

MATH2048: Honours Linear Algebra II

Homework 2

Due: 2021-09-24 (Friday) 23:59

Please give reasons in your solutions.

1. (12pts) Textbook (Friedberg). Sec. 1.7: Q5
2. (12pts) Textbook (Friedberg). Sec. 1.7: Q6
3. (12pts) Textbook (Friedberg). Sec. 2.1: Q14
4. (12pts) Textbook (Friedberg). Sec. 2.1: Q17
5. (13pts) Textbook (Friedberg). Sec. 2.1: Q25
6. (13pts) Textbook (Friedberg). Sec. 2.1: Q26
7. (14pts) Textbook (Friedberg). Sec. 2.1: Q35
8. (12pts) (Matrix Representation)

Please prove that the map $V \rightarrow F^n : \vec{x} \mapsto [\vec{x}]_\beta$ is linear.

That is to prove $[a\vec{x} + \vec{y}]_\beta = a[\vec{x}]_\beta + [\vec{y}]_\beta$ for any $\vec{x}, \vec{y} \in V$.