

On the size of continuum

Ihsan Raja Muda Nasution

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Abstract

In this paper, we propose the alternative estimation of 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

We consider the inequality

$$\sqrt{2} < 2. \tag{1}$$

In (1), the inequality is powered by \aleph_0 , then

$$\sqrt{2}^{\aleph_0} < 2^{\aleph_0}. \tag{2}$$

The value of 2^{\aleph_0} seems too large for \aleph_1 . And $\sqrt{2}^{\aleph_0}$ maybe equals \aleph_1 . Then we assume that $\neg\text{CH}$ is true. Thus, we claim

$$\sqrt{2}^{\aleph_0} = \aleph_1. \tag{3}$$

And

$$\aleph_2 \leq 2^{\aleph_0}. \tag{4}$$

References

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