

## QUIZ #20, 11/1/07

MATH 54, FALL 2007

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

**Name:**

1. (6 pts) Is  $A = \begin{bmatrix} 6 & 1 \\ 1 & 6 \end{bmatrix}$  diagonalizable? If so, find a change of basis matrix  $S$  and a diagonal matrix  $D$  such that  $S^{-1}AS = D$ . If not, explain why not.

2. (4 pts) For what values of  $a$ ,  $b$ ,  $c$ , and  $d$  is the matrix  $\begin{bmatrix} a & b & 0 \\ 0 & c & 0 \\ 0 & 0 & d \end{bmatrix}$  diagonalizable?