1.	Record Nr.	UNINA9910792101703321
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	Titolo	There's Something About Gödel [[electronic resource]] : The Complete Guide to the Incompleteness Theorem
	Pubbl/distr/stampa	Hoboken, : John Wiley & Sons, 2009
	ISBN	1-4443-1502-1
	Descrizione fisica	1 online resource (255 p.)
	Disciplina	511.3
	Soggetti	Incompleteness theorems - Philosophy
		Godel's theorem
		Mathematics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di contenuto	GODEL; Contents; Prologue; Acknowledgments; Part I: The Godelian Symphony; 1 Foundations and Paradoxes; 1 "This sentence is false"; 2 The Liar and Godel; 3 Language and metalanguage; 4 The axiomatic method, or how to get the non-obvious out of the obvious; 5 Peano's axioms ...; 6 ... and the unsatisfied logicists, Frege and Russell; 7 Bits of set theory; 8 The Abstraction Principle; 9 Bytes of set theory; 10 Properties, relations, functions, that is, sets again; 11 Calculating, computing, enumerating, that is, the notion of algorithm; 12 Taking numbers as sets of sets; 13 It's raining paradoxes 14 Cantor's diagonal argument 15 Self-reference and paradoxes; 2 Hilbert; 1 Strings of symbols; 2 "... in mathematics there is no ignorabimus"; 3 Godel on stage; 4 Our first encounter with the Incompleteness Theorem ...; 5 ... and some provisos; 3 Godelization, or Say It with Numbers!; 1 TNT; 2 The arithmetical axioms of TNT and the "standard model" N; 3 The Fundamental Property of formal systems; 4 The Godel numbering ...; 5 ... and the arithmetization of syntax; 4 Bits of Recursive Arithmetic ...; 1 Making algorithms precise; 2 Bits of recursion theory; 3 Church's Thesis 4 The recursiveness of predicates, sets, properties, and relations 5 ... And How It Is Represented in Typographical Number Theory; 1 Introspection and representation; 2 The representability of properties, relations, and functions ...; 3 ... and the Godelian loop; 6 "I Am Not

Provable"; 1 Proof pairs; 2 The property of being a theorem of TNT (is not recursive!); 3 Arithmetizing substitution; 4 How can a TNT sentence refer to itself?; 5 ; 6 Fixed point; 7 Consistency and omega-consistency; 8 Proving G1; 9 Rosser's proof; 7 The Unprovability of Consistency and the "Immediate Consequences" of G1 and G2

1 G22 Technical interlude; 3 "Immediate consequences" of G1 and G2; 4 Undecidable1 and undecidable2; 5 Essential incompleteness, or the syndicate of mathematicians; 6 Robinson Arithmetic; 7 How general are Godel's results?; 8 Bits of Turing machine; 9 G1 and G2 in general; 10 Unexpected fish in the formal net; 11 Supernatural numbers; 12 The culpability of the induction scheme; 13 Bits of truth (not too much of it, though); Part II: The World after Godel; 8 Bourgeois Mathematicians! The Postmodern Interpretations; 1 What is postmodernism?; 2 From Godel to Lenin

3 Is "Biblical proof" decidable? 4 Speaking of the totality; 5 Bourgeois teachers!; 6 (Un)interesting bifurcations; 9 A Footnote to Plato; 1 Explorers in the realm of numbers; 2 The essence of a life; 3 "The philosophical prejudices of our times"; 4 From Godel to Tarski; 5 Human, too human; 10 Mathematical Faith; 1 "I'm not crazy!"; 2 Qualified doubts; 3 From Gentzen to the Dialectica interpretation; 4 Mathematicians are people of faith; 11 Mind versus Computer: Godel and Artificial Intelligence; 1 Is mind (just) a program?; 2 "Seeing the truth" and "going outside the system"

3 The basic mistake

Sommario/riassunto	Berto's highly readable and lucid guide introduces students and the interested reader to Godel's celebrated Incompleteness Theorem, and discusses some of the most famous - and infamous - claims arising from Godel's arguments.Offers a clear understanding of this difficult subject by presenting each of the key steps of the Theorem in separate chapters. Discusses interpretations of the Theorem made by celebrated contemporary thinkers. Sheds light on the wider extra-mathematical and philosophical implications of Godel's theories.