

Index of notation

pq	5	\triangleleft	86
$ X $	6	$D(A)$	86
v	6	\oplus	90
b	6	Q_p	97
$v(\ell)$	6	$L(X)$	100
$b(p)$	6	R_p	100
$\langle X \rangle$	9	p^\perp	102, 120
v_i	12	$\text{rad } S$	102
b_i	12	\sim	103, 120
$r_{ij} = r(p_i, \ell_j)$	12	\approx	105
k -line	14	$a b$	115
k -point	14	$Q(d, k)$	118
$c_{ij} = c(p_i, \ell_j)$	14	$H(d, q^2)$	119
$[\ell]$	25,70	$W(k)$	119
$>, <$	31	$T(O)$	119
$\dim V$	32	$\text{st}(p)$	120
$\#(S)$	39	ℓ^\perp	120
(c, ℓ) -collineation	48	$\text{tr}(p, q)$	121
(c, ℓ) -transitive	49	$\text{sp}(p, q)$	121
$\text{GF}(k)$	52	$n(I)$	122
$\pi(V)$	54	P_f	131
$S(V)$	62	S_f	131
$P(n, k)$	62	$\text{tr}(p, q, r)$	136
\parallel	67,84	$\text{sp}(p, q, r)$	136
ℓ_∞	71	H_k^d	141
f_π	74	$\{n; d\}$ -arc	141
$A(F)$	79	G^c	145
$\pi(A(F))$	81	E^c	145
$A(n, k)$	83	$a(\ell, \#)$	152
$C(S)$	84	$\alpha(\ell, \#)$	152
C_T	86	$T(n)$	156

Subject index

- absolute subspace, 91, 137
- acentric, 122
- adjacent, 103
- affine Pappus configuration, 82
- affine perspectivity, 75
- affine plane, 67
- affine space, 83
- affinity, 87
- antiregular, 122
- associative property, 19
- automorphism, 18
- axial collineation, 47
- axiom, 1
- axis, 47, 75

- Baer subplane, 45
- basis, 10
- block, 1 (footnote), 24
- blocking coalition, 171
- blocking set, 111, 158
- de Bruijn–Erdős theorem, 25, 26

- central collineation, 46
- centre of a collineation, 46, 73
- centre of a triad, 122
- centric, 122
- characteristic, 52, 95
- ciphertext, 172
- clique, 99
- closure, 9
- closure operator, 100
- closure property, 19
- closure space, 39
- (c, ℓ) -collineation, 48
- (c, ℓ) -transitive, 49
- collineation, 18, 46
- complement of a graph, 145
- complete graph, 20
- complete set of affine perspectivities, 77
- complete set of central collineations, 49
- complete set of dilatations, 76
- complex conjugate, 87
- component, 104
- conic, 110
- conic oval, 110
- conjugate, 98
- connected (component), 104
- connected near-linear space, 153
- connection number, 14
- consistent, 1
- copolar space, 139
- coregular, 122
- correlation, 65, 91, 137
- cover, 31
- cryptosystem, 172

- decryption function, 172
- degenerate, 90, 97
- dependent axiom system, 2
- dependent set, 10
- Desargues configuration, 49, 77
- Desarguesian, 50, 77
- design, 20
- diagonal axiom, 150
- dilatation, 47, 72, 73
- dilation, 47
- dimension, 11
- direct sum, 90
- duad, 113
- dual grid, 113
- dual space, 7
- dual statement, 42

- elation, 48
- elliptic quadric, 99
- embedding, 44
- encryption function, 172
- equivalence relation, 37
- exchange property, 30
- extended real plane, 25

192 *Subject index*

- Fano plane, 2
 field, 51
 finite rank, 101

 generalized projective space, 105
 generalized quadrangle, 112
 generates, 9, 100
 generating set, 9
 geometric graph, 145
 graph, 8
 grid, 112
 group, 19

 Hermitian, 118
 hitting set, 172
 homogeneous, 95
 homology, 48
 homology about a point, 134
 homothety, 73
 hyperbolic quadric, 99
 hyperoval, 120
 hyperplane, 22, 32

 identity, 19
 incidence matrix, 12
 incidence number, 12
 inconsistent, 1
 independent axiom system, 3
 independent set, 9
 inverse, 19
 irreducible, 103
 isomorphic, 18
 isomorphism, 18
 isotropic, 93

 key, 172
 k -line, 14
 k -point, 14

 Latin square, 88, 140
 linear function, 17
 linear space, 14, 23
 linear subspace, 99
 line at infinity, 25
 line graph, 8
 line regular, 14
 line regularity, 14

 maximal $\{n; d\}$ -arc, 141

 near-linear space, 4
 near-pencil, 27
 $\{n; d\}$ -arc, 141
 net, 139, 157
 non-degenerate, 90, 97
 non-Desarguesian, 51
 non-isotropic, 93
 normal subgroup, 86
 null, 119

 one-to-one, 17
 onto, 17
 order of an affine plane, 70
 order of an affine space, 83
 order of a projective plane, 43
 order of a projective space, 60
 order of a set, 6
 orthogonal, 88
 oval, 119
 ovaloid, 130
 ovoid, 109, 119, 170

 Pappian, 58, 82
 Pappus configuration, 58
 parabolic quadric, 98
 parallel, 67, 84
 parallel class, 68
 parallelism, 37
 parallel postulate, 25
 parameters, 114, 138, 143
 partial geometry, 138
 partial geometry of dimension 3, 155
 partial plane, 4
 Pasch's axiom, 149
 perp, 120
 perspectivity, 46
 Petersen graph, 143
 plaintext, 172
 point at infinity, 25
 point graph, 144
 point regular, 14
 point regularity, 14
 polarity, 91, 137
 polar space, 89, 107
 projection, 66
 projective hyperplane, 34
 projective n -space, 61
 projective plane, 33, 41
 projective space, 60
 proper partial geometry, 139
 proper subgeometry, 147
 proper subquadrangle, 127
 pseudo-geometric graph, 145
 punctured Fano plane, 29

 q -clan, 120
 quadrangle, 46
 quadric, 95

 radical, 102
 rank, 101, 107
 real projective plane, 25
 reducible, 103
 reflection, 72
 reflexive property, 37
 regular, 122
 restricted linear space, 37
 restriction, 6
 reflection, 72

Subject index

193

- Roman generalized quadrangle, 120
 ruled quadric, 99
- self-dual, 64
 self-polar, 137
 semi-partial geometry, 155
 Shult space, 108
 singular point, 110
 skew-field, 51, 57
 slope, 80
 space, 1
 span, 121
 span of a triad, 136
 spread, 131
 star, 120
 Steiner system, 24, 165
 Steiner triple system, 156
 strongly regular graph, 143
 subgeometry, 147
 subplane, 45
 subquadrangle, 127
 subspace, 8
 symmetric property, 37
 symmetry about a point, 133
 symplectic, 119
 syntheme, 113
- tangent, 96
 t -blocking, 159
 totally isotropic, 93
 trace, 75, 121
 trace of a triad, 136
 transitive property, 37
 translation, 39, 72, 73
 translation line, 65
 translation plane, 51
 transpose, 13
 transversal, 152
 triad, 122
 triangular graph, 156
 trivial linear space, 23
 trivial Steiner system, 25
- unicentric, 122
 unitary, 118
 unruled quadric, 99
- variety, 1
- whorl, 132
- Zorn's lemma, 100