

MATH 54 Homework 5

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Due Tuesday, July 11.

- Let V be an n -dimensional \mathbb{C} -vector space. Show that $\dim_{\mathbb{R}} V = 2n$. [Hint: Let $\mathbf{v}_1, \dots, \mathbf{v}_n$ be a basis for V over \mathbb{C} . Show that $\mathbf{v}_1, i\mathbf{v}_1, \mathbf{v}_2, i\mathbf{v}_2, \dots, \mathbf{v}_n, i\mathbf{v}_n$ is a basis for V over \mathbb{R} .]
- Hill 3.7: 11, 15, 21, 22, 43.
- Hill 3.8: 17, 25.
- Hill 4.1: 17, 19, 25.