

Index

- 2-arc, *38*
- action, *17*
 - base group, *137*
 - coset
 - left, *46*
 - right, *22*
 - faithful, *17*
 - imprimitive
 - of a wreath product, *121*
 - intransitive, *19*
 - of a direct product, *71*
 - permutationally isomorphic, *20*
 - regular
 - left, *47*
 - right, *22, 28*
 - transitive, *19*
- arc, *37*
- automorphism
 - fixed-point-free, *94*
 - Frobenius, *94*
 - of a chamber system, *277*
 - of a graph, *38*
 - of a group, *20*
 - inner, *20, 51, 145, 155*
 - uniform, *94, 200, 204, 206, 228*
 - weak
 - of a chamber system, *277*
- automorphism group
 - of a graph, *38*
 - of a group, *20*
 - of Hamming graphs, *270*
- base group, *106*
 - of a twisted wreath product, *136*
 - of a wreath product, *105*
- block, *24*
 - trivial, *26*
- block of imprimitivity, *see* block
- block system, *25*
- blow-up, *158, 162, 267, 280*
 - of a permutation group, *246*
 - of a primitive group, *8, 14, 245*
 - of a quasiprimitive group, *14, 245*
- blow-up decomposition, *252*
 - of a finite primitive group, *256*
- blow-up index, *247*

- cartesian decomposition, 2, 4, 12, 175, 203
M-normal, 87
 homogeneous, 4, 234
 inhomogeneous, 76, 118
 intransitive, 13, 73, 125, 225
 natural, 116
 normal, 87, 132, 137, 213, 253
 preserved by finite primitive group, 222
 preserved by quasiprimitive group of type CD, 208, 214
 transitive, 199, 204, 237
 of class $CD_1(G)$, 209, 237, 263
 of class $CD_3(G)$, 209, 237, 263
 of class $CD_{1S}(G)$, 209, 237, 263
 of class $CD_S(G)$, 209, 237, 263
 of class $CD_{2\not\sim}(G)$, 209, 237, 263, 291
 of class $CD_{2\sim}(G)$, 209, 237, 263
 trivial, 4
 cartesian factorisation, 6, 12, 175, 181
 abstract, 182
 homogeneous, 175
 involving a full strip, 199, 227
 non-trivial, 175
 of a characteristically simple group, 13, 199
 of a finite simple group, 13, 193, 264
 of a simple group, 204
 of elementary abelian groups, 181
 cartesian product, 2
 of complete graphs, 14
 of graphs, 269
 of sets, 115
 cartesian system of subgroups, *see* cartesian factorisation
 centraliser
 of a coset action, 46
 of a transitive group, 46, 47
 centre
 of a group, 46, 57
 chamber system, 277
 associated with a cartesian decomposition, 277
 classification of finite simple groups, 68, 94, 151, 261, 268
 clique
 in a graph, 268, 272
 code, 104, 121
 commutator, 57
 component, 73
 of a permutation group acting on a cartesian decomposition, 246, 278, 285
 connected component
 of a graph, 41
 coordinate projection, 72, 102, 153, 200
 core, 19
 cycle, 98
 in directed graph, 38
 in graph
 ii, 38

- Dedekind's Modular Law, *147*,
 148, 158, 183
- degree
 of an action, *17*
- δ -component, *121*
- derived subgroup, *57*
- diameter
 of a graph, 289
- digraph, *37*
 connected, *41*
 disconnected, *41*
 orbital, *39*, 41, 43
 strongly connected, *41*
- direct decomposition, *72*, 80, 87,
 102, 136
 trivial, *72*
- direct product, 1, 77, 80, 102
 external, *72*
 internal, *72*
 of graphs, 287
 of groups, 71
 restricted, *57*, 103
 unrestricted, *57*
- distance
 in a graph, *268*
- Embedding Theorem
 Holomorph, *52*
 Imprimitive, 111
 Wreath, 118
- factorisation, 193
 maximal, 188
 of a characteristically simple group, 199
 of a direct product, 94
 of a finite characteristically simple group
 full, 234
 full strip, 229, 239
 strong multiple, 231, 241
 of a finite group
 full, *189*
 of a finite simple group
 full, 235, 300
 strong multiple, 235,
 239, 300
 of a simple group
 cartesian, 189
 strong multiple, *189*
 with strips, 95
- FCR, *see* finitely completely reducible
- Fitting's Theorem, 61
- fixed point, *29*, 47
 of an automorphism, 94
- forest, *97*
- Frobenius kernel, 59
- gallery
 in a chamber system, *277*
- γ -part
 of a cartesian decomposition, *115*
- generalised quadrangle, 269
- graph, *37*
 2-arc-transitive, 14, 40,
 268, 290
 2-distance-transitive, 267,
 290
 s -arc-transitive, 9, 38, 267
 arc-transitive, 14, 38, 278,
 285
 bipartite, *268*
 complete, 268
 complete bipartite, *268*
 connected, *41*
 corresponding to a cartesian decomposition,
 278

