Name:

Read the rest of Section 3.2, from Example 3.14 to the end.

This reading contains several more examples of groups, the definition of the order of a group, and a description of several basic properties of groups that follow readily from the group axioms.

Reading Questions

1. Give an example of a group of finite order and an example of a group of infinite order.

2. Let G be a group. For each assertion below, state whether it is true or false, and provide one or more citations as justification.

   (a) Let $a \in G$. If $ag = ga = g$ for all $g \in G$, then $a = e$, the identity element.

   (b) Let $g, h \in G$. If $gh = hg = e$, then $h = g^{-1}$ and $g = h^{-1}$.

   (c) Let $g, h \in G$. Then $(gh)^{-1} = g^{-1}h^{-1}$.

   (d) Let $g, h \in G$. Then $(gh)^2 = g^2 h^2$.

3. What struck you in this reading? What is still unclear? What remaining questions do you have?