

King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 260 – Term 172 – Quiz 6

Name:

Student ID #:

Question Consider the initial value problem $X'(t) = AX(t)$ where $A = \begin{bmatrix} 2 & -1 \\ 1 & 4 \end{bmatrix}$ and

$$X(0) = \begin{bmatrix} 1 \\ 2 \end{bmatrix}.$$

- (1) Find the fundamental matrix of the system.
- (2) Solve the initial value problem.
- (3) Calculate e^{2A} .