

Keywords in Context for the NAG C Library, Mark 5

Robust estimation, median, median	absolute deviation, robust standard deviation	g07dac
	ACF : See Autocorrelations	
ODEs, IVP,	Adams method, until function of solution is zero, ...	d02cjc
ODEs, IVP,	Adams method with root-finding	d02qfc
1-D quadrature,	adaptive , finite interval, strategy due to Piessens and ...	d01sjc
1-D quadrature,	adaptive , finite interval, method suitable for oscillating ...	d01skc
1-D quadrature,	adaptive , finite interval, allowing for singularities at ...	d01slc
1-D quadrature,	adaptive , infinite or semi-infinite interval	d01smc
1-D quadrature,	adaptive , finite interval, weight function $\cos(\omega x)$...	d01snc
1-D quadrature,	adaptive , finite interval, weight function with end-point ...	d01spc
1-D quadrature,	adaptive , finite interval, weight function $1/(x - c)$, ...	d01sqc
1-D quadrature,	adaptive , semi-infinite interval, weight function $\cos(\omega x)$...	d01ssc
Multi-dimensional	adaptive quadrature over hyper-rectangle	d01wcc
	Add a new variable to a general linear regression model	g02dec
	Add/delete an observation to/from a general linear ...	g02dcc
	Airy function $\text{Ai}(x)$	s17agc
	Airy function $\text{Bi}(x)$	s17ahc
	Airy function $\text{Ai}'(x)$	s17ajc
	Airy function $\text{Bi}'(x)$	s17akc
Airy function	Ai (x)	s17agc
Airy function	Ai' (x)	s17ajc
... weight function with end-point singularities of	algebraico-logarithmic type	d01spc
	Allocates observations to groups according to selected ...	g03dcc
	Allocates memory to transfer function model orders	g13byc
Multivariate time series, cross	amplitude spectrum, squared coherency, bounds, ...	g13cec
	Analysis of variance, randomized block or completely ...	g04bbc
	Analysis of variance, complete factorial design, ...	g04cac
Performs principal component	analysis	g03aac
Performs canonical variate	analysis	g03acc
Performs canonical correlation	analysis	g03adc
... likelihood estimates of the parameters of a factor	analysis model, factor loadings, communalities and ...	g03cac
... covariance matrices and matrices for discriminant	analysis	g03dac
Hierarchical cluster	analysis	g03ecc
K -means cluster	analysis	g03efc
Performs principal coordinate	analysis , classical metric scaling	g03fac
	Approximation	e02
	Approximation of special functions	s
	arc $\tanh x$	s11aac
	arc $\sinh x$	s11abc
	arc $\cosh x$	s11acc
Safe range of floating-point	arithmetic	X02AMC
Parameter of floating-point	arithmetic model, b	X02BHC
Parameter of floating-point	arithmetic model, p	X02BJC
Parameter of floating-point	arithmetic model, e_{\min}	X02BKC
Parameter of floating-point	arithmetic model, e_{\max}	X02BLC
Parameter of floating-point	arithmetic model, ROUNDS	X02DJC
Univariate time series, sample	autocorrelation function	g13abc
Univariate time series, partial	autocorrelations from autocorrelations	g13acc
Least-squares cubic spline curve fit,	automatic knot placement	e02bec
Least-squares surface fit by bicubic splines with	automatic knot placement, data on rectangular grid	e02dcc
Least-squares surface fit by bicubic splines with	automatic knot placement, scattered data	e02ddc
Parameter of floating-point arithmetic model, b		X02BHC
	B-splines	e02
Matrix-vector product, real rectangular	band matrix (dgbmv)	f06pbc
Matrix-vector product, real symmetric	band matrix (dsbmrv)	f06pdc
Matrix-vector product, real triangular	band matrix (dtbmrv)	f06pgc
System of equations, real triangular	band matrix (dtbsv)	f06pkc
Matrix-vector product, complex rectangular	band matrix (zgbmv)	f06sbc
Matrix-vector product, complex Hermitian	band matrix (zhbmrv)	f06sdc
Matrix-vector product, complex triangular	band matrix (ztbmrv)	f06sgc
System of equations, complex triangular	band matrix (ztbsv)	f06skc
... of real symmetric positive-definite variable-	bandwidth matrix	f01mcc
Solution of real symmetric positive-definite variable-	bandwidth simultaneous linear equations (coefficient ...	f04mcc
ODEs, stiff IVP,	BDF method, until function of solution is zero, ...	d02ejc
Kelvin function	bei x	s19abc
Kelvin function	ber x	s19aac
	Bessel function $Y_0(x)$	s17acc
	Bessel function $Y_1(x)$	s17adc

	Bessel function $J_0(x)$	s17aec
	Bessel function $J_1(x)$	s17afc
	Modified Bessel function $K_0(x)$	s18acc
	Modified Bessel function $K_1(x)$	s18adc
	Modified Bessel function $I_0(x)$	s18aec
	Modified Bessel function $I_1(x)$	s18afc
	Modified Bessel function $e^x K_0(x)$	s18ccc
	Modified Bessel function $e^x K_1(x)$	s18cdc
	Modified Bessel function $e^{- x } I_0(x)$	s18cec
	Modified Bessel function $e^{- x } I_1(x)$	s18cfc
... probability density function probabilities for the	beta distribution	g01eec
Computes deviates for the	beta distribution	g01fec
Generates a vector of pseudo-random numbers from a	beta distribution	g05fec
... unsymmetric linear system, RGMRES, CGS or	Bi-CGSTAB method, preconditioner computed by ...	f11dcc
... unsymmetric linear system, RGMRES, CGS, or	Bi-CGSTAB method, Jacobi or SSOR preconditioner ...	f11dec
Interpolating functions, fitting	bicubic spline, data on rectangular grid	e01dac
Least-squares surface fit by	bicubic splines with automatic knot placement, data on ...	e02dcc
Least-squares surface fit by	bicubic splines with automatic knot placement, ...	e02ddc
Evaluation of a fitted	bicubic spline at a vector of points	e02dec
Evaluation of a fitted	bicubic spline at a mesh of points	e02dfc
	Binomial distribution function	g01bjc
Fits a generalized linear model with	binomial errors	g02gbc
... vector for generating pseudo-random integers,	binomial distribution	g05edc
Computes probability for the	bivariate Normal distribution	g01hac
... squared coherency, bounds, univariate and	bivariate (cross) spectra	g13cec
... time series, gain, phase, bounds, univariate and	bivariate (cross) spectra	g13cfc
	Airy function Bi (x)	s17ahc
	Airy function Bi' (x)	s17akc
Analysis of variance, randomized	block or completely randomized design, treatment ...	g04bbc
Integer programming problem, branch and	bound method	h02bbc
	ODEs, boundary value problem, finite difference technique ...	d02gac
	ODEs, boundary value problem, finite difference technique ...	d02gbc
	ODEs, general nonlinear boundary value problem, finite difference technique ...	d02rac
	Bounded influence: See Robust	
... variables, quasi-Newton algorithm, simple	bounds , using function values only	e04jbc
... variables, quasi-Newton algorithm, simple	bounds , using 1st derivatives only	e04kbc
... variables, modified Newton algorithm, simple	bounds , using 1st and 2nd derivatives (comprehensive)	e04lbc
Multivariate time series, noise spectrum,	bounds , impulse response function and its standard ...	g13cgc
Multivariate time series, gain, phase,	bounds , univariate and bivariate (cross) spectra	g13cfc
... cross amplitude spectrum, squared coherency,	bounds , univariate and bivariate (cross) spectra	g13cec
... eigenvectors of real nonsymmetric matrix (Black	Box)	f02ecc
... of complex nonsymmetric matrix (Black	Box)	f02gcc
... method, preconditioner computed by f11jac (Black	Box)	f11jcc
... method, Jacobi or SSOR preconditioner (Black	Box)	f11jec
Integer programming problem,	branch and bound method	h02bbc
... allowing for singularities at user-specified	break-points	d01slc
Zero of continuous function in given interval,	Bus and Dekker algorithm	c05sdc
	Performs canonical variate analysis	g03acc
	Performs canonical correlation analysis	g03adc
... quadrature over hyper-rectangle, Monte	Carlo method	d01xbc
... finite interval, weight function $1/(x - c)$,	Cauchy principal value (Hilbert transform)	d01sqc
... real sparse unsymmetric linear system, RGMRES,	CGS or Bi-CGSTAB method, preconditioner computed ...	f11dcc
... real sparse unsymmetric linear system, RGMRES,	CGS , or Bi-CGSTAB method, Jacobi or SSOR ...	f11dec
Evaluation of fitted polynomial in one variable from	Chebyshev series form (simplified parameter list)	e02aec
	Check user's function for calculating 1st derivatives	c05zcc
	Check user's function for calculating 1st derivatives of ...	e04hcc
	Check user's routine for calculating 2nd derivatives of ...	e04hdc
	Check user's function for calculating Jacobian of 1st ...	e04yac
Computes probabilities for	chi-squared distribution	g01ecc
Computes deviates for the	chi-squared distribution	g01fcc
	chi-squared statistics for two-way contingency table	g11aac
	Cholesky factorization: See Factorization	
	Circular convolution or correlation of two real vectors	c06ekc
	Ci (x)	s13acc
Cosine integral	classical metric scaling	g03fac
Performs principal coordinate analysis,	Cline , two dimensions	e01sac
Interpolating functions, method of Renka and	Cline method	e01sac
... memory freeing function for use with Renka and	Cline method	e01sac
	Hierarchical cluster analysis	g03ecc
	K -means cluster analysis	g03efc
Computes	cluster indicator variable (for use after g03ecc)	g03ejc
... positive-definite simultaneous linear equations (coefficient matrix already factorized by f03aec)		f04agc

