MATH 2270: QUIZ 4

1. (4 points) Complete the following definitions of the underlined terms:

A) The set $\{\mathbf{v}_1, \ldots, \mathbf{v}_n\}$ is <u>linearly independent</u> if ...

B) The set $\{\mathbf{w}_1, \ldots, \mathbf{w}_p\}$ is <u>a basis for a subspace H</u> if ...

2. (2 points)

A) Suppose that A is the following matrix on the left, and it is row equivalent to the matrix on the right:

$$\begin{pmatrix} 1 & 4 & 8 & -3 & -7 \\ -1 & 2 & 7 & 3 & 4 \\ -2 & 2 & 9 & 5 & 5 \\ 3 & 6 & 9 & -5 & -2 \end{pmatrix} \sim \begin{pmatrix} 1 & 4 & 8 & 0 & 5 \\ 0 & 2 & 5 & 0 & -1 \\ 0 & 0 & 0 & 1 & 4 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$$

Write down a basis for Col A.

B) How many elements would there be in a basis for Nul A? (2 points)

3. (2 points) Write down three different bases $\mathcal{B}_1, \mathcal{B}_2, \mathcal{B}_3$ for $\mathbb{R}^3$.