

Math 341 – Quiz # 5 – May 7, 2009

(1) (4 points) Find a basis of eigenvectors for $A = \begin{pmatrix} -7 & 0 & 6 \\ 0 & 5 & 0 \\ 6 & 0 & 2 \end{pmatrix}$.

(2) (4 points) Compute e^{tB} where $B = \begin{pmatrix} -1 & 1 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 2 \end{pmatrix}$.

please turn ↔

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(3) (7 points) Solve the initial value problem

$$\mathbf{x}' = \begin{pmatrix} 1 & -1 \\ 5 & -3 \end{pmatrix} \mathbf{x} \quad \mathbf{x}(0) = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$