
Index

- Aaronson, S., 641, 676
 abnormal discrete parameter, 41
 absolutely continuous function, 158, 516
 abstract type, 620
 Ackerman function, 629
 adequacy theorem for \mathcal{P}_0 , 578
 Adler, A., 388, 394, 665
 Alfors, L. V., 487, 665
 algorithm
 (A_0) , 467
 (A_1) , 467
 (A_2) , 467
 G_1 , 610
 G_2 , 610
 P_1 , 599
 P_2 , 600
 P_3 , 601
 P_4 , 612
 P_5 , 612
 analytic conductor, 551
 any two countable models isomorphic im-
 plies complete, 596
 Apostol, T. M., 18, 30, 36, 181, 365, 665
 approximate functional equation, 535
 approximate zero count, 112
 Arbib, M. A., 396, 665
 argument form, 573
 Arias de Reyna's theorem, 564
 Arias de Reyna, J., 560, 665
 Aristotle, 569
 arithmetic, 614
 compact CA, 616
 Peano PA, 614
 Presburger PR, 616
 Robinson Q, 618
 Skolem SK, 617
 Takeuti PAT, 618
 arithmetical hierarchy, 624
 arithmetical wff, 620
 assignment in an interpretation, 586
 assignment satisfies a wff, 587
 atomic formula, 581
 axiom of a theory, 589
 axiom of choice (C), 584
 axiomatic method timeline, 650
 axiomatized, 599
 and complete implies decidable, 600
 implies proof check algorithm, 600
 theory, 609
 axioms
 CA compact arithmetic, 616
 GT group theory, 584
 PA Peano arithmetic, 615
 PAT Takeuti arithmetic, 618
 PR Presburger arithmetic, 617
 Q Robinson arithmetic, 618
 S Selberg class, 545
 SK Skolem arithmetic, 617
 Z zeta axioms, 545
 ZF set theory, 583
- Bagchi, B., 339, 387, 665
 Barnett, A. Ross, 666
 barrier region evaluation, 264, 270
 Barwize, J., 656, 665
 Ben Cheikh, Y., 292, 667, 668
 benefit, 74
 Benz, E. W., 293, 665
 Berlekamp, E. R., 665
 Berry, M., 327, 665
 Bés, A., 617, 665
 bi-convex separation, 486
 bi-real separation, 486
 Bochner, S., 547, 665
 Bohr's theorem, 541
 Bohr, H., 175, 338, 459, 541, 665
 Bohr–Courant theorem, 376
 Bohr–Courant's zeta density theorem, 459
 Bombieri, E., 309, 325, 666
 Boolos, G. S., 666

- Boone, W. W., 388, 393, 666
 Borcea, J., xv, 298, 666
 Borcea–Branden theorem, 514
 bound variable in a wff, 582
 bounded density, 88
 Bovykin, A., 426, 445, 462, 463, 666
 Bovykin–Weiermann first theorem, 461
 Bovykin–Weiermann’s second theorem, 463
 Boyd’s explicit estimate, 565
 Boyd, W. G. C., 565, 666
 Brändén, P., xv, 298, 666
 Brent, R. P., 2, 666
 Broughan, K. A., 467, 666, 669
 Brun–Titchmarsh inequality, 93
 Bui, H. M., 468, 666
 Burckel, S., 390, 417, 666
 Burgess, J. P., 666
 Bütthe, J., 2, 494, 667
 Buzzard, K., 544, 669
- C computer language, 210
 Cáceres, J. M. H., 431, 667
 canonical interpretation, 592
 Cantor ordinal normal form, 652
 Cantor’s bijection, 398
 Cantor’s isomorphism, 597
 Carlitz, L., 667
 categorical model, 603
 Caviness, B. F., 389, 409
 champion, 76
 characteristic function of a set C_A , 629
 characterization of Diophantine functions, 405
- Chasse
 Jensen polynomial theorem, 305
 real zeros theorem, 304
 theorem, 289, 514
 Chasse, M., 289, 298, 304, 305, 334, 514, 667
 Chen, W. Y. C., 334, 667
 Cheney, E. W., 481, 667
 Church’s undecidability theorem, 612
 Church, A., 609, 612, 626, 667
 Church–Turing theorem, 598
 Church–Turing thesis, 629
 Clark, C., 307, 667
 classical locations gap estimates, 113
 classical zero location, 112, 113
 clique, 441
 close, 150
 closed wff, 582
 closure of a wff, 582, 587, 591
 closure theorem for \mathcal{P}_1 , 591
 code number g, 610
- Coffey, M. W., 328, 335, 667
 Cohen, P. J., 390, 605, 667
 Collatz function, 466
 COM function, 626
 compact arithmetic CA, 585, 605
 compactness theorem, 607
 compactness theorem for \mathcal{P}_0 , 578
 complete set of wffs, 593
 complete system, 576
 complex open sector, 298
 complexification, 487
 computable function COM, 626
 computable function PRF, 628
 congruential functions, 416
 Conrey, J. B., 88, 101, 173, 307, 310, 325, 333, 468, 547, 666, 667
 consequence of a set of wffs, 589
 conservative extension, 427, 618, 619
 consistent
 extension of CA implies undecidable, 612
 if and only if a non-theorem exists, 593
 implies a model, 594
 set of wffs of \mathcal{P}_0 , 576
 system, 576
 consistent extensions of CA are undecidable, 612
 consistent, axiomatized extension of CA implies incomplete, 613
 consistent, complete, and Henkin extension, 593
 contours for Lemma 5.7, 188
 convexity bound, 471
 Conway’s unpredictable iterations, 419
 Conway, J. H., 390, 417, 419, 667
 countably categorical, 607
 counting zeta zeros in a vertical strip, 474
 Courant, R., 338, 459, 665
 Craven, T., 292, 667
 Csordas, G., 109, 289, 292, 293, 298, 334, 468, 668
 Cutland, N., xvii, xx, 567, 626, 668
- Davenport, H., 479, 668
 Davis, M., 389, 397, 433, 668
 de Bruijn’s zero-free region, 279
 de Bruijn, N. G., 666
 de Bruijn–Newman constant, 109, 209, 310, 331
 De Koninck, J. -M., 668
 de Reyna’s contour integral estimate, 215
 decidable
 implies recursively enumerable, 600
 predicate, 630

