

MATH 240 QUIZ 8

Name: \_\_\_\_\_

**Question:**

Compute  $e^A$ , where

$$A = \begin{bmatrix} 0 & 0 \\ 1 & 0 \end{bmatrix}.$$

**Solution:**

By definition,

$$e^A = I + A + \frac{1}{2}A^2 + \dots$$

observe that  $A^2 = 0$ , therefore all higher powers of  $A$  are zero matrix, as a result,

$$e^A = I + A + 0 + 0 + \dots = \begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}.$$