Reading Questions 8

page 48: Definition 2.39

page 49: Example 2.41

1. The order of an element in a group G is the number elements in the group.
2. Let G be a cyclic group such that a is a generator for G. Then the order of G is the order of a.
3. What is the order of the identity element in a group?

Section 2.3 Cyclic Groups and the Order of an Element (Part 2)

Order of an Element

P 1. Find the order of (123) in S_4.

P 2. Find the order of $\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$ in $\mathrm{GL}(2, Z_2)$.

P 3. Let G be a group such that $a, b \in G$. Prove that $o(aba^{-1}) = o(b)$.

P 4. Let G be a group such that $a, b \in G$. Prove that $o(ba) = o(ab)$.