Solution of real simultaneous linear equations (coefficient matrix already factorized by f03afe)	f04ajc
Solution of complex simultaneous linear equations (coefficient matrix already factorized by f03ahc)	f04akc
... positive-definite simultaneous linear equations (coefficient matrix already factorized by f01bnc)	f04awc
... variable-bandwidth simultaneous linear equations (coefficient matrix already factorized by f01mcc)	f04mcc
Initialization of trigonometric coefficients for FFTs	c06gzc
Computes factor score coefficients (for use after g03cac)	g03ccc
... time series, cross amplitude spectrum, squared coherency , bounds, univariate and bivariate (cross) ...	g13cec
Operations with orthogonal matrices, form columns of Q after factorization by f01qcc	f01qec
Operations with unitary matrices, form columns of Q after factorization by f01rcc	f01rec
... of a factor analysis model, factor loadings, communalities and residual correlations	g03cac
Complement of cumulative normal distribution ...	s15acc
Complement of error function $\operatorname{erfc} x$	s15adc
Analysis of variance, complete factorial design, treatment means and ...	g04cac
Complex number from real and imaginary parts	a02bac
Complex number raised to an integer power	a02ddc
Complex exponential	a02dhc
Complex number raised to real power	a02dec
Complex number raised to complex power	a02dfc
Complex logarithm	a02dgc
Complex cosine	a02dkc
Complex conjugate of Hermitian sequence	c06gbc
Complex conjugate of complex sequence	c06gcc
Complex conjugate of multiple Hermitian sequences	c06ggc
Real part of a complex number	a02bbc
Imaginary part of a complex number	a02bcc
Addition of two complex numbers	a02cac
Subtraction of two complex numbers	a02cbc
Multiplication of two complex numbers	a02ccc
Quotient of two complex numbers	a02cdc
Negation of a complex number	a02cec
Conjugate of a complex number	a02cfc
Equality of two complex numbers	a02cgc
Inequality of two complex numbers	a02chc
Argument of a complex number	a02dac
Modulus of a complex number	a02dbc
Square root of a complex number	a02dcc
All zeros of complex polynomial, modified Laguerre method	c02afc
Single 1-D complex discrete Fourier transform	c06ecc
Multiple 1-D complex discrete Fourier transforms	c06frc
2-D complex discrete Fourier transform	c06fuc
Convert Hermitian sequences to general complex sequences	c06gsc
LL^H factorization of complex Hermitian positive-definite matrix	f01bnc
All eigenvalues and eigenvectors of complex Hermitian matrix	f02axc
All eigenvalues of complex Hermitian matrix	f02awc
SVD of complex matrix	f02xec
LU factorization and determinant of complex matrix	f03ahc
Solution of complex Hermitian positive-definite simultaneous linear ...	f04awc
Unconstrained minimum, pre- conditioned conjugate gradient algorithm, function of ...	e04dgc
Simple linear regression confidence intervals	g02cbc
... in means between two Normal populations, confidence interval	g07cac
Conjugate of a complex number	a02cfc
Complex conjugate of Hermitian sequence	c06gbc
Complex conjugate of complex sequence	c06gcc
Complex conjugate of multiple Hermitian sequences	c06ggc
Unconstrained minimum, pre- conditioned conjugate gradient algorithm, function of several ...	e04dgc
Solution of real sparse symmetric linear system, conjugate gradient/Lanczos method, preconditioner/	f11jcc
Solution of real sparse symmetric linear system, conjugate gradient/Lanczos method, Jacobi or SSOR/	f11jec
Rank-1 update, complex rectangular matrix, conjugated vector (zgerc)	f06snc
Mathematical constants	x01
Machine constants	x02
Convex QP problem or linearly- constrained linear least-squares problem	e04ncc
... several variables, sequential QP method, nonlinear constraints , using function values and optionally 1st ...	e04ucc
Minimum of a sum of squares, nonlinear constraints , sequential QP method, using function ...	e04unc
... of a general linear regression model for given constraints	g02dkc
... of parameters of a general linear model for given constraints	g02gkc
χ^2 statistics for two-way contingency table	g11aac
... difference technique with deferred correction, continuation facility	d02rac
Zero of continuous function in given interval, Bus and Dekker ...	c05sdc
Kalman filters, controller Hessenberg transformation	g13ewc
Convert Hermitian sequences to general complex ...	c06gsc
Convex QP problem or linearly- constrained linear ...	e04ncc

