

Algebraic and Geometric Methods in Engineering and Physics

Homework 1

Due on September 17

1. Given a group (G, \cdot) , let us define the following relation: $x \sim y$ if and only if $y = gxg^{-1}$ for some $g \in G$.
 - (a) Prove that \sim is an equivalence relation.
 - (b) Compute the equivalence classes in the following two cases:
 - (i) $(G, \cdot) = (\mathbb{Z}, +)$;
 - (ii) $(G, \cdot) = (S_3, \circ)$.