

# Math 307 Quiz 1

January 21, 2015

**Problem 1.** Determine the general solution to the system of equations

$$\begin{aligned}x + 2y + 3z &= 0 \\4x + 5y + 6z &= 0 \\7x + 8y + 9z &= 0\end{aligned}$$

**Problem 2.** Consider the vectors

$$\vec{u} = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}, \quad \vec{v} = \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}.$$

- (a) Give an example of a vector in  $\text{span}\{\vec{u}, \vec{v}\}$
- (b) Give an example of a vector not in  $\text{span}\{\vec{u}, \vec{v}\}$

**Problem 3.** Give an example of a matrix in EF but not in RREF.

**Problem 4.** Write down what it means for  $x_i$  to be a free variable of a linear system in echelon form.