

On the size of continuum

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Abstract

In this paper, we propose the upper bound for the cardinality of continuum.

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1 Introduction

Cohen [Coh63, Coh64] showed that the continuum hypothesis (CH) is independent of Zermelo-Fraenkel axioms with the axiom of choice (ZFC). Our motivation is to find the hypothetical size of continuum.

2 Results

First, we define $\aleph_Z := 2^{2^{\aleph_0}}$. We know that $2^{\aleph_0} < 2^{2^{\aleph_0}}$. Then we claim that

$$2^{\aleph_0} < \aleph_Z. \tag{1}$$

References

- [Coh63] P. J. Cohen. The independence of the continuum hypothesis. *Proc. Nat. Acad. Sci. U. S. A.*, 50:1143–1148, 1963.
- [Coh64] P. J. Cohen. The independence of the continuum hypothesis, II. *Proc. Nat. Acad. Sci. U. S. A.*, 51:105–110, 1964.