

Possible to Count

installation, rubber seal, 2022/2025

The shape refers to the visual justification of the countability of the set of rational numbers (fractions). The curled ball suggests that this graph can be developed indefinitely.

At the end of the 19th century, mathematicians were preoccupied with the question of the size (the cardinality) of infinite sets. In particular, the case of the set of rational numbers (fractions) was of interest. Is it equinumerous with the set of natural numbers, or is it a set of greater cardinality? At first glance, the second answer seems more likely, as there are infinitely many fractions between any two natural numbers. More than that, between any two fractions, we can indicate infinitely many intermediate fractions. However, the first variant turns out to be true: the set of rational numbers and the set of natural numbers are equinumerous – they are sets of the same cardinality.

This can be demonstrated by creating an appropriate matrix of fractions and moving across it according to the pattern marked in the diagram below. In this way, we obtain an ordered (numbered) sequence of fractions that is equinumerous to the set of natural numbers (each element of this set can be assigned a consecutive natural number). In other words, the set of rational numbers is countable – it is *possible to count*.

