

Index

ABC Conjecture, 243
Ailles, D., 87, 88
Archimedes, 78-84, 160
Argand plane, 220
arithmetic series, 35, 135, 137
Arrow, K., 68-72

base five, 131
base ten, 18, 19, 20, 23-29, 131, 181
base three, 102
base twelve, 29
base two, 19, 21, 30, 41, 66-67, 100, 131, 191-193
Bernouilli family, 141
Bernouilli numbers, 139-141
binary numbers, see base two
Binet's formula, 60
bipartite graph, 190
Brown, F., 167-171

Cantor, G., 226, 232, 236
cardinality, 114, 226, 229-240
Carroll, L., 73
Cartesian plane, 86, 216
Cauchy, A.-L., 219, 236
Chain Rule, 204
complex numbers, 40, 118-119, 201-202, 207-223, 237-240
composite numbers, 25
constructible numbers, 118-119, 215-217
correspondence, 231-240
Cosine Law, 163
cryptography, 20, 67, 126

de Moivre's Theorem, 203, 208-214
Descartes, R., 216
Dodgson, C. L., 73
dot product, 163

Einstein, A., 132, 171, 184
Einstein the Cow, 167-171
ellipse, 78, 164, 168-169, 196
escribed circle, 161-162
Euclid, 120, 124, 241
Euler, L., 182, 242

Index (cont'd)

Factor Theorem, 26
Fermat, P. de, 123
Fermat's Last Theorem, 120, 122, 123, 141, 243
Fermat's Little Theorem, 142
Feynman, Richard, 209
Fibonacci, 57
four dimensions, 46-50, 81
fractals, 40, 89, 101-102, 228

Galois, E., 216, 218, 219
Galois Theory, 216, 218, 219
Gardner, M., 132, 241
Gauss, K.F., 17, 22, 78, 137, 236
Gelfond-Schneider Theorem, 122
General Relativity, 171
geodesic, 171
geometric series, 106, 131, 147, 153
Green's Theorem, 174

Hardy, G.H., 117, 120, 121, 124, 133
Heron, 160
Hilbert, D., 122, 175
L'Hôpital's Rule, 141
L'Hôpital, G.F.A. de, 141

indirect proof, 108-109, 120-121, 124-125, 182-183, 235, 236
induction, mathematical, 47-48, 59, 61
Intermediate Value Theorem, 200

Kepler, J., 196-197
Kepler's Laws, 196-197

Leonardo of Pisa (Fibonacci), 57
limits, 58, 79, 146, 151, 152, 175-184
locus, 164, 165, 173-174
Loyd, S., 244

Machin, J., 211
modular arithmetic, 22-29, 102, 213

Index (cont'd)

Napoleon, 219, 223
Nash, J., 64
Newton, I., 8, 78, 195, 197
numbers,
 algebraic, 118-119, 236, 237-240
 complex, 40, 118-119, 201, 202, 207-223, 233, 237-240
 constructible, 118-119, 215-217
 irrational, 118-119, 120-122, 218, 237
 rational, 118-119, 120-122, 147, 214, 218, 229, 236, 237, 240
 real, 118-119, 120, 232-233, 240
 transcendental, 118-119, 122, 237-240

parabola, 78, 79, 168
Pascal, B., 98
Pascal's Triangle, 45, 62, 93, 95, 98-102, 142, 148, 193
platonic solids, 50, 53, 152
power series, 140, 210
Prisoner's Dilemma, 64
probability, 70, 73, 92-97, 103-104, 123, 143, 187-188
proofs by diagram, 86, 87, 88, 135
Pythagoras, 154
Pythagoreans, 121, 128-129, 154

radians, 208, 210, 211
Ramanujan, S., 133
reflection, 168-169, 174
Remainder Theorem, 26
Riemann Hypothesis, 122, 243
Russell, B., 228, 233
Russell's Paradox, 184, 228, 233

Snell's Law, 170
symmetry, 36, 39, 44, 51, 52, 65, 92-97, 100, 103-104, 112, 174

Tic-Tac-Toe, 39, 65
trigonometry, 86, 87, 88, 130, 146, 152-153, 154-157, 208, 210-214, 217, 222
twin primes, 182

Von Neumann, J., 184

Wiles, A., 123

Zeno, 177-178