MATH 473
WINTER 2019
HOMEWORK 36

1. Let G be a finite group acting transitively on a set Ω of size greater than 1. Prove that there is some $g \in G$ such that $|\mathrm{fix}_{\Omega}(G)| = 0$.

2. Determine the number of ways to color a the faces of a tetrahedron with n colors (up to symmetry).

3. Prove that the symmetry group of the cube is isomorphic to S_4.

4. Determine the number of ways to color the faces of a cube with n colors (up to symmetry).