

Name: \_\_\_\_\_

**MA 2080: Worksheet 2**

1. Write the following system of linear equations as an augmented matrix.

$$\begin{cases} 2x & -2y & & = 8 \\ & y & +z & = 2 \\ 3x & +2y & -z & = 16 \end{cases}$$

2. for the augmented matrix from Problem 1, perform the following row operations

- Step 1.

$$\begin{bmatrix} \frac{1}{2}R_1 & \rightarrow R_1 \\ R_2 & \rightarrow R_2 \\ R_3 & \rightarrow R_3 \end{bmatrix}$$

- Step 2.

$$\begin{bmatrix} R_1 & \rightarrow R_1 \\ R_2 & \rightarrow R_2 \\ R_3 - 3R_1 & \rightarrow R_3 \end{bmatrix}$$

- Step 3.

$$\begin{bmatrix} R_1 + R_2 & \rightarrow R_1 \\ R_2 & \rightarrow R_2 \\ R_3 - 5R_2 & \rightarrow R_3 \end{bmatrix}$$

- Step 4.

$$\begin{bmatrix} R_1 & \rightarrow R_1 \\ R_2 & \rightarrow R_2 \\ -\frac{1}{6}R_3 & \rightarrow R_3 \end{bmatrix}$$

- Step 5.

$$\begin{bmatrix} R_1 - R_3 & \rightarrow R_1 \\ R_2 - R_3 & \rightarrow R_2 \\ R_3 & \rightarrow R_3 \end{bmatrix}$$

3. Write the solution down from the above row reduction.

4. Write as an augmented matrix. Row reduce (to RREF). Interpret your result.

$$\begin{cases} x & +y & +z & = 0 \\ 3x & & -z & = 7 \\ x & +2y & & = 7 \end{cases}$$

5. Write as an augmented matrix. Row reduce (to RREF). Interpret your result.

$$\begin{cases} x & +2y & -z & = 2 \\ x & & +z & = 0 \\ & y & -z & = 1 \end{cases}$$