

Math 2326 - Introduction to Abstract Mathematics
Assignment 30 - Due Friday, April 11

Problem 99: Let A, B be two nonempty countable sets. Show that $A \cup B$ is countable.

(Hint: Consider first the case where A and B are disjoint, then work on the general case.)

Problem 100: Show that the set of irrational numbers is uncountable.

Problem 101: Prove that A is uncountable if and only if $A \times A$ is uncountable. Conclude that the Euclidean space \mathbb{R}^n is uncountable.