Circular	convolution or correlation of two real vectors	c06ekc
... problem, finite difference technique with deferred	correction , simple nonlinear problem	d02gac
... problem, finite difference technique with deferred	correction , general linear problem	d02gbc
... problem, finite difference technique with deferred	correction , continuation facility	d02rac
Circular convolution or	correlation of two real vectors	c06ekc
Computes (optionally weighted)	correlation and covariance matrices missing values	g02bxc
Calculates a robust estimation of a	correlation matrix, Huber's weight function	g02hkc
Performs canonical	correlation analysis	g03adc
... model, factor loadings, communalities and residual	correlations	g03cac
Largest permissible argument for sin and	cos	X02AHC
	cosh x	s10acc
	arc cosh x	s11acc
Complex	cosine	a02dkc
Discrete	cosine transform	c06hbc
Discrete quarter-wave	cosine transform	c06hdc
	Cosine integral $Ci(x)$	s13acc
	Covariance matrix for nonlinear least-squares problem	e04ycc
Computes (optionally weighted) correlation and	covariance matrices	g02bxc
Computes test statistic for equality of within-group	covariance matrices and matrices for discriminant ...	g03dac
... squared distances for group or pooled variance-	covariance matrices (for use after g03dac)	g03dbc
Kalman filters, square root,	covariance , time varying	g13eac
Kalman filters, square root,	covariance , time invariant	g13ebc
Multivariate time series, smoothed sample	cross spectrum using spectral smoothing by the ...	g13cdc
... coherency, bounds, univariate and bivariate	(cross) spectra	g13cec
Multivariate time series,	cross amplitude spectrum, squared coherency, bounds, ...	g13cec
... gain, phase, bounds, univariate and bivariate	(cross) spectra	g13cfc
	Crout's method: See <i>LU</i> factorization	
Interpolating functions,	cubic spline interpolant, one variable	e01bac
... functions, monotonicity-preserving, piecewise	cubic Hermite, one variable	e01bec
Least-squares curve	cubic spline fit (including interpolation)	e02bac
Evaluation of fitted	cubic spline, function only	e02bbc
Evaluation of fitted	cubic spline, function and derivatives	e02bcc
Evaluation of fitted	cubic spline, definite integral	e02bdc
Least-squares	cubic spline curve fit, automatic knot placement	e02bec
	Cumulative normal distribution function $P(x)$	s15abc
Set up reference vector from supplied	cumulative distribution function or probability ...	g05exc
Complement of	cumulative normal distribution function $Q(x)$	s15acc
Least-squares	curve fit, by polynomials, arbitrary data points	e02adc
Least-squares	curve cubic spline fit (including interpolation)	e02bac
Least-squares cubic spline	curve fit, automatic knot placement	e02bec
Fresnel integral	$C(x)$	s20adc
... spectral smoothing by the trapezium frequency (Daniell) window		g13cbc
... spectral smoothing by the trapezium frequency (Daniell) window		g13cdc
Singular value	decomposition : See SVD	
... value problem, finite difference technique with	deferred correction, simple nonlinear problem	d02gac
... value problem, finite difference technique with	deferred correction, general linear problem	d02gbc
... value problem, finite difference technique with	deferred correction, continuation facility	d02rac
Interpolated values, interpolant computed by e01bec,	definite integral, one variable	e01bhc
Evaluation of fitted cubic spline,	definite integral	e02bdc
LL^H factorization of complex Hermitian positive-	definite matrix	f01bnc
LDL^T factorization of real symmetric positive-	definite variable-bandwidth matrix	f01mcc
... where A and B are symmetric and B is positive-	definite	f02adc
... where A and B are symmetric and B is positive-	definite	f02aec
... and determinant of real symmetric positive-	definite matrix	f03aec
Solution of real symmetric positive-	definite simultaneous linear equations (coefficient ...	f04agc
Solution of complex Hermitian positive-	definite simultaneous linear equations (coefficient ...	f04awc
Solution of real symmetric positive-	definite variable-bandwidth simultaneous linear ...	f04mcc
	Degenerate symmetrised elliptic integral of 1st kind ...	s21bac
... of continuous function in given interval, Bus and	Dekker algorithm	c05sdc
	Delete a variable from a general linear regression model	g02dfc
Add/delete an observation to/from a general linear ...		g02dcc
Constructs	dendrogram (for use after g03ecc)	g03ehc
Free NAG allocated memory for the	dendrogram array in g03ehc	g03zxc
Computes upper and lower tail and probability	density function probabilities for the beta distribution	g01eec
... interpolant computed by e01bec, function and 1st	derivative , one variable	e01bgc
Minimum, function of one variable, using 1st	derivative	e04bbc
Solution of system of nonlinear equations using 1st	derivatives	c05ubc
Check user's function for calculating 1st	derivatives	c05zcc
Evaluation of fitted cubic spline, function and	derivatives	e02bcc
... algorithm, function of several variables using 1st	derivatives	e04dgc
... -Newton and quasi-Newton algorithm using 1st	derivatives	e04gbc

Check user's function for calculating 1st	derivatives of function	e04hcc
Check user's routine for calculating 2nd	derivatives of function	e04hdc
...-Newton algorithm, simple bounds, using 1st	derivatives only	e04kbc
... algorithm, simple bounds, using 1st and 2nd	derivatives (comprehensive)	e04lbc
... using function values and optionally 1st	derivatives (comprehensive)	e04ucc
... method, using function values and optionally 1st	derivatives (comprehensive)	e04unc
Check user's function for calculating Jacobian of 1st	derivatives	e04yac
... randomized block or completely randomized	design , treatment means and standard errors	g04bbc
Analysis of variance, complete factorial	design , treatment means and standard errors	g04cac
LL^T factorization and	determinant of real symmetric positive-definite matrix	f03aec
LU factorization and	determinant of real matrix	f03afc
LU factorization and	determinant of complex matrix	f03ahc
Computes	deviates for Student's t -distribution	g01fbc
Computes	deviates for the standard Normal distribution	g01fac
Computes	deviates for the χ^2 distribution	g01fcc
Computes	deviates for the F -distribution	g01fdc
Computes	deviates for the beta distribution	g01fec
Computes	deviates for the gamma distribution	g01ffc
Robust estimation, median, median absolute	deviation , robust standard deviation	g07dac
... median absolute deviation, robust standard	deviation	g07dac
	DFT : See Discrete Fourier transform	
ODEs, IVP, error assessment	diagnostics for d02pcc and d02pdc	d02pzc
ODEs, boundary value problem, finite	difference technique with deferred correction, simple ...	d02gac
ODEs, boundary value problem, finite	difference technique with deferred correction, general ...	d02gbc
... general nonlinear boundary value problem, finite	difference technique with deferred correction, ...	d02rac
Computes t -test statistic for a	difference in means between two Normal populations, ...	g07cac
Ordinary	differential equations: See ODEs	
Estimate (using numerical	differentiation) gradient and/or Hessian of a function	e04xac
	Discrete sine transform	c06hac
	Discrete cosine transform	c06hbc
	Discrete quarter-wave sine transform	c06hcc
	Discrete quarter-wave cosine transform	c06hdc
Single 1-D real	discrete Fourier transform	c06eac
Single 1-D Hermitian	discrete Fourier transform	c06ebc
Single 1-D complex	discrete Fourier transform	c06ecc
Multiple 1-D real	discrete Fourier transforms	c06fpc
Multiple 1-D Hermitian	discrete Fourier transforms	c06fqc
Multiple 1-D complex	discrete Fourier transforms	c06frc
2-D complex	discrete Fourier transform	c06fuc
... within-group covariance matrices and matrices for	discriminant analysis	g03dac
Computes Mahalanobis squared	distances for group or pooled variance-covariance ...	g03dbc
Computes	distance matrix	g03eac
Gaussian	distribution : See Normal distribution	
Binomial	distribution function	g01bjc
Poisson	distribution function	g01bkc
Hypergeometric	distribution function	g01blc
Inverse Normal	distribution function	g01cec
Computes probabilities for the standard Normal	distribution	g01eac
Computes probabilities for Student's t -	distribution	g01ebc
Computes probabilities for χ^2	distribution	g01ecc
Computes probabilities for F -	distribution	g01edc
... density function probabilities for the beta	distribution	g01eec
Computes probabilities for the gamma	distribution	g01efc
Computes deviates for the standard Normal	distribution	g01fac
Computes deviates for Student's t -	distribution	g01fbc
Computes deviates for the χ^2	distribution	g01fcc
Computes deviates for the F -	distribution	g01fdc
Computes deviates for the beta	distribution	g01fec
Computes deviates for the gamma	distribution	g01ffc
Computes probability for the bivariate Normal	distribution	g01hac
Pseudo-random real numbers, uniform	distribution over (0,1)	g05cac
Pseudo-random real numbers, uniform	distribution over (a , b)	g05dac
Pseudo-random real numbers, (negative) exponential	distribution	g05dbc
Pseudo-random real numbers, Normal	distribution	g05ddc
Pseudo-random integer from uniform	distribution	g05dyc
Set up reference vector for multivariate Normal	distribution	g05eac
... for generating pseudo-random integers, Poisson	distribution	g05ecc
... for generating pseudo-random integers, binomial	distribution	g05edc
Set up reference vector from supplied cumulative	distribution function or probability distribution function	g05exc
... a vector of pseudo-random numbers from a beta	distribution	g05fec
... vector of pseudo-random numbers from a gamma	distribution	g05ffc

