

# Index of Terms

- Absolute equality 149
- Accepted – in space 277
- Accepted – in time 277
- Acceptor 277
- Arithmetical hierarchy 13
- Arithmetization of metamathematics 20
- Axiomatic theory 7
- Axioms, special 7
- Axioms, logical 7
  
- Bertrand's postulate 50
- Binary search 339
- Bounded arithmetic 271
- Bounded collection axiom 328
- Bounded prenex normal form 76
- Bounded recursion 335
- Buss's witnessing theorem 349
  
- Cardinality 42
- Closure 337
- Coding finite sets and sequences 37
- Coding of finite sequences 17
- Collection 44
- Collection axiom given 61
- Comprehension 45
- Computation of a Turing machine 330
- Concatenation 19
- Connectives 6
- Conservative extension 148
- Consistency of a theory 376
- Consistency statement 163
- Consistency, bounded 411
- Consistency, cut-free 376
- Consistency, Herbrand 376
- Consistency, restricted 376
- Consistent 8
- Consistent 99
- Constants 6
- Contain a theory 150
  
- Counterexample 355
- Counting problem 409
- Craig's theorem 166
- Cut 215, 218, 367, 407
- Cut (definable) 172
- Cut, extendable 237
- Cut, proper 218
- Cut, Ramsey 237
- Cut, semiregular 235
- Cut, short 234
- Cut, unbounded 236
- Cut-rank 373
  
- Decidable 23
- Decidable 99
- Deduction rules 7
- Deductively equivalent 166
- Definable 7
- Definable element 222
- Definable subset of a model 215
- Definable ultrapower 216
- Defines a total function 47
- Designated variables 125
- Diagonal lemma 158
- Divide 33
- Dot notation 14
- Doubly conservative 197
  
- Elementary substructure 219
- End-extension 215
- Envelope 246
- Equality 6
- Equality absolute 6
- Essentially reflexive 168
- Evaluation 6
- Evaluation of variables 103
- Even 34
- Exponential time 278
- Exponentiation 18, 36

- Feasible solution 353
- Finite axiom of choice 67
- Finite axiomatizability 350
- Finite Ramsey theorem 112
- Fixed-point theorem 158
- Flexible formula 162
- Formula 6
- Formula, atomic 6
- Formula, cut formula 373
- Formula, inductive 367
- Formula, middle 377
- Formula, provable 7
- Formula, rudimentary 312
- Formula, side formula 373
- Formula, true 7
- Free algebra 21
- Function symbols 6
  
- Gödel sentence 160
- Gödel's second incompleteness theorem 164
- Gödel-Rosser incompleteness theorem 161
- Grammar 315
- Grammar, context-free 315
- Greatest common divisor 35
  
- H-Rosser formula 190
- Height of an ordinal 133
- Herbrand proof 179
- Herbrand variant 9
- Herbrand's theorem 10
- Herbrand's theorem 101
- Hereditarily conservative 197
- Hereditarily minimal prehomogeneous 115
- Hilbert-Ackermann's theorem 101
- Homogeneous 112
  
- Indicator 247
- Induction principle 5
- Induction, parameter-free 407
- Infinite Ramsey theorem 112
- Instance 62
- Interpretation 148
- Interpretation, faithful 150, 405
- Interpretation, global 367
- Interpretation, local 367
- Interpretation, parametrical 149
- "it's snowing"-it's snowing 59
  
- Language 6, 98, 315
- Language of arithmetic 12
- Large set 139
- Lattice of interpretability types 404
  
- Least number axiom 61
- Least number principle 5, 35
- Length 325
- Length of proof 373
- Length optimal solution 355
- Limit theorem 90
- Lindström's fixed point theorem 198
- Lindström's second fixed point theorem 208
- Linear space 278
- Linear time 278
- Linear time hierarchy 283
- Loeb's theorem 165
- Logarithmic space 278
- Logical axioms 7
- Los's lemma 217
- Low arithmetized completeness theorem 104
- Low basis theorem 92
  
- Matiyasevič's theorem 97
- Middle sequent theorem 377
- Minimal prehomogeneous 115
- Modal logic 405
- Model 6, 8, 102
- Model, standard 12
- Multi-exponentially bounded 175
  
- Narrowly branching 115
- Nepomnjaščij's theorem 285
- Nondeterministic polynomial time 279
- NP-complete 280
- Number, even 34
- Number, odd 34
- Number, prime 33
- Numeral, dyadic 318
  
- Odd 34
- Operation, suitable 249
- Optimization problem 353
- Order induction axiom 61
- Order-type of the universe 81
- Ordinal isolated 134
- Ordinal limit 134
- Overspill 219
  
- Pairing 34
- Parikh's theorem 272
- Paris sequence 126, 249
- Paris sequences of the first kind 250
- Paris sequences of the second kind 253
- Paris-Harrington
- Principle 112
- Partial satisfaction 56, 79

- Peano arithmetic 28
- Piecewise coded 63, 78
- Pigeon-hole principle 42, 67
- Polynomial (time) hierarchy 283
- Polynomial advice 354
- Polynomial advice 356
- Polynomial space 278
- Polynomial time 278
- Polynomially reducible 280
- Pre-ordinal 133
- Predicates 6
- Prehomogeneous 115
- Prehomogeneous 116
- Prenex normal form 8
- Prime 33
- Prime decomposition 50
- Primitive recursive functions 10
- Principle of alfa-large intervals 133
- Proof 372
- Proof line 372
- Proof, regular 377
- Provability conditions 163
- Provability in theory 375
- Provability, cut-free 375
- Provability, Herbrand 375
- Provability, restricted 375
- Provable 7
- Provably recursive 246
- Provably recursive 48
- Provably total 245
- Provably total 48
- Pure extension 168
  
- Quantifier 6
- Quantifier, sharply bounded 322
  
- Recursive functions 10
- Recursively saturated model 407
- Reflection principle 404
- Reflexive 168
- Regular tree 133
- Regularity 67
- Relatively large 112
- Replacement axiom 328
- Robinson arithmetic 28
- Rosser sentence 161
  
- Satisfaction relation 7
- Schwichtenberg-Wainer hierarchy 132, 140
- Second order arithmetic 151
- Second order systems 410
- Self-prover 211
- Self-reference 158
  
- Self-referential pairs 160
- Sequence 325
- Sequential 151
- Set, definable 7
- Sheperdson-Smorynski's fixed point theorem 198
- Skolem axiom 8
- Skolem function 337
- Sound 27
- Space 277
- Space constructible 288
- Special axiom 181
- Special axioms 7
- Speed up 211
- Standard model 12, 214, 234
- Standard system 407
- Strong collection 67
- Strong indiscernibles 125
- Strong replacement 329
- Strong Skolem property 231
- Subcut 367
- Substitution 314
- Subtheory 148
- Successor induction axiom 61
  
- Tarski's conditions for satisfaction 6
- Terms 6
- Theorem, Gödel incompleteness 386
- Theorem, Herbrand's 10
- Theorem, Matiyasevič(-Robinson-Davis-Putman) 19
- Theory 99
- Theory, decidable 23
- Theory, sound 27, 155
- Time 277
- Time constructible 288
- Time hierarchy 292
- Transducer 277
- Transfinite progression of theories 404
- True 7
- Truth definition 361
- Turing machine 277
- Turing machine - nondeterministic 279
- Turing machine - oracle 282
  
- Unbounded 81
- Underspill 219
  
- Value of a term 6
- Variables 6
  
- Witness 320
- Witness comparison 155

