2022-23 MATH2048: Honours Linear Algebra II Homework 12

Due: 2022-12-09 (Friday) 23:59

For the following homework questions, please give reasons in your solutions. Scan your solutions and submit it via the Blackboard system before due date.

1. For $A = \begin{pmatrix} 1 & i & 0 \\ -i & 1 & i \\ 0 & -i & 1 \end{pmatrix} \in M_{3\times 3}(\mathbb{C})$, find a unitary matrix P and a diagonal matrix D such that $P^*AP = D$.

2. Sec. 6.5 Q9

3. Sec. 6.5 Q19

4. Sec. 6.6 Q4

5. Sec. 6.6 Q7(c)(d)(f)

The following are extra recommended exercises not included in homework.

1. Sec. 6.5 Q7

2. Sec. 6.5 Q17

3. Sec. 6.6 Q6