

Mini report #2 (Advanced Automation) 2016.12.8

Student #: _____ Name: _____

[NOTICE]

- write by hand
 - due date: 2016/12/14 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
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Let M be a matrix given as:

$$M = \begin{bmatrix} \frac{j}{\sqrt{2}} & \sqrt{2} \\ \frac{1}{2} & 0 \end{bmatrix}.$$

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