

NAME: \_\_\_\_\_

AM 034

Brown University  
Homework, Set 3

Fall 2004  
Due Friday October 8, 2004

3.1 # 8 §7.7 in B&D

3.2 # 12 §7.7 in B&D

3.3 # 17 §7.8 in B&D

3.4 # 18 §7.8 in B&D

3.5 Compute  $e^{At}$  for  $A = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$ .

3.6 Compute  $e^{At}$  for  $A = \begin{bmatrix} 0 & x & y \\ 0 & 0 & z \\ 0 & 0 & 0 \end{bmatrix}$  and discuss what happens when  $x = y = z \rightarrow 0$ .

3.7 Find the fundamental solution set to the matrix  $A = \begin{bmatrix} 1 & 1 & 4 \\ 0 & 2 & 0 \\ 1 & 1 & 1 \end{bmatrix}$

3.8 Evaluate  $\exp\left(\begin{bmatrix} 0 & -x \\ 0 & 0 \end{bmatrix} + \begin{bmatrix} 0 & 0 \\ x & 0 \end{bmatrix}\right)$

3.9 Evaluate  $\exp\left(\begin{bmatrix} 0 & -x \\ 0 & 0 \end{bmatrix}\right) \exp\left(\begin{bmatrix} 0 & 0 \\ x & 0 \end{bmatrix}\right)$