

## QUIZ #7, 9/18/07

MATH 54, FALL 2007

*Show your work and justify your answers! Feel free to use both sides.*

**Name:**

1. (3 pts) Find the product  $\begin{bmatrix} 1 & -1 \\ 0 & 1 \\ 2 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 1 \end{bmatrix}$ .

2. (a) (4 pts) Find vector(s) which span the kernel of  $A = \begin{bmatrix} 1 & 3 & 0 & 1 \\ 2 & 6 & 0 & 2 \\ 0 & 0 & 0 & 0 \\ -3 & -9 & 0 & -3 \end{bmatrix}$ .

(b) (3 pts) Describe the image of  $A$  (for example by finding vector(s) which span it).