Cumulative normal distribution function $P(x)$	s15abc
Complement of cumulative normal distribution function $Q(x)$	s15acc
Inverse distributions	g01
... finite interval, strategy due to Piessens and de Doncker , allowing for badly-behaved integrands	d01sjc
All eigenvalues of generalized real eigenproblem of the form $Ax = \lambda Bx$ where A and B ...	f02adc
All eigenvalues and eigenvectors of generalized real eigenproblem of the form $Ax = \lambda Bx$ where A and B ...	f02aec
... and optionally eigenvectors of generalized eigenproblem by QZ algorithm, real matrices	f02bjc
All eigenvalues of real symmetric matrix	f02aac
All eigenvalues and eigenvectors of real symmetric matrix	f02abc
All eigenvalues of generalized real eigenproblem of the ...	f02adc
All eigenvalues and eigenvectors of generalized real ...	f02aec
All eigenvalues of real matrix	f02afc
All eigenvalues and eigenvectors of real matrix	f02agc
All eigenvalues of complex Hermitian matrix	f02awc
All eigenvalues and eigenvectors of complex Hermitian ...	f02axc
All eigenvalues and optionally eigenvectors of generalized ...	f02bjc
Selected eigenvalues and eigenvectors of real nonsymmetric ...	f02ecc
Selected eigenvalues and eigenvectors of complex nonsymmetric ...	f02gcc
All eigenvalues and eigenvectors of real symmetric matrix	f02abc
All eigenvalues and eigenvectors of generalized real eigenproblem of the ...	f02aec
All eigenvalues and eigenvectors of real matrix	f02agc
All eigenvalues and eigenvectors of complex Hermitian matrix	f02axc
All eigenvalues and optionally eigenvectors of generalized eigenproblem by QZ ...	f02bjc
Selected eigenvalues and eigenvectors of real nonsymmetric matrix (Black Box)	f02ecc
Selected eigenvalues and eigenvectors of complex nonsymmetric matrix (Black ...)	f02gcc
Gaussian elimination : See LU factorization	
Degenerate symmetrised elliptic integral of 1st kind $R_C(x, y)$	s21bac
Symmetrised elliptic integral of 1st kind $R_F(x, y, z)$	s21bbc
Symmetrised elliptic integral of 2nd kind $R_D(x, y, z)$	s21bcc
Symmetrised elliptic integral of 3rd kind $R_J(x, y, z, r)$	s21bdc
... adaptive, finite interval, weight function with end-point singularities of algebraico-logarithmic type	d01spc
System of equations , complex triangular matrix (ztrsv)	f06sjc
System of equations , complex triangular band matrix (ztbsv)	f06skc
System of equations , complex triangular packed matrix (ztpsv)	f06slc
System of equations , real triangular matrix (dtrsv)	f06pjc
System of equations , real triangular band matrix (dtbsv)	f06pkc
System of equations , real triangular packed matrix (dtpsv)	f06plc
Solves a system of equations with multiple right-hand sides, ... (dtrsm)	f06yjc
Solves a system of equations with multiple right-hand sides, ... (ztrsm)	f06zjc
Error function $\operatorname{erf} x$	s15aec
ODEs, IVP, error assessment diagnostics for d02pcc and d02pdc	d02pzc
... a general linear regression model and its standard error	g02dnc
... of a generalized linear model and its standard error	g02gnc
... impulse response function and its standard error	g13cgc
Complement of error function $\operatorname{erfc} x$	s15adc
Estimates and standard errors of parameters of a general linear regression ...	g02dkc
Fits a generalized linear model with Normal errors	g02gac
Fits a generalized linear model with binomial errors	g02gbc
Fits a generalized linear model with Poisson errors	g02gcc
Fits a generalized linear model with gamma errors	g02gdc
Estimates and standard errors of parameters of a general linear model for ...	g02gkc
... design, treatment means and standard errors	g04bbc
... factorial design, treatment means and standard errors	g04cac
Computes estimable function of a general linear regression model ...	g02dnc
Computes estimable function of a generalized linear model and ...	g02gnc
Estimate (using numerical differentiation) gradient ...	e04xac
Estimates of linear parameters and general linear ...	g02ddc
Estimates and standard errors of parameters of a ...	g02dkc
Estimates and standard errors of parameters of a ...	g02gkc
Huber estimates : See Robust	
Robust regression, standard M - estimates	g02hac
Computes the maximum likelihood estimates of the parameters of a factor analysis model, ...	g03cac
Robust estimation, M - estimates for location and scale parameters, standard ...	g07dbc
... and winsorized mean of a single sample with estimates of their variance	g07ddc
Computes Kaplan-Meier (product-limit) estimates of survival probabilities	g12aac
Calculates a robust estimation of a correlation matrix, Huber's weight ...	g02hkc
Robust estimation , median, median absolute deviation, robust ...	g07dac
Robust estimation , M -estimates for location and scale ...	g07dbc
Multivariate time series, estimation of multi-input model	g13bec
Euler's constant, γ	X01ABC
Interpolated values, evaluate interpolant computed by e01sac, two dimensions	e01sbc

	Evaluation of fitted cubic spline, function only	e02bbc
	Evaluation of fitted cubic spline, function and derivatives	e02bcc
	Evaluation of fitted cubic spline, definite integral	e02bdc
	Evaluation of a fitted bicubic spline at a vector of points	e02dec
	Evaluation of a fitted bicubic spline at a mesh of points	e02dfc
	Evaluation of fitted polynomial in one variable from ...	e02aec
	Exponential integral $E_1(x)$	s13aac
	Complex exponential	a02dhc
Ranks, Normal scores, approximate Normal scores or	exponential (Savage) scores	g01dhc
Pseudo-random real numbers, (negative)	exponential distribution	g05dbc
Computes a five-point summary (median, hinges and	extremes)	g01alc
Computes probabilities for	F-distribution	g01edc
Computes deviates for the	F-distribution	g01fdc
	Computes factor score coefficients (for use after g03cac)	g03ccc
... likelihood estimates of the parameters of a	factor analysis model, factor loadings, communalities ...	g03cac
Analysis of variance, complete	factorial design, treatment means and standard errors	g04cac
	Cholesky factorization : See Factorization	
Crout's method: See	LU factorization	
Gaussian elimination: See	LU factorization	
	LL^H factorization of complex Hermitian positive-definite ...	f01bnc
	LDL^T factorization of real symmetric positive-definite ...	f01mcc
	QR factorization of real m by n matrix ($m \geq n$)	f01qcc
... matrices, compute QB or Q^TB after	factorization by f01qcc	f01qdc
... with orthogonal matrices, form columns of Q after	factorization by f01qcc	f01qec
	QR factorization of complex m by n matrix ($m \geq n$)	f01rcc
... unitary matrices, compute QB or Q^HB after	factorization by f01rcc	f01rdc
... with unitary matrices, form columns of Q after	factorization by f01rcc	f01rec
	LL^T factorization and determinant of real symmetric ...	f03aec
	LU factorization and determinant of real matrix	f03afc
	LU factorization and determinant of complex matrix	f03ahc
... sparse unsymmetric linear systems, incomplete	LU factorization	f11dac
Real sparse symmetric matrix, incomplete Cholesky	factorization	f11jac
	Failures	p01
	Fast Fourier transform: See Fourier transform	
	FFT : See Fourier transform	
1-D quadrature, adaptive, finite interval, strategy due to Piessens and de Doncker, ...		d01sjc
1-D quadrature, adaptive, finite interval, method suitable for oscillating functions		d01skc
1-D quadrature, adaptive, finite interval, allowing for singularities at user-specified ...		d01slc
1-D quadrature, adaptive, finite interval, weight function $\cos(\omega x)$ or $\sin(\omega x)$		d01snc
1-D quadrature, adaptive, finite interval, weight function with end-point ...		d01spc
1-D quadrature, adaptive, finite interval, weight function $1/(x - c)$, Cauchy ...		d01sqc
ODEs, boundary value problem, finite difference technique with deferred correction, simple		d02gac
ODEs, boundary value problem, finite difference technique with deferred correction, general		d02gbc
ODEs, general nonlinear boundary value problem, finite difference technique with deferred correction, ...		d02rac
	Least-squares curve fit , by polynomials, arbitrary data points	e02adc
	Least-squares polynomial fit , special data points (including interpolation)	e02afc
Least-squares curve cubic spline	fit (including interpolation)	e02bac
Least-squares cubic spline curve	fit , automatic knot placement	e02bec
	Least-squares surface fit by bicubic splines with automatic knot placement, ...	e02dcc
	Least-squares surface fit by bicubic splines with automatic knot placement, ...	e02ddc
	Fits a general (multiple) linear regression model	g02dac
	Fits a general linear regression model for new ...	g02dgc
	Fits a generalized linear model with Normal errors	g02gac
	Fits a generalized linear model with binomial errors	g02gbc
	Fits a generalized linear model with Poisson errors	g02gcc
	Fits a generalized linear model with gamma errors	g02gdc
	Evaluation of fitted cubic spline, function only	e02bbc
	Evaluation of fitted cubic spline, function and derivatives	e02bcc
	Evaluation of fitted cubic spline, definite integral	e02bdc
	Evaluation of a fitted bicubic spline at a vector of points	e02dec
	Evaluation of a fitted bicubic spline at a mesh of points	e02dfc
	Evaluation of fitted polynomial in one variable from Chebyshev series ...	e02aec
Interpolating functions, fitting bicubic spline, data on rectangular grid		e01dac
	Computes a five-point summary (median, hinges and extremes)	g01alc
	Safe range of floating-point arithmetic	X02AMC
	Parameter of floating-point arithmetic model, b	X02BHC
	Parameter of floating-point arithmetic model, p	X02BJC
	Parameter of floating-point arithmetic model, e_{\min}	X02BKC
	Parameter of floating-point arithmetic model, e_{\max}	X02BLC
	Parameter of floating-point arithmetic model, ROUNDS	X02DJC
Multivariate time series, state set and	forecasts from fully specified multi-input model	g13bjc

