

PRACTICE – NORMAL SUBGROUPS AND HOMOMORPHISMS

1. Prove: If $f : G \rightarrow H$ is a homomorphism and $a \in G$, then $f(a^{-1}) = f(a)^{-1}$.
2. Prove: Let G_1 and G_2 be groups (not necessarily finite), let $f : G_1 \rightarrow G_2$ be a homomorphism from G_1 onto G_2 , and let $K = \{x \in G_1 \mid f(x) = e_2\}$. Then K is a subgroup of G_1 .