

434 FALL 2022 PROBLEM SET #4

**Problem 1.** Describe all possible  $\lambda \in \mathbb{C}$  that can be an eigenvalue for a matrix  $A \in O(3)$ . For each such  $\lambda$ , given an example of  $A \in O(3)$  having  $\lambda$  as an eigenvalue, and describe a corresponding eigenvector.

**Problem 2.** Hitchman 3.2.1

**Problem 3.** Hitchman 3.2.6

**Problem 4.** Hitchman 3.3.1

**Problem 5.** Hitchman 3.3.3