Single 1-D real discrete	Fourier transform	c06eac
Single 1-D Hermitian discrete	Fourier transform	c06ebc
Single 1-D complex discrete	Fourier transform	c06ecc
Multiple 1-D real discrete	Fourier transforms	c06fpc
Multiple 1-D Hermitian discrete	Fourier transforms	c06fqc
Multiple 1-D complex discrete	Fourier transforms	c06frc
2-D complex discrete	Fourier transform	c06fuc
Fast	Fourier transform: See Fourier transform	
DFT: See Discrete	Fourier transform	
	Free memory allocated by e04mzc	e04myc
	Free NAG allocated memory for the dendrogram array ...	g03xzc
	Free memory allocated by h02buc	h02bvc
	Free NAG allocated memory from option structures	h02xzc
	Frees NAG allocated memory to some parameters in ...	g04czc
... using spectral smoothing by the trapezium	frequency (Daniell) window	g13cbc
... using spectral smoothing by the trapezium	frequency (Daniell) window	g13cdc
	Fresnel integral $S(x)$	s20acc
	Fresnel integral $C(x)$	s20adc
Multivariate time series,	gain , phase, bounds, univariate and bivariate (cross) ...	g13cfc
	Gamma function	s14aac
Log	Gamma function	s14abc
Incomplete	Gamma functions $P(a, x)$ and $Q(a, x)$	s14bac
Computes probabilities for the	gamma distribution	g01efc
Computes deviates for the	gamma distribution	g01ffc
Generates a vector of pseudo-random numbers from a	gamma distribution	g05ffc
Euler's constant,	gamma	X01ABC
Fits a generalized linear model with	gamma errors	g02gdc
... minimum of a sum of squares, combined	Gauss–Newton and modified Newton algorithm using ...	e04fcc
... minimum of a sum of squares, combined	Gauss–Newton and quasi-Newton algorithm using 1st ...	e04gbc
1-D	Gaussian quadrature	d01tac
	Gaussian distribution: See Normal distribution	
	Gaussian elimination: See <i>LU</i> factorization	
All eigenvalues of	generalized real eigenproblem of the form $Ax = \lambda Bx$...	f02adc
All eigenvalues and eigenvectors of	generalized real eigenproblem of the form $Ax = \lambda Bx$...	f02aec
All eigenvalues and optionally eigenvectors of	generalized eigenproblem by <i>QZ</i> algorithm, real matrices	f02bjc
	Fits a generalized linear model with Normal errors	g02gac
	Fits a generalized linear model with binomial errors	g02gbc
	Fits a generalized linear model with Poisson errors	g02gcc
	Fits a generalized linear model with gamma errors	g02gdc
Computes estimable function of a	generalized linear model and its standard error	g02gnc
Computes orthogonal rotations for loading matrix,	generalized orthomax criterion	g03bac
	Generates a vector of pseudo-random numbers from a ...	g05fec
	Generates a vector of pseudo-random numbers from a ...	g05ffc
Initialize random number	generating functions to give repeatable sequence	g05cbc
Initialize random number	generating functions to give non-repeatable sequence	g05ccc
Save state of random number	generating functions	g05cfc
Restore state of random number	generating functions	g05cgc
Set up reference vector for	generating pseudo-random integers, Poisson distribution	g05ecc
Set up reference vector for	generating pseudo-random integers, binomial distribution	g05edc
... integration of function defined by data values,	Gill–Miller method	d01gac
Unconstrained minimum, pre-conditioned conjugate	gradient algorithm, function of several variables using ...	e04dgc
Estimate (using numerical differentiation)	gradient and/or Hessian of a function	e04xac
... of real sparse symmetric linear system, conjugate	gradient/Lanczos method, preconditioner computed ...	f11jcc
... of real sparse symmetric linear system, conjugate	gradient/Lanczos method, Jacobi or SSOR ...	f11jec
Computes test statistic for equality of within-	group covariance matrices and matrices for ...	g03dac
Computes Mahalanobis squared distances for	group or pooled variance-covariance matrices (for use ...	g03dbc
Allocates observations to	groups according to selected rules (for use after ...	g03dcc
... functions, monotonicity-preserving, piecewise cubic	Hermite , one variable	e01bec
Single 1-D	Hermitian discrete Fourier transform	c06ebc
Multiple 1-D	Hermitian discrete Fourier transforms	c06fqc
Complex conjugate of	Hermitian sequence	c06gbc
Complex conjugate of multiple	Hermitian sequences	c06ggc
Convert	Hermitian sequences to general complex sequences	c06gsc
LL^H factorization of complex	Hermitian positive-definite matrix	f01bnc
All eigenvalues of complex	Hermitian matrix	f02awc
All eigenvalues and eigenvectors of complex	Hermitian matrix	f02axc
Solution of complex	Hermitian positive-definite simultaneous linear ...	f04awc
Matrix-vector product, complex	Hermitian matrix (zhemv)	f06scc
Matrix-vector product, complex	Hermitian band matrix (zhbmvc)	f06sdc
Matrix-vector product, complex	Hermitian packed matrix (zhpmvc)	f06sec
Rank-1 update, complex	Hermitian matrix (zher)	f06spc

