Math 4355 – Spring 2021   Name:

<u>Quiz #1</u>

Let $v = (v_1, v_2)$ and $u = (u_1, u_2)$ be vectors in $\mathbb{C}^2$ and let $M = \begin{pmatrix} a & i \\ -i & b \end{pmatrix}$ where a, b are fixed real numbers Prove that

$$\langle u, v \rangle = (\overline{v_1}, \overline{v_2}) \, M \begin{pmatrix} u_1 \\ u_2 \end{pmatrix}$$

is conjugate symmetric, that is, $\langle u, v \rangle = \overline{\langle v, u \rangle}$