- set of axioms, 600
 - subset, 627
 - system, 576
 - theory, 596, 598
- deduction of a wff, 589
- deduction theorem for \mathcal{P}_1 , 590
- degree, 550
- Deitmar, A., 549, 668
- Denef, J., 388, 394, 549, 668
- density, 379
- derivable word, 395
- DiBenedetto, E., 525, 668
- Dimitrov, D. K., 298, 334, 668
- Diophantine
 - function, 398
 - sequence number, 399
 - subset, 398
- directly derivable word, 395
- Dirichlet, J. L., 35
- Dirichlet–Kronecker theorem, 489
- discrete parameters, 41
- Dobner
 - contour, 187, 188
 - estimate, 194
 - general theorem, 199
 - RH equivalence, 197
- Dobner, A., 88, 175, 198, 209, 310, 333, 668
- Dokchitser, T., 549, 668
- domain of a partial recursive function, 626
- domain of an interpretation, 586
- Douak, K., 292, 667
- DPRM, 394, 397
- DPRM theorem, 406
- Dusart, P., 436, 491, 668
- Dyson, F., 90

- Edwards, H. M., 38, 54, 326, 565, 669
- elementary complex analysis of PAT, 621
- empty word, 395
- encyclopedic properties, 545
- energy on an interval, 112
- enlargement, 142
- entire function of exponential type, 380
- entire functions, 326
- Erdős, P., 37, 417, 444, 669
- even Jensen polynomial, 314
- exponential type, 348
- expressible relation, 610
- extended Selberg class, 175, 177, 199, 310, 329, 332, 334
- extended von Mangoldt function, 95
- extension of CA, 608
- extraordinary discrete parameter, 41

- Faber, L., 491, 669

- Farmer, D. W., 307, 309, 310, 325–327, 669
- fee variable in a wff, 582
- finitely satisfiable, 578
- finitely satisfiable set of wffs, 573
- first-order
 - group theory, 585
 - language, 580, 581
 - tautology, 591
 - theorems are true in every model, 592
 - theory, 583, 585
- Fisk, S., 495, 669
- Friedlander, J. B., 94, 669
- Friedman, H., 425, 666
- Fubini–Tonelli theorem, 238, 525
- function DIA, 612
- fundamental lemma for $\mathbf{R}_{t,N}$, 230

