1   Mathematics 433   Fall 2000   Problems to Turn in: 7

October 17, 2000

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                                      Name

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 $\mathbf{R}^2$ is a reflection if and only if its eigenvalues are 1 and -1 and its eigenvectors are orthogonal.