

MATH 360 — HOMEWORK 2.

due on Friday, February 5.

Textbook: “*Elementary Classical Analysis*”, second edition
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 nonempty 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 $a, b \in G$.

Problem 3. Write down the proof of Proposition 1.1.2 (page 28).

Problems:

- Page 20: problems: 6, 8

The topics and page numbers are from the textbook..