QUIZ #8, 9/20/07

MATH 54, FALL 2007

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

Name:

1. (4 pts) Find a basis of the image of $A = \begin{bmatrix} 1 & 1 & 2 & 1 \\ 0 & 2 & 2 & 2 \\ 2 & 0 & 2 & 0 \\ 0 & 1 & 1 & 1 \end{bmatrix}$.

2. (2 pts each) True or False? Briefly justify your answers.

(a) The horizontal line in $\mathbb{R}^2$ given by $x = 1$ is a subspace of $\mathbb{R}^2$.

(b) Any three vectors in $\mathbb{R}^3$ (i.e. three-space) span $\mathbb{R}^3$.

(c) The column vectors of a matrix A are linearly independent if and only if $\ker(A) = 0$.