

EXTRA CREDIT.

To be written up and submitted separately from regular homework:

- (1) Let V be a vector space over \mathbb{R} with inner product $\langle \cdot, \cdot \rangle$.
Suppose $v_1, \dots, v_{n+1} \in V$ satisfy $\langle v_i, v_j \rangle < 0$ for all $i \neq j$.
Prove that v_1, \dots, v_n are linearly independent.