- Gödel
 - code numbers, 609
 - completeness I, 594
 - completeness II, 595
 - expressibility theorem, 611
 - incompleteness for a CA extension, 611
 - incompleteness theorem, 605, 608, 613
 - inconsistency theorem, 605
 - number g , 610
- Gödel, K. F., 583, 604
- Gödel–Rosser incompleteness, 612
- Gabriel, R. M., 471, 669
- Galvan, S., 649, 671
- gamma factor, 550
- gamma factor bound, 202
- gamma function explicit estimate, 215
- gap and energy evolution equations, 115
- Garunkstis, R., 378
- Gaussian integral, 213
- generalized Hermite polynomials, 312
- generalized Lindelöf hypothesis, 310
- generalized SHC number, 41
- Gentzen
 - consistency proof, 606
 - cut elimination, 654
 - theorem, 663
- Gentzen, G., 606, 649, 650, 654, 664, 669, 675
- global energy, 112
- global Hamiltonian, 112
- Goldbach’s conjecture, 435
- Goldfeld, D., 549, 669
- Goldston, D. A., 88, 101, 173, 667, 669
- Gonek

- first fundamental lemma, 353
 - second fundamental lemma, 370
 - universal property, 339, 373
- Gonek, S. M., 88, 89, 96, 101, 173, 339, 387, 388, 466, 667, 669
- Good, A., 378, 669
- Goodstein, R. L., 653, 669
- GORZ, 307, 311, 328, 334
- Gosh, A., 88, 101, 173, 307, 310, 333, 547, 667
- Gowers, T., 544, 669
- Graham, R. L., 656, 669
- Griffin, M., 307, 323, 669
- Gronwall's inequality, 530
- Gronwall, T. H., 530, 670
- Group theory GT, 584
- Gunns, J., 310, 329, 670
- Guy, R. K., 665, 670

- h-large subset, 656
- Hadamard composition, 299, 495
- Hahn–Banach extension theorem, 485
- Halava, V., 388, 392, 670
- Halbeisen, L. J., 567, 670
- halting problem, 635
- Hamburger's theorem, 332, 532
- Hamilton, A. G., 567, 670
- Hamiltonian evolution, 116
- Harju, T., 392, 670
- Harrington, L., 425, 445, 656
- having a model implies a countable model, 607
- having a model implies consistent, 592
- HC number, 41
- heat equation, 213
- Heath-Brown, D. R., 36, 88, 101, 173, 337, 468, 666, 667, 670, 675
- Henkin property, 593
- Hermite polynomial, 310
- Hermite universality, 332
- Hermite–Poulain theorem, 500
- Herzog, S., 492, 673
- highly composite number, 41, 76, 669, 673, 674
- Hilbert
 - problem over the Gaussian-integers is undecidable, 411
 - tenth problem, 397
 - tenth problem is undecidable, 406
- Hilbert, D., 389, 397, 604
- Hodel, R. E., xvii, xx, 567, 670
- Hodges, A., 570, 670
- holomorphic flow, 467
- HoTT book, 676
- Hughes, C., 310, 329, 670

- Hurwitz theorem, 528
- Hurwitz zeta function, 343
- Huxley, M. N., 35, 670
- hyperbolic polynomial, 293, 308, 313, 496
- hyperplane, 485

- incompleteness for CA, 609
- incompleteness for ST, 609
- inconsistent if and only if every wff is a theorem, 593
- inconsistent set of wffs of \mathcal{P}_0 , 576
- independent wff, 390, 594
- infinite model implies non-categorical, 607
- Ingham, A. E., 2, 471, 493, 670
- integrated large sieve inequality, 489
- interpretation, 584
- interpretation of a language, 585
- invalid argument form, 573
- Ito, K., 544, 670
- Iwaniec, H., 94, 550, 669, 670
- Iwaniec–Kowalski Class, 550

- Jeffrey, R. C., 666
- Jensen polynomial, 291
- Jensen's theorem, 293
- Jensen, J. L. W. V., 289, 293, 670
- Jia, D. X. Q., 334, 667
- Julia software system, xx, 210

- König's monochromatic family theorem, 443
- König's ray theorem, 443
- König, D., 443
- Kaczorowski, J., 198, 670
- Kadiri, H., 491, 669
- Kanamori, A., 441, 446, 670
- Kanamori–McAloon principle, 446
- Kaye, R., 446, 670
- Ki, H., 209, 310, 327, 670
- Kim, Y.-O., 209, 327, 670
- Kleene, S. C., 626, 671
- Kontorovich, A., 309, 310, 325, 671
- Kotnic, T., 2, 671
- Kowalski, E., 550, 670, 671
- Kreisel, G., 427, 671
- Kreminski, R., 335, 671
- Kronecker's approximation theorem, 456

