

**MATH 351: RIEMANN SURFACES AND DESSINS D'ENFANTS
HOMEWORK #10**

Problem 10.1. The map

$$\begin{aligned} \mathbb{S}^2 &\rightarrow \mathbb{S}^2 \\ p = (x, y, z) &\mapsto -p = (-x, -y, -z) \end{aligned}$$

induces a map on \mathbb{P}^1 . What is this map (in terms of the standard atlas)? Show it is not an automorphism of \mathbb{P}^1 as Riemann surface.

Problem 10.2. Let G be a finite group acting on a (Hausdorff) topological space X . Show that G acts properly discontinuously.