

- real-valued function, 1458
- local maximum with respect to  $U$ 
  - real-valued function, 1461
- local minimum
  - real-valued function, 1458
- local minimum with respect to  $U$ 
  - real-valued function, 1460
- locally arcwise connected, 1351
- locally compact, 1360
- locally connected, 1348
- locally constant, 1345
- log-determinant function, 1475
- Lorentz form, 453
- lower bounds, 1668
  - unbounded below, 1668
- lower semi-continuous, 1826
- lower semi-continuous hull, 1826
- Möbius
  - net, 874
- magic square, 305
  - magic sum, 306
  - normal, 305
- magnification, 821, 826
- matrix, 51, 85, 824
  - adjoint, 337, 630
  - analysis, 478
  - bidagonal, 748
  - block diagonal, 172, 620
  - change of basis, 125
  - conjugate, 337, 630
  - determinant, 215, 217
  - diagonal, 555
  - Hermitian, 337, 630
  - hermitian positive definite, 280
  - HPD, 280
  - identity, 55, 86
  - inverse, 55, 87
  - invertible, 55
  - Jordan, 1109
  - minor, 216, 224
  - nonsingular, 55, 87
  - normal, 337, 630
  - orthogonal, 56, 338, 628
  - permanent, 235
  - positive definite, 1472
  - product, 86
  - pseudo-inverse, 56
  - rank normal form, 307
  - reduced row echelon, 290, 293
  - similar, 130
  - singular, 55, 87
  - skew-Hermitian, 630
  - skew-symmetric, 628
  - SPD, 280
  - square, 85
  - strictly column diagonally dominant, 277
  - strictly row diagonally dominant, 277
  - sum, 85
  - symmetric, 173, 337, 628
  - symmetric positive definite, 280
  - trace, 102, 558
  - transpose, 337
  - tridiagonal, 278, 748
  - unit lower-triangular, 258
  - unitary, 337, 630
  - upper triangular, 473, 556, 563
- matrix addition, 85
- matrix completion, 547
  - Netflix competition, 547
- matrix exponential, 365
  - eigenvalue, 574
  - eigenvector, 574
  - skew symmetric matrix, 367, 575
  - surjectivity exp:  $\mathfrak{su}(2) \rightarrow \mathbf{SU}(2)$ , 600
  - surjectivity exp:  $\mathfrak{so}(3) \rightarrow \mathbf{SO}(3)$ , 472
- matrix inversion lemma, 1531
- matrix multiplication, 86
- matrix norm, 337, 768
  - Frobenius, 340
  - spectral, 347
  - submultiplicativity, 337
- matrix norms, 60
- matrix of the iterative method, 378