- Lós–Vaught theorem, 597
- Löwenheim–Skolem theorem, 607
- Laczkovich's undecidable ring, 412
- Laczkovich, M., 389, 411, 413, 466, 671
- Lagarias, J. C., 424, 427, 431, 671

- Laguerre inequalities, 292
 Laguerre–Pólya class, 291
 Laguerre–Pólya class $\mathcal{L}\text{-}\mathcal{P}$, 293
 Landau, E., 1, 671
 Langlands, R. P., 549, 671
 Lebesgue differentiation theorem, 525
 Lebesgue’s fundamental theorem of calculus, 519
 Lee, J., 209, 670
 Levin, B. Ja., 301, 500, 671
 Libshitz, L., 388, 394, 668
 limit ordinal, 650, 652
 Lindenbaum’s consistent complete extension, 578
 Lindwart–Pólya theorem, 301
 linear growth condition, 314
 linear trigonometric polynomial, 481
 listable set of wffs, 600
 Littlewood, J. E., 1, 2, 670
 local energy, 112, 115, 139
 local Hamiltonian, 112, 115, 139
 Loeser, F., 549, 668
 logical symbols of \mathcal{P}_1 , 581
 logically valid wff, 587
 Luca, F., 668
 Lucas, F. R., 298, 334, 668
- Mancosu, P., 649, 671
 Markov’s inequality, 530
 Markov, A., 388, 393, 396, 481, 530, 626, 671
 Mathematica software system, xx, 424
 Mathematics Genealogy Project, 425, 604, 671
 Matiyasevich
 bounded quantifier theorem, 401
 integer equivalence, 436
 polynomial equivalence, 429
 Matiyasevich, Yuri, 389, 390, 397, 412, 424, 425, 429, 435, 641, 671
 McAloon, K., 441, 446, 670
 meaning of \rightarrow , \wedge , \leftrightarrow , 574
 Mendelson, E., 567, 671
 Mergelyan’s theorem, 484
 mimimalization, 628
 Minkowski functional, 484
 Minsky
 machine, 418, 627, 641, 642
 program, 641
 program examples, 643
 program instructions, 642
 sets of instructions, 643
 Minsky, M., 390, 396, 626, 641, 672
 model, 584
 model existence for \mathcal{P}_0 , 578
 model of a set of wffs, 586
 moderately sized, 156
 mollified, 473
 energy on an interval, 112
 global energy, 146
 local energy, 112
 local Hamiltonian, 112
 local Hamiltonian decay, 153
 negative logarithm, 112
 potential, 112, 145
 truncated Hamiltonian, 112, 158
 mollifier, 473
 monochromatic subset, 441
 monogenic tag system, 396
 Montel’s theorem, 526
 Montgomery, H. L., 90, 477, 489, 672
 Montgomery–Vaughan mean value, 477
 Moore, C., 388, 390, 394, 417, 465, 671, 672
 Mossinghoff, M. J., 491, 672
 motivic L-functions, 549
 Murty, M. R., 547, 672
 Murty, V. K., 547, 672
- Nabutovsky, A., 388, 672
 Nakamura, T., 387, 672
 natural sequence of an ordinal, 657
 Neary, T., 640, 676
 Nemes, G., 565, 672
 Newman, C. M., 109, 672
 Nicolas, J.-L., 1, 2, 35, 37, 39, 493, 669, 672, 673
 non-logical axioms, 602
 non-logical symbols, 581
 Norfolk, T. S., 298, 334, 336, 667, 668, 673
 normal discrete parameter, 41
 normal family, 300, 526
 Novikov, P. S., 388, 393, 673
 number of divisors equivalence, 79
- ω inference rule, 649, 664
 ω -categorical, 607
 ω -consistent theory, 611
 Obrechhoff’s lemma, 505
 Obrechhoff’s theorem, 511, 513
 Obrechhoff, N., xv, 298, 673
 occurrence of words, 395
 Odlyzko, A. M., 109, 668
 OEIS, 494, 675
 Oliveira e Silva, T., 492, 673
 Ono, K., 307, 309, 323, 324, 669
 order type, 656
 ordinal
 arithmetic, 650

