

Mini report #2 (Advanced Automation) 2017.11.16

Student #: _____ Name: _____

[NOTICE]

- write by hand
 - due date: 2017/11/23 17:00; place of submission: room 405(機械建設1号棟 小林)
 - check if your answer is correct or not before submission by using Matlab
 - Don't answer in approximated values (write $\sqrt{2}$ instead of 1.4142)
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Let M be a matrix given as:

$$M = \begin{bmatrix} 0 & -\frac{j}{4} \\ 2 & 0 \end{bmatrix}.$$

Answer the followings:

(1) Show that $\bar{\sigma}(M) \geq 1$.

(2) Find a positive real number $d > 0$ such that $\bar{\sigma}(W^{-1}MW) < 1$, where $W = \begin{bmatrix} d & 0 \\ 0 & 1 \end{bmatrix}$.