Rudin, Principles of Mathematical Analysis, Chapter 2 Exercises

written by Dr. Heraklinos on Functor Network original link: https://functor.network/user/842/entry/319

Problem 2.1. Prove that the empty set is a subset of every set.

Solution. Given any set A, we need to show that $x \in \emptyset$ only if $x \in A$. As the empty set contains no elements, this condition is vacuously satisfied, hence $\emptyset \subseteq A$.