- canonical form, 652
- numbers, 649
- strength, 649, 656
- translation function, 661
- ordinary discrete parameter, 41
- PA arithmetic, 426
- Pańkowski, L., 387, 672, 673
- Paley, R., 482, 675
- Paley–Weiner theorem, 482
- Pardi, S., 492, 673
- Pari software system, 210
- Paris, J., 425, 445, 656
- Paris–Harrington ordinals proof, 656
- Paris–Harrington theorem, 445, 649, 664
- partial recursive function PRF, 626, 627
- PAT arithmetic, 618
- Patterson, M. S., 388, 392, 673
- Peano arithmetic PA, 605
- Peano’s axioms, 605
- Peng’s convex separation, 486
- Peng, R., 486, 673
- Perelli, A., 198, 670
- Phragmén–Lindelöf theorem, 199
- Platt, D. J., 2, 305, 490, 674
- Pólya’s theorem, 297
- Pólya, G., 289, 293, 297, 307, 309, 673
- Pólya–Jensen RH equivalence, 289, 324
- Polymath
 - basic estimates, 222
 - essential estimates, 240
 - fundamental estimate for $\mathbf{r}_{t,n}$, 227
 - main theorem, 284
 - numerical culmination, 257
 - upper bound, 283
 - zero dynamics, 220
- Polymath, D. H. J., 208, 674
- Polymath15, 208
- Poonen, B., 388, 390, 674
- positive lower density, 379
- positive upper density, 339, 379
- Post’s conjecture, 396
- Post, E. L., 388, 392, 396, 626, 674
- PRA arithmetic, 649, 652
- Prenex normal form, 582, 624
- PRF function, 626
- prime number theorem, 489
- primitive
 - recursion, 606, 628
 - recursive arithmetic, 652
 - recursive function, 628
 - recursive function PRM, 626
- PRM function, 626, 628
- proof in \mathcal{P}_0 , 574
- Putnam, H. W., 389, 397
- r.e. set of wffs, 600
- r.e. subset, 627
- Rado, R., 444, 669
- Rahman, Q. I., 495, 674
- Ramanujan, S., 35, 37, 674
- Ramanujan–Petersson conjecture, 552
- ramified prime, 551
- rational game, 422
- real stable polynomial, 496
- REC function, 626
- recursive function REC, 626
- recursive function TPR, 628
- recursive implies expressible, 611
- recursive implies representable, 611
- recursive subset, 391, 404, 627
- recursively
 - axiomatized, 599
 - decidable theory, 596
 - enumerable but non-recursive set, 391
 - enumerable set of wffs, 600
 - enumerable subset, 391, 404, 631
 - undecidable theory, 596
- recursively
 - enumerable subset, 627
- regressive partition, 446, 461
- relatively large subset, 444
- representable function, 611
- Rhoades, R. C., 327, 669
- Rhoads, G. C., 392, 674
- Rice’s theorem, 627, 635
- Rice, H. G., 422, 464, 579, 674
- Richard, D., 617, 665
- Richardson, D., 389, 409
- Richardson/Caviness/Wang undecidability theorem, 409
- Riemann hypothesis, 325
- Riemann xi function, 110
- Riemann–Siegel estimate, 210
- Robin, G., 37, 427, 673, 674
- Robinson, J. H. B., 388, 389, 393, 397, 674
- Rogers, B., 88, 109, 173, 209, 674
- Rogers–Tao fundamental lemma, 172
- Rogers–Tao main theorem, 173
- Rolen, L., 307, 323, 669
- root number, 551
- Rosser, J. B., 2, 491, 609, 674
- Rothschild, B. L., 656, 669
- Rouché’s theorem, 175, 269, 487
- Rouché–Hurwitz theorem, 499
- Royden, H. L., 519, 525, 674
- Rubinstein, M., 2, 675
- Rudin, W., 482, 484–486, 675
- Ruttan, A., 336, 668, 673

