

INDEX

- Absolute value 89
- Amicable pairs 7
- Angles
 - degrees 185
 - radians 186
- Approximations 71
- Arbitrary constant 233
- Arc length 187
- Area
 - triangle 311
 - by integration 225, 235
 - sector 187
- Arithmetic
 - progression 254
 - sequences and series 254
- Arrangements 179
- Bar charts 329
- Bar codes 8
- Bases
 - logarithmic 218
- Binomial
 - coefficients 175, 181
 - expansion 173
 - theorem 167, 181
- Bode's law 2
- Box and whisker plot 332
- Carbon dating 205
- Cartesian coordinates 129
- Cartesian equation 339
- Central tendency 320
- Change of sign method 382
- Circles
 - arc length 187
 - area of sector 187
 - equation 343
- Circular measure 185
- Coefficients
 - binomial 175, 181
- Combinations 478
- Combined events 403
- Complement 403
- Completing the square 74
- Composite bar chart 330
- Composite functions 33, 272
- Conditional probability 410
- Convergence 388
- Convergent sequences 251
- Conversion rates 21
- Coordinates
 - Cartesian 129
 - mid point of a line 131
- Cosine rule 308
- Cubic equations 97
- Cumulative frequency 322
- Curve sketching 281, 341
- Data analysis 315
- Deceptive diagrams 335
- Differential equations 365
- Differentiation 144, 157, 265, 351
 - composite functions 272
 - linearity 161
 - logarithms 219
 - maximum and minimum points 267
 - points of inflection 208
 - products and quotients 278
 - stationary points 260
 - trigonometric functions 351
- Dipstick 425
- Discriminant 80
- Divergent sequences 251
- Domain 23, 39
- Empirical probabilities 400
- Equations
 - Cartesian 339
 - cubic 97
 - exponential 210
 - fractions 81
 - graphic approach 375
 - parametric 339
 - polynomial 105
 - quadratic 68
 - simultaneous 63
 - straight line 123
 - trigonometrical 194, 300, 301
- Errors
 - absolute 393
 - propagation 394
 - relative 393
- Even function 29
- Exhaustive events 407
- Exponential
 - equations 210
 - functions 203, 208

- Expressions
 - factorising 65
 - multiplying out 65
- Factors 99, 109
- Factor theorem 103, 112
- Factorials 179
- FOG index 13
- Formula
 - quadratic equation 79
 - series summation 262
- Frequency table 317
- Functions 24
 - completing the square 74
 - composite 33, 314
 - domain and range 23, 35
 - even 29
 - exponential 203, 272
 - inverse 37
 - linear 119
 - logarithmic 213
 - many to one 42
 - modulus 89
 - odd 29
 - one to one 43
 - quadratic 74
 - trigonometric 189, 197, 285
- Geometric progression 246
- Geometric sequences and series 246
- Gradient 120, 123, 136, 138
- Graphs 21
 - conversion rates 21
 - functions 24
 - gradient 123, 136, 138
 - intercept 123
 - inverse function 40
 - linear 123
 - maximum and minimum 77, 150, 267
 - modulus 89
 - quadratic 69
 - transformations 49
 - trigonometric 191
 - stationary points 150
 - symmetry 40
 - tangent and normal 162
- Growth and decay 201
- Half life 204
- Handicapping weightlifters 14
- Heptathlon 3
- Histograms 329
- Identities
 - trigonometrical 287
- Indefinite integral 233, 238
- Independent probabilities 413
- Indices 17, 169
- Inequalities 64, 85, 127
 - modulus 90
- Instantaneous speed 135
- Integrals
 - definite 236
 - indefinite 233
 - standard 233
- Integration 221, 276, 359
 - arbitrary constant 233
 - by parts 342
 - initial conditions 240
 - reverse of differentiation 230
 - substitution 359
- Intercept 123
- Interquartile range 322
- Intersection 404
- Interval bisection 380
- Inverse functions 37
- Irrational numbers 16, 114
- Kepler's third law 38, 246
- Leibniz 144
- Linear
 - functions 119
 - graphs 123
 - inequalities 127
 - programming 129
- Locating roots 382
- Logarithms 213
 - bases 218
 - derivative 219
- Lower percentile 322
- Malthus 360
- Mappings 22
- Mathematical modelling 13, 421
- Maximum and minimum 77, 150, 267
- Mean 324
- Measure of central tendency 320
- Measure of spread 320
- Median 321
- Mid point of a line 131
- Mode 320
- Modulus 89
- Newton, Isaac 144
- Newton's Law of Cooling 215
- Newton's method 388
- Normal 162

- Numbers
 - amicable pairs 7
 - integers 16
 - irrational 16, 114
 - perfect 5
 - rational 16, 114
 - real 16
 - transcendental 119
- Odd function 29
- Optimisation 133, 149
- Parametric differentiation 346
- Parametric equations 339
- Partial fractions 431
- Pendulum 4
- Perfect numbers 5
- Perpendicular lines 125
- Pie chart 332
- Point of inflection 268
- Polynomial 103
 - equations 105
 - factorising 109
- Population 221, 366, 369
- Powers 167
 - fractional 28
 - odd and even 28
- Probability
 - combined events 403
 - complement 403
 - conditional 410
 - empirical 400
 - exhaustive events 407
 - independent 413
 - intersections 404
 - theoretical 397
 - union 405
- Problem solving 59
- Propagation of errors 393
- Quadratic
 - equation 68, 79
 - formula 79
 - function 74
 - gradient 141
 - inequalities 85
- Radian measure 186
- Radioactive decay 236
- Range 320
- Range of a function 22
- Rates of change 263, 307, 357
- Rational numbers 16, 114
- Reading age formula 13
- Real number 16
- Rearrangement methods 386
- Rectangular hyperbola 344
- Reflections of graphs 40, 54
- Remainder 110
- Remainder theorem 113
- Roots 98, 102, 104
- Sector area 187
- Semi-interquartile range 322
- Sequences 245
 - convergent and divergent 251
 - limits 256
- Series 245
 - sigma notation 258
 - summation formulae 262
- Sigma notation 258
- Simultaneous equations 63
- Sine rule 303
- Spread 320
- Standard form 19
- Standard deviation 326
- Stationary points 159, 260
- Stem and leaf diagram 317
- Stock control 421
- Straight line equation 123
- Stretching graphs 52
- Summation formulae 262
- Surds 116
- Tangents 136, 162
- Theoretical probability 397
- Transcendental numbers 119
- Transformation of graphs 49, 76
- Translation 50
- Trial and improvement 72
- Triangle area 362
- Trigonometry 185, 285
 - addition formulae 288
 - area of triangle 311
 - cosine rule 308
 - derivatives 351
 - functions 189, 197
 - identities 287
 - multiple angles 290
 - sine rule 303
 - solving equations 194, 300, 301
 - sum and product formulae 293
- Union 405
- Upper percentile 322
- Verhulst 368
- Wind chill factor 2
- Zeros of a function 98