

**MATH 101: GRADUATE LINEAR ALGEBRA
HOMEWORK, DAY #29**

Problem 29.1. Show that a group can be considered as a category with one object in which all morphisms are isomorphisms, and vice versa.

Problem 29.2. Show that the association $R \mapsto R^\times$ defines a functor from the category of rings to the category of groups. Show by explicit examples that this functor is neither faithful nor full.