- Sabbagh, K., 90, 675
 Sándor, J., 35, 675
 Sárközy, A., 37, 669
 Sarnak, P., 2, 675
 satisfiable set of wffs, 572
 satisfiable wff, 572, 587
 scale parameter, 42
 Schmeisser, G., 495, 674
 Schoenfeld, L., 2, 424, 427, 490, 491, 674
 Schur composition, 299, 495
 Schur, J., xv, 293, 495, 673
 Schur–Marlo theorem, 495, 500
 scope of a quantifier, 582
 Selberg
 class, 175, 198, 332, 387, 428, 545
 conjecture, 547, 552, 672
 degree, 546
 properties, 546
 sieve, 90
 Selberg, A., 89, 90, 310, 329, 332, 387, 428, 675
 self-dual Dirichlet series, 552
 semi-Thue system definition, 395
 semi-Thue systems, 394
 semidecidable set of wffs, 600
 semigroup, 396
 sequent, 654
 sequent calculus, 654
 set theory
 ZF, 583, 605
 ZFC, 584
 SHC number, 39, 41
 Shepherdson, J. C., 626, 675
 simple zeta zeros, 468
 sine principle, 445
 Skolem, T., 617, 675
 Sloan, N. J. A., 494, 675
 small ordinal, 652
 small size, 156
 Smith, A., 640, 675
 Smith, W., 109, 668
 smooth truncation function, 112
 solvable problem, 395
 Soundararajan, K., 309, 325
 soundness of \mathcal{P}_0 , 576
 Spencer, J. H., 656, 669
 stable polynomial, 514
 standard model for the theory CA, 602
 start functions, 628
 Stillwell, J., 397, 675
 strongly recurrent flow, 340, 379
 Sturgis, H. E., 626, 675
 substitutable term for a variable in a wff, 588
 successor ordinal, 650, 652
 superior highly composite number, 39, 41, 494
 superior highly composite numbers table, 494
 system of finite type, 619
 Szabo, M. E., 649, 650, 654, 675
 tag system, 396
 tag system in canonical form, 396
 tag system in normal form, 396
 Takeuti, G., 427, 615, 618, 649, 675
 Tao, T., 88, 109, 173, 175, 209, 674
 tautological consequence of wffs, 572
 tautology, 572
 tautology of \mathcal{P}_0 , 575
 tautology of a first-order theory, 591
 term, 581
 the system \mathcal{P}_0 , 573
 theorem of a theory, 589
 theorems not true in PAT, 624
 theory of a first-order language, 583, 592
 theory of an interpretation Th(I), 603
 theory of ordered fields, 602
 Thorner, J., 323, 670
 Thue alphabet, 395
 Thue system definition, 395
 Thue, A., 394, 675
 Titchmarsh, E. C., 337, 473, 474, 489, 675
 total partial recursive function TPR, 626
 transfinite induction, 650, 652
 transformation preserving hyperbolicity, 514
 Tripp, Z., 323, 670
 trivial zeros, 552
 Trudgian, T. S., 2, 489, 490, 672, 675
 true in every model implies provable, 594
 truncated mollified energy, 112, 148
 truncated mollified Hamiltonian, 112, 150
 truth assignment in \mathcal{P}_0 , 575
 truth in an assignment, 586
 Turán inequalities, 292
 Turán, P., 675
 Turing machine, 627
 Turing, A. M., 388, 390, 427, 626, 675
 unbounded region evaluation, 260
 undecidable
 common zeros of functions, 393
 first-order theory of \mathbb{Q} , 393
 group word problem, 393
 halting problem, 391
 integer matrix mortality, 392
 iterative dynamical systems, 394
 polyomino tiling, 392
 Post’s correspondence, 392

684

INDEX

- sets of algebraic ODEs, 394
- system of polynomial ODEs, 412
- topological homeomorphism, 393
- wff, 390
 - word problem for semigroups, 396
- uniformly distributed subset, 379
- Univalent Foundations Program, 676
- universal closure, 582
- universal Turing machine, 640
- unramified prime, 551
- unsolvable class of questions, 596
- unsolvable problem, 395
- upward Löwenheim–Skolem theorem, 607

- valid argument form, 573
- Varga, R. S., 109, 298, 334, 336, 668, 673
- Vaughan, R. C., 477, 672
- vector games, 419
- Viète's identities, 499
- Vigneras, M.-F., 547, 676
- Voronin's first theorem, 338, 376
- Voronin's second theorem, 338, 376
- Voronin's third theorem, 339, 376
- Voronin, S. M., 338, 388, 459, 466, 676

- Wagner, I., 323, 670
- Wang, L. X. W., 334, 667
- Wang, P. S., 389, 409, 676
- weak energy bound, 144

- Weiermann, A., 387, 426, 462, 463
- Weil, A., 492, 666
- Weinberger, S., 388, 672
- Weiner, N., 482, 675
- well-formed formula, 581
- well-ordered set, 650, 652
- wff, 390, 581
- wff true in an interpretation, 587
- Wilf, H. S., 641, 676
- Williamson, J., 293, 468, 668
- Woods, D., 640, 676
- word problem for a semi-Thue system, 395
- word production, 395

- x -variant assignments in an interpretation, 587

- Yedidia, A., 641, 676
- Young, M. P., 468, 666

- Zach, R., 649, 671
- Zagier, D., 307, 669
- Zermelo–Frankel set theory ZF, 584
- zero locations, 112
- zeta
 - axioms Z1–Z4, 545
 - functional equation, 94
 - logarithmic derivative, 479
 - zeros in a rectangle, 95