Directions: Be sure to include in-line citations, including page numbers if appropriate, every time you use the results of discussion, a text, notes, or technology. Only write on one side of each page.

“The first mark of intelligence, to be sure, is not to start things; the second mark of intelligence is to pursue to the end what you have started.” – Panchatantra, c. 5th c.

Problems

1. Let $G$ be a finite group of rotations in the plane about the origin. Prove $G$ is cyclic.

2. Prove a linear operator on $\mathbb{R}^2$ is a reflection if and only if its eigenvalues are 1 and $-1$ and its eigenvectors are orthogonal.