

Proof assignment #2

Write up solutions to **one** of the two problems below. The due date for this assignment is **Tuesday, April 15th**.

Problems:

1. Let A be an $n \times n$ matrix such that $A^6 = -I_n$. Prove that A has no real eigenvalues.

2. Let B be a 2×2 matrix with column vectors \mathbf{b}_1 and \mathbf{b}_2 . Prove that

$$\det B \leq (\|\mathbf{b}_1\|)(\|\mathbf{b}_2\|).$$