- directed, *see* digraph
 disconnected, 41
 distance-transitive, 10, 289
 edge-coloured, 276
 edge-transitive, 38, 286
 empty, 285
 Hamming, 267, 270, 290
 locally primitive, 9
 locally quasiprimitive, 9
 of a cartesian decomposition, 269
 orbital, 39
 regular, 269
 undirected, *see* graph, 267, 268
 vertex-transitive, 38
 grid, 10, 269
 group
 FCR, 7, 90, 106, 137
 abelian
 finitely generated, 61
 free, 61
 almost simple, 155, 156
 characteristically simple, 6, 57, 107
 divisible, 48
 elementary abelian, 48
 finite simple, 193, 196
 finitely completely reducible, 7
 Frobenius, 58
 general linear, 154
 innately transitive, 6
 irreducible, 58
 nilpotent, 61
 perfect, 79
 special dihedral, 113
 Hamming graph, 14
 arc-transitive, 14
 holomorph, 45, 50, 132, 155, 156, 255
 identity map, 20
 imprimitive action
 of a wreath product, 111
 incidence geometry, 269
 inclusion problem, 245, 259
 for quasiprimitive groups, 245
 independent set
 in a graph, 268
 Lang's Theorem, 94
 leaf
 of a forest, 97
 linear group
 imprimitive, 178
 irreducible, 178
 primitive, 178
 linear space, 9
 neighbourhood, 40
 normal subgroup
 regular, 139
 normaliser
 in a direct product, 82
 of a strip, 83
 setwise, 189
 O'Nan–Scott Theorem, 2, 7, 10, 151, 162
 orbit, 18
 Orbit-Stabiliser Theorem, 23
 orbital, 33
 diagonal, 34
 of cyclic groups, 34
 of dihedral groups, 34
 paired, 34
 self-paired, 34
 overgroup

- of a primitive permutation group, 10
- path
 - directed, 38
 - in a digraph, 38
 - in a graph, 38, 268
- permutation group, 17
 - 2-homogeneous, 36, 37
 - 2-transitive, 36, 37, 40, 62, 151
 - 2-arc-transitive, 279
 - abelian, 19
 - half-transitive, 280
 - imprimitive, 26
 - induced, 18
 - innately transitive, 5, 31, 54, 126, 142, 175
 - of diagonal quotient type, 253
 - with FCR-plinth, 199, 225
 - primitive, 2, 7, 10, 26, 36, 41, 43, 54, 58, 67, 126, 142, 151, 222, 245
 - AS type, 68, 155, 197, 223, 257, 280
 - AS_{reg} type, 156
 - basic, 8
 - CD type, 157, 223, 256
 - HA type, 154, 178, 280, 284, 292
 - HC type, 156, 223, 253, 257
 - HS type, 156, 197, 223, 253, 257
 - non-basic, 8
 - PA type, 162, 223, 256
 - SD type, 152, 157, 223, 257
 - TW type, 156, 223
 - with FCR-socle, 162
 - with a regular minimal normal subgroup, 67
 - with regular socle, 252
 - quasiprimitive, 5, 8, 10, 31, 54, 60, 126, 142, 151, 245
 - AS type, 155, 260, 291
 - AS_{reg} type, 156, 197
 - CD type, 157, 208, 256, 260, 289
 - PA type, 162, 230, 236, 259
 - SD type, 157, 197, 208, 257
 - Tw type, 156, 253
 - with FCR-socle, 162, 247
 - regular, 19, 47, 113
 - semiregular, 19, 47, 153
 - separating, 41
 - synchronising, 41
 - with finite stabiliser, 165
- permutational embedding, 20
 - of groups with cartesian decompositions, 22
- permutational isomorphism, 20, 106, 281
 - of groups with cartesian decompositions, 22
- plinth, 6, 31
 - FCR, 60, 93, 126, 149, 153
 - abelian, 154
 - diagonal, 156
 - regular, 93, 154
 - simple, 155
- product action
 - of a direct product, 71
 - of a wreath product, 114

- rank
 ii, 36
- regular embedding, 284
 non-orientable, 284
 orientable, 284
- s*-arc, 38
- Schreier's Conjecture, 68, 261, 283
- Scott's Lemma, 70, 84
- section, 77
 isomorphism between, 77
- semidirect product, 104, 136
- socle, 57, 62
 elementary abelian, 62
 simple, 62
- stabiliser
 abelian, 59, 284
 dihedral, 284
 of a point, 18
 of a set
 elementwise, 18
 setwise, 18
- strip, 13, 80, 95, 200
 covers, 81
 disjoint, 81
 full, 81, 156, 191, 227, 280
 non-trivial, 81
 support, 81
- subgroup
 characteristic, 57, 113
 core-free, 19
 diagonal, 80, 81
 maximal, 27, 147, 152
 of a symmetric group, 152, 169
 minimal normal, 9, 48, 49, 57, 107, 147
 FCR, 141, 153
 abelian, 49, 56, 58, 154, 177
 regular, 49
 transitive, 45
 of a direct product, 77
 subdirect, 79, 156, 227
- suborbit, 35
- support
 of a strip, 81
- Sylvester's Double Six Graph, 291
- symmetric group, 17
- system of imprimitivity, 25
- system of product imprimitivity, 2
- top group
 of a twisted wreath product, 136
 of a wreath product, 105
- transitive constituent, 19, 71, 79
- tree, 97
- triangle inequality, 268
- twisted wreath product, 132, 136, 152, 155
- twisting subgroup, 136
- valency, 97
 of a graph, 269
- vertex, 37
 adjacent, 37
 isolated, 268
- wreath product, 1, 8, 105, 156
 in product action, 2, 10, 196, 246, 259
- Zsigmondy's Theorem, 234