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Abstract

This project explores the notion of consistency in the context of set theory. A statement is consistent with the Zermelo-Frankel Axioms with Choice, the fundamental axioms of set theory, if there is no proof of the negation. Since proofs are finite, this is the same as showing that for any finite set of axioms, there is a model of those axioms together with the statement. This project specifically examines the Continuum Hypothesis, and shows that both the statement and its negation are consistent with the axioms. That the Continuum Hypothesis is consistent with the axioms follows from Gödel's Constructible Universe and properties thereof. The negation is consistent due to Cohen's method of forcing. These two results imply that the Continuum Hypothesis is independent from the axioms of set theory.