

Recitation Guide - Week 3

Topics Covered: Set Proofs, PIE, Irrationality Proofs

Problem 1: Prove that

$$(A \cup B) \setminus C = (A \setminus C) \cup (B \setminus C)$$

Problem 2:

Given numbers 1 to 9, how many permutations of the numbers do not have at least 7 consecutively increasing numbers? Note that the sequence 1, 2, 3 is consecutively increasing, while 1, 4, 6 is not.

Problem 3:

Prove that the product of a non-zero rational and irrational number is irrational.