

Index

- Adams, John Q., 103
 Affine
 equivalence, 16
 space, 15
 transformation, 16
 Apollonius, 2, 309, 393
 Asymptote, 22
- Ball model, 15
 Bezout, 186
 Boundary point, 383
- Camera obscura, 12
 Cauchy, Augustin-Louis, 381, 383
 Chandra X-ray telescope, 357
 Chasles, Michel, 11
 Circle of best fit, 240, 251
 Confocal conics, 136
 Continuous, 382
 Copernicus, Nicolaus, 310
 Curvature of a curve, 236, 242
 Curvature of a surface, 245, 258
- Dandelin, Germinal-Pierre, 86, 141
 Da Vinci, Leonardo, 11
 Dehomogenization, 35
 Desargues, Gerard, 11
 Descartes, René, 41, 306
 Diffraction ruling, 348
 Dirac, Paul Adrien Maurice, 75
 Directrix, 107, 117, 122, 138, 364
 Discriminant, 150, 161
 Disk model, 15, 61, 194
 Distance function, 105, 291, 294
- Eccentricity, 85, 107, 126, 130, 135, 313,
 361, 364
 Eigenline, 153, 166
 Eigenvector, 153
- Einstein, Albert, 42, 68, 91, 111, 259–261,
 263, 328
 Euclid, 1
 Euler, Leonhard, 186, 216, 217, 252, 380,
 383
 Eulerian angles, 259
 Euler's theorem of 1760, 252
- Fast Fourier Transforms, 356
 Feynman, Richard, 283, 393
 Foci, 93, 98
 Focus, 4, 89, 104, 107, 364
 Fundamental form
 first, 257
 second, 257
 Fundamental theorem of algebra, 152, 200
- Galileo Galilei, 311, 329, 337
 Gauss curvature, 245, 248, 275
 Gauss map, 245
 General theory of relativity, 42, 68, 91, 260,
 262, 263, 328
 Genus formula, 232
- Halley, Sir Edmond, 317, 321
 Harish-Chandra, 164
 Hausdorff, Felix, 382, 383
 Homogeneous, 16, 17, 31, 33, 35, 60, 179
 Huygens' principle, 345, 346
 Huygens, Christiaan, 306, 345
- Incidence/reflection property, 78, 79, 83,
 103, 301
 Interference fringes, 344, 346, 348, 351, 357
- Jansky, Karl, 354
- Kepler, Johannes, 4, 309, 312, 317, 337
 Kepler's laws, 312, 313, 316, 332, 337, 338,
 393

- Latus rectum, 84
 Leibnitz, G., 7
 Lexicographic ordering, 76
 Light cone, 67, 110
 Line at infinity, 15, 16, 23, 29, 30, 122, 179, 185, 198, 202, 230
 Linking number, 193, 213

 Metric, 24, 27, 30, 51, 263, 265, 284
 Meusnier's theorem, 272, 282
 Michelson, Albert, 348, 352
 Minkowski plane, 67, 68, 96, 108, 131, 162, 197, 218
 Minkowski, Hermann, 68
 Mormon tabernacle, 104
 Multiplicity, 70, 152, 170, 175, 185, 186, 394

 Newton, Sir Isaac, 42, 240, 263, 306, 316, 317, 321, 324, 326, 328, 337, 363
 Null line, 100, 101, 109, 116, 197, 231
 Nutation, 20

 Open set, 17, 178, 179, 182, 381, 382
 Order of a polynomial, 191, 201, 212
 Orientable, 54, 179, 182

 Pappus of Alexandria, 211
 Pappus' theorem, 212, 213
 Pascal, Blaise, 187
 Pascal's theorem, 187, 203
 Pinhole box, 12
 Plato, 309, 310
 Poincaré, Henri, 383
 Point(s) at infinity, 10, 12, 14, 15, 20, 30, 31, 46, 62, 132, 175, 176, 178, 179, 194
 Polar equation, 314, 315, 331, 360, 363, 378
 Poncelet, Jean-Victor, 22
 Precession, 327, 394
Principia, 317, 321

 Projective
 geometry, 22, 178, 209, 379
 line, 30, 178
 plane, 9–11, 29
 space, 14, 15, 178
 transformation, 16, 20, 178

 Quadratic form, 150
 Quetelet, Adolphe, 86, 141

 Radio telescope, 355
 Reber, Grote, 354
 Retrograde motion, 310–312
 Riemann, G. F. Bernhard, 383
 Riemann sphere, 133, 135, 233

 Schroeder, Erwin, 75
 Semi-latus-rectum, 84, 314, 361, 364, 370, 375, 378
 Separation (squared), 66, 67, 96, 109, 130, 197, 218
 Sphere model, 11, 14, 15, 58
 Spherical Pythagorean theorem, 286
 Square-root construction, 308
 Stakes and string method, 4, 5, 86, 103, 287, 339, 341, 366, 376
 Statuary Hall, 103
 Stereographic projection, 133

Theorema egregium, 264–6, 282
 Three tangents theorem, 213
 Topological manifold, 386
 Topological space, 382
 Tractrix, 122, 266
 Tycho Brahe, 312, 337

 Very Large Array (VLA), 356, 357

 Weyl, Hermann, 90
 Whitney, Hassler, xii, 132
 Wren, Christopher, 317