Math 307 Quiz 2

March 2, 2015

Problem 1. Define what it means for the set of vectors $\{\vec{v}_1, \ldots, \vec{v}_r\}$ to be linearly independent.

Problem 2. Find all values of c for which the set of vectors

$$\left\{ \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, \begin{bmatrix} 4 \\ 5 \\ 6 \end{bmatrix}, \begin{bmatrix} c \\ 8 \\ 9 \end{bmatrix} \right\}$$

is linearly dependent.

Problem 3. Give an example of a set of vectors in $\mathbb{R}^4$ which spans $\mathbb{R}^4$ but is not linearly independent.

Problem 4. Give an example of a set of vectors in $\mathbb{R}^4$ which are linearly independent but do not span all of $\mathbb{R}^4$.