Mini report #2 (Advanced Automation) 2021.11.25

Student #: _____   Name: _____

[**NOTICE**]

- write by hand

- due date: 2021/12/1 17:00; place of submission: [**Ilias**] **or** [**room 405 @ Dept. Mech. Bldg. 1**]

- don't answer in approximated values (write $\sqrt{2}$ instead of 1.4142 , for example)

Let M be a matrix given as:

$$M = \begin{bmatrix} 0 & 2j \\ -\frac{1}{4} & 0 \end{bmatrix}.$$

Answer the followings:

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

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