

Group theory – Hand in sheet 6

deadline: 02/Nov/10

1) Let G be a group and consider the action of G on itself by conjugation. Check that the orbit of $x \in G$ corresponds to the conjugacy class of x , i.e., the set

$$\mathcal{C}(x) = \{gxg^{-1} \in G : G \in G\}.$$

Using the Orbit-Stabilizer theorem, conclude that if a finite group G has only two conjugacy classes then G is isomorphic to \mathbb{Z}_2 .