

INDEX

- angular frequency 140
associative law for matrices 13

back substitution 17, 32
basis 54
basis, standard 54

central conic or quadric 126
characteristic equation 93
cofactor 85
column space of a matrix 65
commutative law, fails for matrix product 14
conic, central 126
constraint 134
coordinates, normal 144
coordinates with respect to a basis 56
Cramer's rule 86

determinant, definition of 74
determinant of upper triangular matrix 78
diagonalizable 101
diagonalization 102
dimension 55
dimension, invariance of 58

eigenspace 93
eigenvalue 91
eigenvector 91
elementary matrices 22
elementary row operations 18
exponential of a matrix 105

forward substitution 32
frequency 140

Gaussian reduction 17
Gauss–Jordan reduction 20
Gram–Schmidt Process 116

homogeneous system 42
hyperquadric 127

identity matrix 14
inconsistent system 25
independence, linear 52
inverse of a matrix 27
invertible matrix 27

Jordan reduction 20

Lagrange multiplier 135
linear combination 52
linear independence 52
linear independence in \mathbf{R}^n 62
LU factorization 29, 30

matrix 5
matrix, exponential of 105
matrix inverse 27
matrix, invertible 27
matrix, non-singular 25
matrix product 8
matrix, rank of 41
matrix series 106
matrix, singular 25
maxima and minima with constraints 134
minor 85

non-singular matrix 25
normal coordinates 144
normal mode 143, 144

- null space 47, 54
nullity 42, 55
- permutation matrices 35
pivot 25
polynomial equations 96
product of matrices 8
pseudo-inverse of a matrix 42
- quadric, central 126
- \mathbf{R}^n 39
range 66
rank of a matrix 41
Rayleigh–Ritz problem 137
row operations, elementary 18
row operations, reversibility of 22
- row reduced echelon form 20
row space of a matrix 66
- series of matrices 106
singular matrix 25
standard basis 54
system, homogeneous 42
system, inconsistent 25
- transpose of a matrix 83
- upper triangular matrix, determinant
of 78
upper triangular matrix 25
- vector subspace 47