

**MATH 205A,B - LINEAR ALGEBRA
WINTER 2013**

QUIZ 3

NAME: _____ **Section:**(Circle one) A(1 : 10) B(2 : 40)

Show **ALL** your work **CAREFULLY**.

Let

$$A = \begin{bmatrix} 1 & -2 & -1 \\ -1 & 2 & 2 \\ 2 & -4 & -1 \end{bmatrix}.$$

(a) Express the solutions to the homogeneous equation $A\vec{x} = \vec{0}$ in parametric form.

(b) Based on your answer to (a), determine whether the columns of A are linearly independent? Justify your answer.

(c) Do the columns of A span \mathbb{R}^3 ? Explain.