

Homework 4

Due: April 27, 2005

1. §3.1: 21, 32
2. §3.2: 6, 8, 12, 16
3. §3.3: 5, 7
4. An *inner automorphism* $\varphi : G \longrightarrow G$ is an automorphism for which there exists $g \in G$ such that

$$\varphi(k) = gkg^{-1}, \quad \text{for all } k \in G.$$

Let $\text{Inn}(G) = \{\text{inner automorphisms of } G\}$. Prove $G/Z(G) \cong \text{Inn}(G)$ (where $Z(G)$ is the center of G).