

Linear Algebra, Spring 2016

Quiz 6

Name: \_\_\_\_\_

You must show all your work to receive credit. Calculators are allowed.

**Problem 1:** (3 points) Let  $S \subset \mathbb{R}^5$  be the set of vectors

$$S = \left\{ \begin{bmatrix} 1 \\ -2 \\ 3 \\ 4 \\ 5 \end{bmatrix}, \begin{bmatrix} 2 \\ -4 \\ -4 \\ 0 \\ 2 \end{bmatrix}, \begin{bmatrix} 2 \\ -4 \\ 1 \\ 4 \\ 6 \end{bmatrix}, \begin{bmatrix} 1 \\ -2 \\ -2 \\ 0 \\ 1 \end{bmatrix} \right\}.$$

Find a basis for the vector space  $W = \text{span}S$ . What is the dimension of  $W$ ?