

Index

- Absolute Galois group $\text{Aut}(\overline{\mathbb{Q}})$, 4, 14, 59, 99
- Automorphism of Frobenius, 91
- Bachelor, 15
 - positioning of, 15
- Belyi function, 4, 11
 - existence of, 12
- Block of imprimitivity, 89
- Branch
 - height of, 42
 - non-repeating, 42
 - repeating, 41
- Branch of a tree, 30
- Brush, 30, 39
- Cactus, 23
- Catalan numbers, 164
- Chain-tree, 30, 93
- Classification
 - of finite simple groups, 93
 - of unitrees, ix, 29
- Collineation, 91
- Combinatorial orbit, 12, 27, 137
- Composition, 137, 176
- Conjecture
 - abc* (1985), 177
 - Catalan (1844), 1
 - cube minus square (1965), 2, 13
 - Guralnick (2007), 90
 - Guralnick and Thompson (1990), 90
 - M. Hall, Jr. (1971), 63
 - realizability for prime degree (1984), 19
- Continued fractions, 164
- Critical value, 4, 9
- Crossroad, 39, 41
- Davenport–Zannier pair (DZ-pair), viii, 4
 - passport of, viii
- Davenport–Zannier polynomials, viii, 4
- Defined over (a field), 5
- Degree
 - of a face, 4, 5, 11
 - of a tree, 5
 - of a vertex, viii
- Dessin
 - computer plot of, 6
 - schematic picture of, 6
 - true form of, 6
- Dessin d'enfants, vii, 11
- Diameter of a tree, 29
- Differential relation, 76
- Diophantine invariant, x, 155
- Duality, 94
- Dyck
 - path, 165
 - word, 165
 - weighted, 166
- DZ-pair, viii, 4
 - passport of, viii
- Edge incident to a face, 11
- Elkies's example, 1, 60
- Elliptic curve, 161
 - rational points on, 161
- Enumeration
 - according to the weight, 163
 - and the number of edges, 164
 - inverse, 56
 - mass-formula, 164
 - of cacti, 24
 - of ordinary trees, 25
- Equation
 - hypergeometric, 74
 - Pell, x, 64, 155
 - fundamental solution of, 156
 - Pell-like, 64, 157
- Example
 - Elkies, 1, 60
 - Roberts, 154
- Face
 - degree of, 4, 5, 11
 - of a map, 5
 - outer, 88
- Factorization of discriminants, 58, 176
- Field
 - defining polynomial of, 14
 - extension, 15

- degree of, 15
 - of definition, 14
 - of finite characteristic, 4
 - of moduli, 14, 27
 - of realization, 14
 - splitting of a polynomial, 14
- Forest, 20
- Formula
 - Goulden–Jackson, 24
 - Riemann–Hurwitz, 10, 153
 - Tutte, 25, 171
- Fried family, 28, 153, 177
- Function
 - Belyĭ, 4, 11
 - composition, 137
 - existence of, 12
 - Euler beta, x, 78
- Galois
 - group
 - of a biquadratic polynomial, 16
 - of a number field, 14
 - of a polynomial, 14
 - orbit, 14, 27
- Group
 - absolute Galois $\text{Aut}(\overline{\mathbb{Q}})$, 4, 14, 59, 99
 - affine general linear $\text{AGL}_d(q)$, 92
 - affine semilinear $\text{A}\Gamma\text{L}_d(q)$, 92
 - affine special linear $\text{ASL}_d(q)$, 92
 - alternating A_n , 91
 - cartographic, 87
 - composition factor of, 90
 - cyclic C_n , 91
 - dihedral D_n , 91
 - edge rotation, 27, 87
 - Galois, 14
 - absolute $\text{Aut}(\overline{\mathbb{Q}})$, 14
 - general linear $\text{GL}_d(q)$, 91
 - Hurwitz braid, 28
 - imprimitive, 89
 - blocks of, 89
 - Mathieu $M_{11}, M_{12}, M_{22}, M_{23}, M_{24}$, 92
 - monodromy, x, 27, 87
 - non-split extension of, 92
 - primitive, x, 89
 - projective general linear $\text{PGL}_d(q)$, 92
 - projective semilinear $\text{P}\Gamma\text{L}_d(q)$, 92
 - projective special linear $\text{PSL}_d(q) = \text{L}_d(q)$, 92
 - semilinear $\Gamma\text{L}_d(q)$, 91
 - special, 89
 - special linear $\text{SL}_d(q)$, 91
 - split extension of, 92
 - symmetric S_n , 91
 - wreath product, 132
- Growth exponent, 160
- Hurwitz
 - braid group, 28, 153
 - space, x, 28, 153
- Hypergeometric series, x
- Hypermap, 143
- Inflexion point, 6
- Invariant
 - Diophantine, x, 155
 - megamap, x, 28, 152
- Inverse enumeration problem, 56
- Map, 5
 - bicolored
 - dual, 143
 - dual, 88, 143
 - face of, 5
 - labelling of, 88
 - plane, 17
 - self-dual, 88, 144
 - weighted, 17
- Maps
 - isomorphic, 12
- Megamap, x, 153, 177
 - invariant, x, 28, 152
- Monodromy group
 - of a covering, x
 - of a map, 27, 87
- Motzkin numbers, 163
- Multi-trees, 164
- Non-realizable planar data, 26
- Number field, 14
- Numbers
 - Catalan, 164
 - Motzkin, 163
- Operation
 - sts, 38
 - of braiding, 88
 - of color exchange, 88, 94
 - of duality, 88
 - of ripping a tree, 37
 - of stitching, 20
 - of weight exchange, 36
- Orbit
 - combinatorial, 12, 27, 137
 - Galois, 14, 27
- Outer face, 88
- Padé
 - approximant, x, 71
 - form, 71
- Partition
 - factorial of, 170
- Passport
 - non-separable, 169
 - of a dessin, 12
 - of a DZ-pair, viii
 - of a tree, ix, 17
 - separable, 169

