

**Linear Algebra Quiz 6**

Consider the matrix

$$A = \begin{bmatrix} 2 & -4 & -1 & 3 & 11 & 2 \\ -1 & 2 & 0 & 4 & 11 & 4 \\ 3 & -6 & -6 & -6 & -15 & -12 \\ -2 & 4 & 1 & 1 & 1 & 2 \end{bmatrix}$$

To aid your computation, I will give you the matrix in reduced row echelon form which is row equivalent to  $A$ :

$$A \sim \begin{bmatrix} 1 & -2 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 & 3 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

**(a)** Find a basis for the row space of  $A$

**(b)** Find a basis for the column space of  $A$

**(c)** Find a basis for the nullspace of  $A$