

Homework 1

Problems 2, 5, 8, 9, 10 from the end of Chapter 1 of your textbook, plus the following.

1. Find the supremum and infimum of the sets

$$A = \left\{ \frac{(-1)^n}{n^2} : n = 1, 2, 3, \dots \right\}, \quad B = \{x \in \mathbb{R} : 2x^2 - 5x + 1 < 0\}$$

and

$$C = \{3^{-n} + 7^{-m} : m, n = 1, 2, 3, \dots\}.$$

2. Let A and B be two non-empty sets of real numbers, and denote by $A + B$ the set $\{a + b : a \in A, b \in B\}$.

Show that $\sup(A + B) = \sup A + \sup B$.