

Index

- acoustic coupler, 320
- Adams-Bashforth method, 61, 68
- algorithm, 258
- Apple IIe, 366
- Apple IIGS, 366, 371
- armament behaviour, 242-3
- asteroid, 63
- Atari, 319, 361
- atlas of the Mandelbrot set, 379
- attractor, 49, 54, 92, 172
 - Hénon, 62
 - Lorenz, 64-5
 - parabola, 57
 - Rössler, 69, 285
 - strange, 49, 56
 - Verhulst, 58
- backwards iteration, 122, 124
- basin of attraction, 50, 75, 98, 99, 105
- Berkeley Pascal, 309
- bifurcation, 39, 46, 54
- billiards, 238
- binary representation, 218
- BinHex, 324
- boolean function, 94
- Borland, 329
- boundary, 51, 80, 89, 98, 108, 199
- breakdown of predictability, 77, 87
- butterfly effect, 67, 236, 237
- Button, 32
- C (programming language), 361
- cartesian coordinates, 85
- cascade, 41
- causality principle, 4, 237
 - strong, 4, 77, 238
- chaos, 2, 53, 72, 87, 232-45
 - researcher, 244
 - theory, 244
- chaotic zone, 78
- Cohen, Richard J., 241
- Colour Graphics Adaptor (CGA), 329
- computability of the world, 233
- complex
 - arithmetic, 83
 - conjugate, 83
 - number, 81
 - plane, 84
- computer-aided design (CAD), 180
- computer
 - art, 8
 - graphics, 180
- graphics experiments, 6
- contour line, 99, 144
- C-curve, 206, 210
- connected set, 128, 157
- CP/M, 366
- cube root of unity, 93, 106
- Curry-Garnett-Sullivan, 167, 170
- cyclic sequence, 168
- data compression, 311
- data transmission, 474
- DATEX, 320
- decimal representation, 218
- delta (Feigenbaum number), 46, 48
- dragon curve, 205, 209
- dynamical system, 5, 18, 54
- electronic mail (e-mail), 319
- Euler's method, 61
- Excel, 22, 132
- experimental mathematics, 2, 54

- Fatou, Pierre, 104
- feedback, 4, 34
 - scheme, 6, 73
- Feigenbaum, Mitchell, 40
 - diagram, 39, 40, 43-4, 50, 160, 162
 - landscape, 51
 - number, 47
 - scenario, 54, 56
- fibrillation, 241
- fig-tree, 37, 44, 159
- file transfer 319
- fingerprint of chaos, 237
- fractal, 102, 104, 199, 267
 - dimension, 103
 - graphics, 204-29
 - landscape 211-6, 273
- frontier, 54

- Gaussian plane, 72, 84
- Gingerbread Man, *see* Mandelbrot set
- gipsy moth, 243
- global variable, 265
- graftal, 216-23, 273
- Grand Canyon, 248
- graphical iteration, 34
- graphics procedure, 29
- GraphMode, 32
- grey tone, 79, 107

- hard copy, 303
- heartbeat, 240-1
- Hénon, Michel, 62, 64
- Hercules Graphics Adaptor (HGA), 329
- Hilbert curve, 204, 208
- Huffman method, 319

- IBM-PC, IBM-AT, 328, 375
- imaginary number, 82
- Include-File, 332, 352, 362
- integer encoding, 305
- inversion, 186
- iteration, 19, 34

- Julia, Gaston, 88, 104
- Julia set, 88, 105, 110, 111-21, 129-30, 184, 288
 - inverted, 189-91
 - with interior structure, 201

- KAM theorem, 62
- Kermit, 319, 339, 374
- Keypressed, 47
- Koch curve, 206, 209

- layout of Pascal programs, 258, 264
- Lightspeed C, 360
- Lightspeed Pascal, 353
- limits to predictability, 238, 244
- look-up table, 311
- Lorenz, Edward N., 64

- MacApp, 360
- MacGet and MacPut, 376
- machine-independence, 258, 264
- Macintosh, 41, 319, 347
- magnetism, 244
- Mandelbrot, Benoit B., 102, 108, 138
- Mandelbrot set, 3, 128-66, 185, 198, 293
 - inverted, 188-9
 - with interior structure, 200
- May, Robert M., 244
- measles, 19

- measuring instrument, 25
- meteorology, 232
- modem, 320
- Modula II, 360
- modulus, 84
- Monument Valley, 248
- MPW Pascal, 360
- MS-DOS, 319, 328

- Newton's method, 72, 80, 86, 92, 104-5
- nonlinear, 45

- ORCA Pascal, 366
- order and chaos, 79
- orthogonal projection, 194

- PAD parameter, 320
- Papert, Seymour, 206
- paradigm, 2
- parity, 375
- period doubling, 41, 54
- periodicity, 159
- phase transition, 243
- point of no return, 54
- polar coordinates, 84, 122
- production rule, 216
- projection, 192
 - centre, 192
- promptline, 338
- PS/2 system, 328
- pseudo-3D graphics, 165, 182, 300

- quadratic iteration, 131, 291
- quasi-Feigenbaum diagram, 164, 297
- quasi-Mandelbrot set, 146-7, 149

- RAMdisk, 311
- real number, 82
- repetital, 224
- repetitive design, 224-9
- Research Group in Complex Dynamics, Bremen, 2, 102, 138
- Riemann sphere, 192
- run length encoding, 304

- Saperstein, Alvin M., 242
- screen coordinates, 27
- section, 41
- self-similarity, 42, 61, 103
- Sierpiński curve, 205
- snowflake curve, 206, 210
- soft copy, 303
- spreadsheet, 22, 131-4
- stop bits, 375
- ST Pascal Plus, 361
- strange attractor, *see* attractor
- structured program, 258
- SUN, 41, 309, 337, 375

- tap, 238-40
- TextMode, 32
- three-dimensional graphics, 180-6
- TML Pascal, 359, 366, 371
- tomogram, 145
- transformation equation, 28
- transient, 38
- tree graphics, 212
- Turbo Pascal, 330, 353, 366
- Turbo Pascal reference program, 331
- turtle graphics, 206, 267

- UCSD Pascal, 366
- unit circle, 192

universal coordinate system, 27

Unix, 309, 322, 337, 375

useful subroutine, 25, 266

V24 interface, 374

VAX, 41, 309, 337, 375

war, 241-3

weather, 4, 232-8

 forecast, 66, 234-6

window, 27, 41

zero, 73, 86