- valuable, 169
- Pell's equation, x, 155
 - fundamental solution of, 156
- Pell-like equation, 157
- Planar graph, 17
- Plane map, 17
- Polynomial
 - defining of a field, 14
 - splitting field of, 14
- Polynomials
 - antipalindromic, 145
 - Chebyshev, 177
 - Davenport–Zannier, viii, 4
 - DZ, 4
 - Jacobi, x, 65
 - generalized, 66
 - reciprocal, 59
 - Shabat, 17, 72, 77
 - Stieltjes, 77
 - Van Vleck, 77
- Projective space, 92
- Realizability
 - of a passport
 - by a forest, 20
 - by a tree, 19
 - of prime degree, 19
 - of polynomials, 22
 - of ramified coverings, 19
- Repeating branches, 41
- Riemann
 - sphere, 4
 - surface, 4
- Riemann's existence theorem (1857), 12, 23
- Riemann–Hurwitz formula, 10, 153
- Ripping a tree, 37
- Root of a tree, 30, 163
- Roots of unity, 99
- Semilinear transformation, 91
- Series of dessins, 58
- Star-tree, 10, 30, 93
- Stitching trees, 20
- Supertheorem, 93
- Theorem
 - Boccara (1982), 3
 - Cameron–Neumann–Teague (1982), 89
 - Danilov (1982), 63
 - Davenport (1965), 2
 - Dujella (2010), 143
 - Jones (2014), 93
 - Jordan
 - on primitivity and transitivity (1871), 93
 - on symmetric and alternating groups (1870), 159
 - Mihăilescu (2004), 1
 - Pascali–Petronio (2009), 19
 - Riemann's existence (1857), 12, 23
 - Ritt (1924), 89
 - Stothers (1981), 2, 13
 - Thom (1965), 22
 - Zannier (1995), 3, 20
- Tree
 - bicolored, viii
 - branch of, 30
 - repeating, 42
 - brush, 30, 39
 - chain, 30, 93
 - decomposable, 137
 - degree of, 5
 - diameter of, 29
 - fork, 62, 65
 - leaf of, 17
 - ordinary, 17
 - passport of, ix, 17
 - plane, viii
 - ripping of, 37
 - root of, 30, 163
 - rooted, 30, 163
 - special, 94
 - star, 10, 30, 93
 - symmetric, 139
 - topological, 17
 - totally labelled, 169
 - weighted, viii
- Trees
 - isomorphic, 17
 - special, 94
 - classification of, 94
 - stitching, 20
- Unimap, 30
- Unitree, ix, 29
- Vandermonde determinant, 172
- Vertex
 - central, 31
 - degree of, viii
 - profound, 39, 41
 - valency of, viii
- Weight
 - distribution, 17, 36
 - of an edge, viii
 - total of a tree, 5
- Weighted
 - map, 17
 - tree, viii
- Word
 - Dyck, 165
 - weighted, 166
 - factor of, 165
 - prefix of, 165
 - suffix of, 165
- Wreath product of groups, 132