

Theorem

Any set of real numbers that contains an open interval has cardinality the same as \mathbb{R} .

Proof.

- Assume $(a, b) \subseteq A \subseteq \mathbb{R}$.
- We have $f: A \rightarrow \mathbb{R}$ the inclusion map, injective;
- We know that $|\mathbb{R}| = |(a, b)|$, so there exists an injection $q: \mathbb{R} \rightarrow (a, b)$;
- Then $g = f \circ q$ is injection $g: \mathbb{R} \rightarrow A$.
- CSB

