KFUPM/ Department of Mathematics & Statistics/ 151/ MATH 260-06/ Quiz 3

Name: **ID #:** **Serial #:**

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1. Let $A = \begin{bmatrix} 2 & 0 \\ 6 & 1 \end{bmatrix}$. Use diagonalization to find A^{10}.

2. Let $A = \begin{bmatrix} -3 & 2 \\ -3 & 4 \end{bmatrix}$, $Y_1 = e^{-2t} \begin{bmatrix} 2 \\ 1 \end{bmatrix}$, and $Y_2 = e^{3t} \begin{bmatrix} 1 \\ 3 \end{bmatrix}$

(a) Verify that Y_1 is a solution of $Y' = AY$.

(b) Given that Y_2 is also a solution of $Y' = AY$, verify that Y_1 and Y_2 are linearly independent.

(c) Write the general solution of the system $Y' = AY$.