

Dr. Z.'s Math 250(2), (Fall 2010, RU) REAL Quiz #8 (Nov. 11, 2010)

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

- 1.** (5 points) Determine the dimension of the following subspace. Explain what you are doing!

$$\left\{ \begin{bmatrix} 2s \\ -s + 4t \\ s - 3t \\ 4s + 5t \end{bmatrix} \in R^4 : s \text{ and } t \text{ are scalars} \right\} .$$

- 2.** (5 points) Below a matrix and a scalar λ are given. Show that λ is an eigenvalue of the matrix and determine a basis for its eigenspace.

$$A = \begin{bmatrix} 4 & -3 & -3 \\ -3 & 4 & 3 \\ 3 & -3 & -7 \end{bmatrix} , \quad \lambda = 1 .$$