

INDEX

- ABEL, N. H., 214
Abel's transformation, 214 ff.
absolute value, 9
absolute convergence, 198
addition theorem, of exponential function, 242
 of hyperbolic functions, 249
 of trigonometric functions, 244
 of $\operatorname{tg} z$, $\operatorname{tgh} z$, 253
algebraic branch point, 264
algebraic Riemann surface, 264
amplitude, 13
 principal, 14
analytic continuation, 236
analytic function, 124, 158
angle-preserving, 25
argument, 14
Artin, E., 289
automorphism, 8
- BERNOULLI, Jakob, 273, 277
Bernoulli numbers, 273 ff.
 polynomials, 273 ff.
bilinear transformation, 21
Binet, J., 291
Binet's function, 291 ff.
binomial series, 264
Bohr, H., 288
Bohr-Mollerup theorem, 288 ff.
Bolyai, J., 75
boundary, 91
boundary value, 95
Bouquet, vii
branch point, 258, 264
Briot, vii
bundle of circles, 46 ff.
- CALCULUS of Finite Differences, 273
Cantor's diagonal process, 90
Carathéodory, C., 25, 96
catenary, 250
Cauchy, A. L., 18, 94, 125, 127, 227
Cauchy's integral formula, 127 ff.
Cauchy's theorem, 125 ff.
Cauchy-Riemann equations, 149
chordal distance, 81
chordal oscillation, 175
circle of convergence, 203
circle-preserving mapping, 23 ff.
 of the second kind, 25
Clausen's theorem, 283
closed point set, 91
 relative, 96
closure of a point set, 91
common points of a pencil, 39
compact set, 89
compact family, 183
completely separated curves, 101
complex conjugates, 8
complex numbers, 2 ff.
complex plane, 17
 extended, 26
conformal mapping, 41
conjugate pencils, 40
connectivity, 96
continuous arc, 97
continuous function, 93
continuous convergence, 173 ff.
continuum, 97
contour integral, 107 ff.
convex function, 289
cross-cut of a region, 105
cross-ratio, 29
- D'ALEMBERT, 7
Delambre, J.-B.-J., 61
Delambre's formulas, 61
dense-in-itself, 91
derivative, 119
differentiable function, 119
distance invariants, 52 ff.
double-series theorem, Weierstrass', 210
- ELLIPTIC bundle, 46
elliptic metric, 71
elliptic pencil, 40

- entire function, 164
 equator of a bundle, 47
 essential singularity, 163
 Euclid, 75
 Euler, L., vii, 2, 278
 Euler's constant, 284 ff.
 Euler's formulas, 244
 Eulerian triangles, 60
 exponential function, 241
 extended complex plane, 26
 exterior point, 91
 FAMILY of functions, 182
 compact, 183
 normal, 182
 fixed point, 32
 Frobenius, 282
 frontier of a point set, 91
 fundamental region, 250 ff.
 fundamental theorem of algebra, 8, 167
 GAMMA function, 286 ff.
 Gauss, C. F., vii, 2, 7, 17, 61, 75, 167
 Gaussian plane, 17
 Gauss's product for gamma function, 295
 geodesics, 68
 general power function, 263
 Goursat, É., 125
 group, 22
 HAMILTON, W. R., 2
 harmonic function, 150
 harmonic measure, 154 ff.
 harmonic set, 31
 Harnack's theorem, 153 ff.
 Herglotz, G., 269
 Hölder, O., 288
 horizon of the non-Euclidean plane, 74
 Hurwitz, A., 194
 Hurwitz' theorem, 194
 hyperbolic bundle, 46
 hyperbolic function, 248 ff.
 hyperbolic pencil, 38
 hypercycle, 79
 IMAGINARY numbers, 2
 imaginary part, 7
 imaginary unit, 6
 improper point, 25
 infinity, point at, 25 ff.
 integrable function, 119
 integrable in the small, 121
 integral, 119
 integral function, 164
 integral linear transformation, 26
 integral transcendental function, 170
 integration by parts, 231
 interior point, 91
 inverse function, 229 ff.
 inversion, 33
 involutory, 8, 34
 isogonal, 25
 isolated point, 91
 JACOBI, C. G. J., vii
 Jordan arc, 100
 Jordan curve, 100
 KEPLER's equation, 235
 kernel, normal, 178
 Klein, F., 60
 LACROIX, P., vii
 Lagrange, J. H., 235
 Lagrange's series, 231 ff.
 Laplacian operator, 150
 Laurent, M. P. H., 218
 Laurent expansion, 217 ff.
 Legendre's identity, 297
 limit point, 91
 limiting oscillation, 175
 limiting point of a pencil, 38
 limiting rotation, 78
 limiting translation, 78
 Lindelöf, E., viii
 linear transformation, 21
 Liouville's theorem, 165
 Lobatchevsky, N. J., 75
 logarithm, 256
 logarithmic branch point, 258, 259
 logarithmic residue, 228
 loxodromic linear transformation, 45
 Lucas, E., 277
 MACHIN, J., 254
 mapping, neighborhood-preserving, 99
 topological, 96
 maximum-modulus principle, 133
 mean value, 132
 mean-value theorem, 114 ff.
 meromorphic function, 159
 Mittag-Leffler, G., 222
 Mittag-Leffler's theorem, 222 ff.

