

Hilbert's Tenth Problem

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Abstract

This essay concerns Hilbert's tenth problem. We begin by stating this problem and describe its origins, moving on to dissecting the components of said statement, the main one being Diophantine equations. After extensive discussion about Diophantine equations and sets, logic of different forms, and computability we move on to the chronology of the solution of Hilbert's tenth problem. Covering the main events that led to the unsolvability proof of the problem, the essay culminates in the fact that Diophantine sets coincide with semidecidable sets. This completes the unsolvability of Hilbert's tenth problem.