Rank-1 update, complex	Hermitian packed matrix (zhpr)	f06sqc
Rank-2 update, complex	Hermitian matrix (zher2)	f06src
Rank-2 update, complex	Hermitian packed matrix (zhpr2)	f06ssc
Matrix-matrix product, one complex	Hermitian matrix, one complex rectangular ... (zhemm)	f06zcc
Rank- $2k$ update of a complex	Hermitian matrix (zher2k)	f06zrc
Rank- k update of a complex	Hermitian matrix (zherk)	f06zpc
... (using numerical differentiation) gradient and/or	Hessian of a function	e04xac
	Hierarchical cluster analysis	g03ecc
... function $1/(x - c)$, Cauchy principal value	(Hilbert transform)	d01sqc
Computes a five-point summary (median,	hinges and extremes)	g01alc
	Huber estimates: See Robust	
... a robust estimation of a correlation matrix,	Huber's weight function	g02hkc
Multi-dimensional adaptive quadrature over	hyper-rectangle	d01wcc
Multi-dimensional quadrature over	hyper-rectangle , Monte Carlo method	d01xbc
	Hyperbolic Functions	s
	Hypergeometric distribution function	g01blc
	Library identification	a00aac
Multivariate time series, noise spectrum, bounds,	impulse response function and its standard error	g13cgc
	Incomplete Gamma functions $P(a, x)$ and $Q(a, x)$	s14bac
Real sparse unsymmetric linear systems,	incomplete LU factorization	f11dac
Solution of linear system involving	incomplete LU preconditioning matrix generated by ...	f11dbc
Real sparse symmetric matrix,	incomplete Cholesky factorization	f11jac
Computes cluster	indicator variable (for use after g03ecc)	g03ejc
	Inequality of two complex numbers	a02chc
1-D quadrature, adaptive,	infinite or semi-infinite interval	d01smc
1-D quadrature, adaptive, semi-	infinite interval, weight function $\cos(\omega x)$ or ...	d01ssc
Calculates standardized residuals and	influence statistics	g02fac
	Bounded influence : See Robust	
Kalman filters, square root,	information , time varying	g13ecc
Kalman filters, square root,	information , time invariant	g13edc
	Initial value problem: See IVP	
	Initialization of trigonometric coefficients for FFTs	c06gzc
	Initialization function for Chapter e04 option setting	e04xxc
	Initialization function for Chapter g13 option setting	g13bxc
	Initialize random number generating functions to give ...	g05cbc
	Initialize random number generating functions to give ...	g05ccc
	Initialize option structure to null values	h02xxc
Multivariate time series, estimation of multi-	input model	g13bec
... state set and forecasts from fully specified multi-	input model	g13bjc
	Integer programming problem, branch and bound ...	h02bbc
Complex number raised to an	integer power	a02ddc
Pseudo-random	integer from uniform distribution	g05dyc
Pseudo-random	integer from reference vector	g05eyc
Largest representable	integer	X02BBC
Set up reference vector for generating pseudo-random	integers , Poisson distribution	g05ecc
Set up reference vector for generating pseudo-random	integers , binomial distribution	g05edc
... values, interpolant computed by e01bec, definite	integral , one variable	e01bhc
Evaluation of fitted cubic spline, definite	integral	e02bdc
Exponential	integral $E_1(x)$	s13aac
Cosine	integral $Ci(x)$	s13acc
Sine	integral $Si(x)$	s13adc
Fresnel	integral $S(x)$	s20acc
Fresnel	integral $C(x)$	s20adc
Degenerate symmetrised elliptic	integral of 1st kind $R_C(x, y)$	s21bac
Symmetrised elliptic	integral of 1st kind $R_F(x, y, z)$	s21bbc
Symmetrised elliptic	integral of 2nd kind $R_D(x, y, z)$	s21bcc
Symmetrised elliptic	integral of 3rd kind $R_J(x, y, z, r)$	s21bdc
Numerical	integration	d01
1-D quadrature,	integration of function defined by data values, ...	d01gac
ODEs, IVP, Runge-Kutta method,	integration over range with output	d02pcc
ODEs, IVP, Runge-Kutta method,	integration over one step	d02pdc
Interpolating functions, cubic spline	interpolant , one variable	e01bac
Interpolated values,	interpolant computed by e01bec, function only, one ...	e01bfc
Interpolated values,	interpolant computed by e01bec, function and 1st ...	e01bgc
Interpolated values,	interpolant computed by e01bec, definite integral, one	e01bhc
Interpolated values, evaluate	interpolant computed by e01sac, two dimensions	e01sbc
	Interpolated values, interpolant computed by e01bec, ...	e01bfc
	Interpolated values, interpolant computed by e01bec, ...	e01bgc
	Interpolated values, interpolant computed by e01bec, ...	e01bhc
	Interpolated values, evaluate interpolant computed by ...	e01sbc
	Interpolating functions, cubic spline interpolant, one ...	e01bac

	Interpolating functions, monotonicity-preserving, ...	e01bec
	Interpolating functions, fitting bicubic spline, data on ...	e01dac
	Interpolating functions, method of Renka and Cline, ...	e01sac
ODEs, IVP,	interpolation for d02pdc	d02pxc
ODEs, IVP,	interpolation for d02qfc	d02qzc
... polynomial fit, special data points (including	interpolation)	e02afc
Least-squares curve cubic spline fit (including	interpolation)	e02bac
	Inverse distributions	g01
	Inverse Normal distribution function	g01cec
Converts MPSX data file defining	IP or LP problem to format required by h02bbc or e04mfc	h02buc
	IVP = Initial Value Problem	
ODEs, IVP , Adams method, until function of solution is zero, ...		d02cjc
ODEs, stiff IVP , BDF method, until function of solution is zero, ...		d02ejc
ODEs, IVP , Runge–Kutta method, integration over range with ...		d02pcc
ODEs, IVP , Runge–Kutta method, integration over one step		d02pdc
ODEs, IVP , set-up for d02pcc and d02pdc		d02pvc
ODEs, IVP , resets end of range for d02pdc		d02pwc
ODEs, IVP , interpolation for d02pdc		d02pxc
ODEs, IVP , error assessment diagnostics for d02pcc and d02pdc		d02pzc
ODEs, IVP , Adams method with root-finding		d02qfc
ODEs, IVP , set-up for d02qfc		d02qwc
ODEs, IVP , freeing function for use with d02qfc		d02qyc
ODEs, IVP , interpolation for d02qfc		d02qzc
... system, RGMRES, CGS, or Bi-CGSTAB method,	Jacobi or SSOR preconditioner (Black Box)	f11dec
... system, conjugate gradient/Lanczos method,	Jacobi or SSOR preconditioner (Black Box)	f11jec
Check user's function for calculating	Jacobian of 1st derivatives	e04yac
	K-means cluster analysis	g03efc
	Kalman filters, square root, covariance, time varying	g13eac
	Kalman filters, square root, covariance, time invariant	g13ebc
	Kalman filters, square root, information, time varying	g13ecc
	Kalman filters, square root, information, time invariant	g13edc
	Kalman filters, controller Hessenberg transformation	g13ewc
Computes	Kaplan–Meier (product-limit) estimates of survival ...	g12aac
Kelvin function	kei x	s19adc
	Kelvin function ber x	s19aac
	Kelvin function bei x	s19abc
	Kelvin function ker x	s19acc
	Kelvin function kei x	s19adc
Kelvin function	ker x	s19acc
Least-squares cubic spline curve fit, automatic	knot placement	e02bec
... surface fit by bicubic splines with automatic	knot placement, data on rectangular grid	e02dcc
... surface fit by bicubic splines with automatic	knot placement, scattered data	e02ddc
Mean, variance, skewness,	kurtosis etc, one variable, from raw data	g01aac
All zeros of complex polynomial, modified	Laguerre method	c02afc
All zeros of real polynomial, modified	Laguerre method	c02agc
... symmetric linear system, conjugate gradient/ Lanczos method, preconditioner computed by f11jac ...		f11jcc
... symmetric linear system, conjugate gradient/ Lanczos method, Jacobi or SSOR preconditioner (Black ...		f11jec
	Largest permissible argument for sin and cos	X02AHC
	Largest positive model number	X02ALC
	Largest representable integer	X02BBC
	LDL^T factorization of real symmetric positive-definite ...	f01mcc
	Least-squares curve fit, by polynomials, arbitrary data ...	e02adc
	Least-squares polynomial fit, special data points ...	e02afc
	Least-squares curve cubic spline fit (including ...)	e02bac
	Least-squares cubic spline curve fit, automatic knot ...	e02bec
	Least-squares surface fit by bicubic splines with ...	e02dcc
	Least-squares surface fit by bicubic splines with ...	e02ddc
Convex QP problem or linearly-constrained linear	least-squares problem	e04ncc
Covariance matrix for nonlinear	least-squares problem	e04ycc
	Library identification	a00aac
Computes the maximum	likelihood estimates of the parameters of a factor ...	g03cac
Computes Kaplan–Meier (product-	limit) estimates of survival probabilities	g12aac
	Linear programming problem	e04mfc
Convex QP problem or linearly-constrained	linear least-squares problem	e04ncc
Solution of complex simultaneous	linear equations with multiple right-hand sides	f04adc
... of real symmetric positive-definite simultaneous	linear equations (coefficient matrix already factorized ...	f04agc
Solution of real simultaneous	linear equations (coefficient matrix already factorized ...	f04ajc
Solution of complex simultaneous	linear equations (coefficient matrix already factorized ...	f04akc
Solution of real simultaneous	linear equations, one right-hand side	f04arc
... Hermitian positive-definite simultaneous	linear equations (coefficient matrix already factorized ...	f04awc
... positive-definite variable-bandwidth simultaneous	linear equations (coefficient matrix already factorized ...	f04mcc

