **MINVERSE**, must be done with a command since the matrix needs to be treated as an array.

For Libre Office: If you do not use the function wizard, then you must enter the formula by hand. Once the formula in entered, do not press ENTER. Instead press **CTRL-SHIFT-ENTER**. This lets the spreadsheet know that you are doing an array calculation.
For Excel: Enter the command into the cell and press enter. Then Highlight the group of cells that will contain the answer. Then Press F2. Then **CTRL-SHIFT-ENTER.**

Problem 1. Use these matrices to do the following computations.

$$A = \begin{bmatrix} 20 & 27 & -1 \\ -19 & -26 & 1 \\ 2 & 3 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 10 & 5 & 0 \\ 1 & 6 & 9 \\ 2 & 9 & 5 \end{bmatrix} \quad C = \begin{bmatrix} 15 & 25 & -5 \\ -8 & 10 & 1 \\ 7 & 35 & -4 \end{bmatrix} \quad D = \begin{bmatrix} 2 & 8 & -1 \\ 5 & 2 & 10 \\ 3 & 10 & 7 \end{bmatrix}$$

Do the following computations. Be sure to clearly label your answers in the spreadsheet. you do not need to include these answers on this paper. If a computation is not possible, then be sure to mention this.

1. $2A + 3B - 6C$
2. $3D - 4A + 2B$
3. AC
4. BD
5. ABC
6. A^{-1}
7. C^{-1}
8. $A^{-1} * B$

Problem 2. Solve these systems of equations by using matrice inverses. Give your answers to at least 3 decimal digits. Do this problem on a different page of the spreadsheet.

$3x - 2y + 8z = -60$
$-2x + 2y + z = 25$
$x + 2y - 3z = 75$

Answer: $x =$ _____ $y =$ _____ $z =$ _____

$3x - 2y + 8z = 49$
$-2x + 2y + z = -2$
$x + 2y - 3z = -16$

Answer: $x =$ _____ $y =$ _____ $z =$ _____

$2x + y + 3z - 4w = 9$
$x + 2y + 3w = 1$
$x - 3z + w = 10$
$x - y - z - w = 8$

Answer: $x =$ _____ $y =$ _____ $z =$ _____ $w =$ _____

Once again e-mail me the spreadsheet showing how you solved these problems.