- modulus, 9
 Moebius, A. F., 21
 Moebius' transformation, 21
 Mollerup, J., 289
 Mollweide, 61
 monodromy theorem, 236 ff.
 Montel, P., viii, 183
 Moore, E. H., 288
 Morera's theorem, 130
 motions, 50 ff.
 non-Euclidean, 76 ff.
 multiply connected region, 102 ff., 104
- NATURAL** logarithm, 256
 neighborhood, 98
 neighborhood-preserving mapping, 99
 normal family of functions, 182
 normal kernel, 178
 normal sequence of functions, 178
- OPEN** kernel, 91
 open set, 91
 relative, 96
 oricycle, 79
 Osgood, W. F., 190
 Osgood's theorem, 190 ff.
 Ostrowski, A., viii, 183, 288
- PARABOLIC** bundle, 46
 parabolic pencil, 40
 partial fraction decomposition, 161
 pencil of circles, 38 ff.
 perfect point set, 91
 periods, of exponential function, 247
 of trigonometric functions, 250
 Poincaré, H., 79
 point, at infinity, 25
 of accumulation, 91
 Poisson, S. D., 147
 Poisson's integral, 146 ff.
 pole, 159
 simple, 225
 polynomial, 165
 potential function, 150
 power series, 201
 primitive period, 248
 principal amplitude, 14
 principal part, 225
 principal value of logarithm, 256
 principal value of power function, 263
- Pringsheim, A., vii, 125
 pseudo-chordal distance, 82
 Ptolemy, 27
 punctured plane, 21
 pure imaginary numbers, 10
- RADIUS** of convergence, 203
 real analytic function, 242
 real axis, 17
 real numbers in the complex domain, 5
 real part, 7
 rectifiable curve, 106
 reflections, 32 ff.
 region, 97
 regular analytic function, 124
 residue, 226 ff.
 logarithmic, 228
 Riemann, B., vii, 18, 27, 130, 259
 Riemann's inequality, 157
 Riemann's sphere, 27 ff.
 Riemann's surface, 258, 259
 Riemann's theorem, 130 ff.
 rigid motions, 50 ff.
 root of unity, 15
 rotations of the sphere, 210
 Rouché, E., 228
 Rouché's theorem, 228 ff.
- SCHLICHT** function, 196
 Schmidt, E., 101
 Schwarz, H. A., vii, 146
 Schwarz's lemma, 135 ff.
 simple closed curve, 100
 simple function, 196
 simple pole, 225
 simply connected, 103
 singularity, 162
 spherical motion, 56
 stereographic projection, 27
 Stieltjes, T. H., viii, 236
 Stirling's series, 291 ff., 296
- TAYLOR** series, 205
 topological mapping, 96
 transcendental function, 170
 trigonometric functions, 243 ff.
- ULTRA-PARALLEL**, 74
 unconditional convergence, 198
 uniform convergence, 178, 189

uniformly bounded in the small, 184
uniformly continuous, 95
unimodular numbers, 10

VITALI, G., 189
Vitali's theorem, 189
Von Staudt, 283

WALLIS, J., 271
Wallis' formula, 271
Weber, H., 60
Weierstrass, K., viii, 222
Weierstrass' double-series theorem, 210
Weierstrass' factorization theorem, 222
Weierstrass' theorem, 163
Wellstein, J., 60