Real sparse unsymmetric linear systems, incomplete <i>LU</i> factorization	f11dac
Solution of real sparse unsymmetric linear system, RGMRES, CGS or Bi-CGSTAB method, ...	f11dcc
Solution of real sparse unsymmetric linear system, RGMRES, CGS or Bi-CGSTAB method, ...	f11dec
Solution of real sparse symmetric linear system, conjugate gradient/Lanczos method, ...	f11jcc
Solution of real sparse symmetric linear system, conjugate gradient/Lanczos method, ...	f11jec
Simple linear regression with constant term, missing values	g02cac
Simple linear regression confidence interval	g02cbc
... technique with deferred correction, general linear problem	d02gbc
Fits a general (multiple) linear regression model	g02dac
Add/delete an observation to/from a general linear regression model	g02dcc
Estimates of linear parameters and general linear regression model from updated model	g02ddc
Add a new variable to a general linear regression model	g02dec
Delete a variable from a general linear regression model	g02dfc
Fits a general linear regression model for new dependent variable	g02dgc
... and standard errors of parameters of a general linear regression model for given constraints	g02dkc
Computes estimable function of a general linear regression model and its standard error	g02dnc
Fits a generalized linear model with Normal errors	g02gac
Fits a generalized linear model with binomial errors	g02gbc
Fits a generalized linear model with Poisson errors	g02gcc
Fits a generalized linear model with gamma errors	g02gdc
... and standard errors of parameters of a general linear model for given constraints	g02gkc
Computes estimable function of a generalized linear model and its standard error	g02gnc
Convex QP problem or linearly-constrained linear least-squares problem	e04ncc
Computes orthogonal rotations for loading matrix, generalized orthomax criterion	g03bac
... the parameters of a factor analysis model, factor loadings , communalities and residual correlations	g03cac
Robust estimation, <i>M</i> -estimates for location and scale parameters, standard weight ...	g07dbc
Log Gamma function	s14abc
... function with end-point singularities of algebraic- logarithmic type	d01spc
Computes upper and lower tail and probability density function probabilities ...	g01eec
Converts MPSX data file defining LP or QP problem to format required by e04nkc	e04mzc
Converts MPSX data file defining IP or LP problem to format required by h02bbc or e04mfc	h02buc
<i>LU</i> factorization and determinant of real matrix	f03afc
<i>LU</i> factorization and determinant of complex matrix	f03ahc
Real sparse unsymmetric linear systems, incomplete <i>LU</i> factorization	f11dac
Solution of linear system involving incomplete <i>LU</i> preconditioning matrix generated by f11dac	f11dbc
Machine constants	x02
Machine precision	X02AJC
Computes Mahalanobis squared distances for group or pooled ...	g03dbc
Search a set of arbitrary objects for first or last match	m01fsc
Mathematical constants	x01
Maximization	e04
Maximum number of decimal digits that can be ...	X02BEC
Computes the maximum likelihood estimates of the parameters of a ...	g03cac
Mean , variance, skewness, kurtosis etc, one variable, ...	g01aac
Computes a trimmed and winsorized mean of a single sample with estimates of their ...	g07ddc
<i>K</i> - means cluster analysis	g03efc
... block or completely randomized design, treatment means and standard errors	g04bbc
... of variance, complete factorial design, treatment means and standard errors	g04cac
Computes <i>t</i> -test statistic for a difference in means between two Normal populations, confidence ...	g07cac
Robust estimation, median, median absolute deviation, robust standard deviation	g07dac
Computes a five-point summary (median , hinges and extremes)	g01alc
smoothed data sequence, using running median smoothers	g10cac
Computes Kaplan- Meier (product-limit) estimates of survival ...	g12aac
NAG memory freeing function for use with Runge-Kutta ...	d02ppc
NAG memory freeing function for use with Renka and Cline ...	e01szc
Free memory allocated by e04mzc	e04myc
NAG memory freeing function for use with option setting	e04xzc
Free NAG allocated memory for the dendrogram array in g03ehc	g03xzc
Frees NAG allocated memory to some parameters in g04cac	g04czc
Allocates memory to transfer function model orders	g13byc
NAG memory freeing function for the transfer function ...	g13bzc
NAG memory freeing function for use with option setting	g13xzc
Free memory allocated by h02buc	h02bvc
Free NAG allocated memory from option structures	h02xzc
Evaluation of a fitted bicubic spline at a mesh of points	e02dfc
Performs principal coordinate analysis, classical metric scaling	g03fac
Performs non- metric (ordinal) multidimensional scaling	g03fcc
... of function defined by data values, Gill- Miller method	d01gac
Minimization	e04
Minimum , function of one variable using function ...	e04abc
Minimum , function of one variable, using 1st derivative	e04bbc

	Minimum , function of several variables, ...	e04jbc
	Minimum , function of several variables, ...	e04kbc
	Minimum , function of several variables, modified ...	e04lbc
	Minimum , function of several variables, sequential QP ...	e04ucc
	Minimum of a sum of squares, nonlinear constraints, ...	e04unc
Unconstrained	minimum , simplex algorithm, function of several ...	e04ccc
Unconstrained	minimum , pre-conditioned conjugate gradient ...	e04dgc
Unconstrained	minimum of a sum of squares, combined Gauss-...	e04fcc
Unconstrained	minimum of a sum of squares, combined Gauss-...	e04gbc
... linear regression with or without constant term	missing values	g02cac
Fits a general (multiple) linear regression	model	g02dac
... an observation to/from a general linear regression	model	g02dcc
... of linear parameters and general linear regression	model from updated model	g02ddc
Add a new variable to a general linear regression	model	g02dec
Delete a variable from a general linear regression	model	g02dfc
Fits a general linear regression	model for new dependent variable	g02dgc
... errors of parameters of a general linear regression	model for given constraints	g02dkc
... estimable function of a general linear regression	model and its standard error	g02dnc
Fits a generalized linear	model with Normal errors	g02gac
Fits a generalized linear	model with binomial errors	g02gbc
Fits a generalized linear	model with Poisson errors	g02gcc
Fits a generalized linear	model with gamma errors	g02gdc
... standard errors of parameters of a general linear	model for given constraints	g02gkc
Computes estimable function of a generalized linear	model and its standard error	g02gnc
... estimates of the parameters of a factor analysis	model , factor loadings, communalities and residual ...	g03cac
Multivariate time series, estimation of multi-input	model	g13bec
... set and forecasts from fully specified multi-input	model	g13bjc
Allocates memory to transfer function	model orders	g13byc
Freeing function for the transfer function	model orders structure	g13bzc
Smallest positive	model number	X02AKC
Largest positive	model number	X02ALC
Parameter of floating-point arithmetic	model , b	X02BHC
Parameter of floating-point arithmetic	model , p	X02BJC
Parameter of floating-point arithmetic	model , e_{\min}	X02BKC
Parameter of floating-point arithmetic	model , e_{\max}	X02BLC
Parameter of floating-point arithmetic	model , ROUNDS	X02DJC
	Modified Bessel function $K_0(x)$	s18acc
	Modified Bessel function $K_1(x)$	s18adc
	Modified Bessel function $I_0(x)$	s18aec
	Modified Bessel function $I_1(x)$	s18afc
	Modified Bessel function $e^x K_0(x)$	s18ccc
	Modified Bessel function $e^x K_1(x)$	s18cdc
	Modified Bessel function $e^{- x } I_0(x)$	s18cec
	Modified Bessel function $e^{- x } I_1(x)$	s18cfc
All zeros of complex polynomial,	modified Laguerre method	c02afc
All zeros of real polynomial,	modified Laguerre method	c02agc
... of a sum of squares, combined Gauss-Newton and	modified Newton algorithm using function values only	e04fcc
Minimum, function of several variables,	modified Newton algorithm, simple bounds, using 1st ...	e04lbc
Interpolating functions,	modified Shepard's method, two dimensions	e01sac
	Modulus of a complex number	a02dbc
Interpolating functions,	monotonicity-preserving , piecewise cubic Hermite, ...	e01bec
Multi-dimensional quadrature over hyper-rectangle,	Monte Carlo method	d01xbc
Read	MPSX data for IP, LP or QP problem from a file	h02buc
Read	MPSX data for sparse LP or QP problem from a file	e04mzc
	Multi-dimensional adaptive quadrature over ...	d01wcc
	Multi-dimensional quadrature over hyper-rectangle, ...	d01xbc
Multivariate time series, estimation of	multi-input model	g13bec
... state set and forecasts from fully specified	multi-input model	g13bjc
	Multiple 1-D real discrete Fourier transforms	c06fpc
	Multiple 1-D Hermitian discrete Fourier transforms	c06fqc
	Multiple 1-D complex discrete Fourier transforms	c06frc
Complex conjugate of	multiple Hermitian sequences	c06gqc
... of complex simultaneous linear equations with	multiple right-hand sides	f04adc
Solves a system of equations with	multiple right-hand sides, real triangular ... (dtrsm)	f06yjc
Solves a system of equations with	multiple right-hand sides, complex triangular ... (ztrsm)	f06zjc
Fits a general (multiple) linear regression model		g02dac
	Multiplication of two complex numbers	a02ccc
	Multivariate time series, estimation of multi-input ...	g13bec
	Multivariate time series, state set and forecasts from ...	g13bjc
	Multivariate time series, smoothed sample cross ...	g13cdc
	Multivariate time series, cross amplitude spectrum, ...	g13cec

