KFUPM/ Department of Mathematics & Statistics/ 151/ MATH 260-05/ Quiz 3

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

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1. Let $A = \begin{bmatrix} 1 & 8 \\ 0 & 2 \end{bmatrix}$. Use diagonalization to find A^{10}.

2. Let $A = \begin{bmatrix} 3 & -1 \\ 5 & -3 \end{bmatrix}$, $x_1 = e^{-2t} \begin{bmatrix} 1 \\ 5 \end{bmatrix}$, and $x_2 = e^{2t} \begin{bmatrix} 1 \\ 1 \end{bmatrix}$

(a) Verify that x_1 is a solution of $Y' = AY$.

(b) Given that x_2 is also a solution of $Y' = AY$, verify that x_1 and x_2 are linearly independent.

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