MATH 360 — HOMEWORK 2.

due on Friday, September 14.

by J. E. Marsden and M. J. Hoffman

Additional Reading: “Foundations of Modern Analysis”
by J. Dieudonné

Topics:
• Introduction: Sets and Functions
• 1 The real Line and Euclidian Space
  − 1.1 Ordered Fields and the Number System

Second Homework Assignment.

Reading:
• Read Section 1.1 paying attention to all the examples.

Exercises:

Problem 1. Prove that if $A, B, X$ and $Y$ are sets such that $|A| = |B|$ and $|X| = |Y|$, then
$$|X^A| = |Y^B|.$$  

Problem 2. Let $G$ be a nonempty set and $\circ : G \times G \rightarrow G$, a binary commutative and associative operation.
Prove that $(G, \circ)$ is a group if and only if the equation
$$x \circ a = b$$
has a unique solution, for every $a, b \in G$.

Problems:
• Page 35: problems: 1, 2
• Page 97: problems: 2, 34, 35, 36.

The topics and page numbers are from the textbook.