Name: _____ Date: _____

# MA 162

Week 6 Recitation Worksheet (Thursday)

**You must show all work to receive full credit.**

1. Define $A$, $B$ and $C$ as

$$A = \begin{bmatrix} a & 5 \\ 6 & 8 \\ 2 & -9 \end{bmatrix}, \quad B = \begin{bmatrix} 1 & -4 & b \\ c & 7 & -3 \end{bmatrix}, \quad C = \begin{bmatrix} -2 & 0 & 3 \\ 4 & d & -1 \end{bmatrix},$$

where $a, b, c, d$ are real numbers. Determine the following matrices, if possible. If a matrix is undefined, explain why the matrix operation cannot be performed.

(a) $B - C$

(b) $3A$

(c) $BC$

(d) $CA$

2. Solve the following system of equations using the Gauss-Jordan method.

$$\begin{cases} x - 3y = -25 \\ 5x + 2y = 11 \end{cases}$$

(a) Write down the augmented matrix.

(b) Perform the following row operation to the previous matrix: $R_2 \to R_2 - 5R_1$.

(c) Perform the following row operation to the previous matrix: $R_2 \to \frac{1}{17}R_2$.

(d) Perform the following row operation to the previous matrix: $R_1 \to R_1 + 3R_2$.

(e) What is the solution $(x, y)$ to the system of equations? [Compare this answer with your answer from #1 on last week's worksheet.]

3. Solve the following system of equations using the Gauss-Jordan method.

$$\begin{cases} x - 2y + 3z = -1 \\ -2x + 5y - 10z = 4 \\ 7x - 17y + 35z = -19 \end{cases}$$