

# Homework V Second-Half

Due in class Monday August 06 2017

1. Find if the following matrix is invertible or not:

$$\begin{bmatrix} 1 & -3 & 2 \\ 3 & 0 & 4 \\ -2 & 5 & -1 \end{bmatrix}$$

2. Find the inverse of the following matrix by Gaussian Elimination:

$$\begin{bmatrix} 2 & -1 & 3 \\ 0 & 5 & 8 \\ 4 & -2 & 1 \end{bmatrix}$$

3. Solve the system of equations by Cramer's Rule:

$$\begin{cases} x + 3y - z = 2 \\ 2x + y + z = 3 \\ y - 2z = 1 \end{cases}$$

4. Find values for the constants  $a$  and  $b$  such that the system of equations has a unique solution

$$\begin{cases} ax + y = 3 \\ x + z = 2 \\ y + az + bw = 6 \\ y + w = 1 \end{cases}$$

5.  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ . Show that there is no  $2 \times 2$  matrix  $B$  such that  $A = B^2$