	Multivariate time series, gain, phase, bounds, ...	g13cfc
	Multivariate time series, noise spectrum, bounds, ...	g13cgc
Set up reference vector for	multivariate Normal distribution	g05eac
Pseudo-random	multivariate Normal vector from reference vector	g05ezc
Pseudo-random real numbers, (negative) exponential distribution		g05dbc
... minimum of a sum of squares, combined Gauss– Newton and modified Newton algorithm using function ...		e04fcc
... minimum of a sum of squares, combined Gauss– Newton and quasi-Newton algorithm using 1st ...		e04gbc
Minimum, function of several variables, quasi- Newton algorithm, simple bounds, using ...		e04jbc
Minimum, function of several variables, quasi- Newton algorithm, simple bounds, using 1st ...		e04kbc
Minimum, function of several variables, modified Newton algorithm, simple bounds, using 1st and 2nd ...		e04lbc
Multivariate time series, noise spectrum, bounds, impulse response function and ...		g13cgc
Initialize random number generating functions to give	non-repeatable sequence	g05ccc
	Nonlinear optimization	e04
	Nonlinear regression	e04
Solution of system of	nonlinear equations using function values only	c05tbc
Solution of system of	nonlinear equations using 1st derivatives	c05ubc
... technique with deferred correction, simple	nonlinear problem	d02gac
ODEs, general	nonlinear boundary value problem, finite difference ...	d02rac
... of several variables, sequential QP method,	nonlinear constraints, using function values and ...	e04ucc
Minimum of a sum of squares,	nonlinear constraints, sequential QP method, using ...	e04unc
Covariance matrix for	nonlinear least-squares problem	e04ycc
Performs	non-metric (ordinal) multidimensional scaling	g03fcc
Kendall/Spearman	non-parametric rank correlation coefficients, casewise ...	g02brc
Inverse	Normal distribution function	g01cec
Ranks, Normal scores, approximate	Normal scores or exponential (Savage) scores	g01dhc
Computes probabilities for the standard	Normal distribution	g01eac
Computes deviates for the standard	Normal distribution	g01fac
Computes probability for the bivariate	Normal distribution	g01hac
Fits a generalized linear model with	Normal errors	g02gac
Pseudo-random real numbers,	Normal distribution	g05ddc
Set up reference vector for multivariate	Normal distribution	g05eac
Pseudo-random multivariate	Normal vector from reference vector	g05ezc
... statistic for a difference in means between two	Normal populations, confidence interval	g07cac
Cumulative	normal distribution function $P(x)$	s15abc
Complement of cumulative	normal distribution function $Q(x)$	s15acc
Shapiro and Wilk's W test for	Normality	g01ddc
	Numerical integration	d01
Estimate (using	numerical differentiation) gradient and/or Hessian of a ...	e04xac
Add/delete an	observation to/from a general linear regression model	g02dcc
Allocates	observations to groups according to selected rules (for ...	g03dcc
Kalman filters,	observer Hessenberg transformation	g13ewc
	ODEs, IVP, Adams method, until function of solution ...	d02cjc
	ODEs, stiff IVP, BDF method, until function of ...	d02ejc
	ODEs, IVP, Runge–Kutta method, integration over ...	d02pcc
	ODEs, IVP, Runge–Kutta method, integration over ...	d02pdc
	ODEs, IVP, set-up for d02pcc and d02pdc	d02pvc
	ODEs, IVP, resets end of range for d02pdc	d02pwc
	ODEs, IVP, interpolation for d02pdc	d02pxc
	ODEs, IVP, error assessment diagnostics for d02pcc ...	d02pzc
	ODEs, IVP, Adams method with root-finding	d02qfc
	ODEs, IVP, set-up for d02qfc	d02qwc
	ODEs, IVP, freeing function for use with d02qfc	d02qyc
	ODEs, IVP, interpolation for d02qfc	d02qzc
	ODEs, boundary value problem, finite difference ...	d02gbc
	ODEs, boundary value problem, finite difference ...	d02gac
Interpolating functions, cubic spline interpolant,	one variable	e01bac
... monotonicity-preserving, piecewise cubic Hermite,	one variable	e01bec
... interpolant computed by e01bec, function only,	one variable	e01bfc
... computed by e01bec, function and 1st derivative,	one variable	e01bgc
... interpolant computed by e01bec, definite integral,	one variable	e01bhc
Solution of real simultaneous linear equations,	one right-hand side	f04arc
Mean, variance, skewness, kurtosis etc,	one variable, from raw data	g01aac
	Operations with orthogonal matrices, compute QB or ...	f01qdc
	Operations with orthogonal matrices, form columns of ...	f01qec
	Operations with unitary matrices, compute QB or ...	f01rdc
	Operations with unitary matrices, form columns of Q ...	f01rec
Nonlinear	optimization	e04
Initialization function for Chapter e04	option setting	e04xxc
NAG memory freeing function for use with	option setting	e04xzc
Initialization function for Chapter g13	option setting	g13bxc
NAG memory freeing function for use with	option setting	g13zxc

Initialize	option structure to null values	h02xxc
Read	optional parameter values from a file	h02xyc
Read	options from a textfile	e04xyc
Performs non-metric	(ordinal) multidimensional scaling	g03fcc
	Ordinary differential equations: See ODEs	
Operations with	orthogonal matrices, compute QB or Q^TB after ...	f01qdc
Operations with	orthogonal matrices, form columns of Q after ...	f01qec
Computes	orthogonal rotations for loading matrix, generalized ...	g03bac
... rotations for loading matrix, generalized	orthomax criterion	g03bac
... adaptive, finite interval, method suitable for	oscillating functions	d01skc
Incomplete Gamma functions	$P(a, x)$ and $Q(a, x)$	s14bac
Matrix-vector product, real symmetric	packed matrix (dspmv)	f06pec
Matrix-vector product, real triangular	packed matrix (dtpmv)	f06phc
System of equations, real triangular	packed matrix (dtpsv)	f06plc
Rank-1 update, real symmetric	packed matrix (dspr)	f06pqc
Rank-2 update, real symmetric	packed matrix (dspr2)	f06psc
Matrix-vector product, complex Hermitian	packed matrix (zhpmv)	f06sec
Matrix-vector product, complex triangular	packed matrix (ztpmv)	f06shc
System of equations, complex triangular	packed matrix (ztpsv)	f06slc
Rank-1 update, complex Hermitian	packed matrix (zhpr)	f06sqc
Rank-2 update, complex Hermitian	packed matrix (zhpr2)	f06ssc
Kendall/Spearman non-	parametric rank correlation coefficients, casewise ...	g02brc
Univariate time series,	partial autocorrelations from autocorrelations	g13acc
Pseudo-random	permutation of an integer vector	g05ehc
Multivariate time series, gain,	phase , bounds, univariate and bivariate (cross) spectra	g13cfc
	pi	X01AAC
Interpolating functions, monotonicity-preserving,	piecewise cubic Hermite, one variable	e01bec
... adaptive, finite interval, strategy due to	Piessens and de Doncker, allowing for badly-behaved ...	d01sjc
	Poisson distribution function	g01bkc
Fits a generalized linear model with	Poisson errors	g02gcc
... vector for generating pseudo-random integers,	Poisson distribution	g05ecc
All zeros of complex	polynomial , modified Laguerre method	c02afc
All zeros of real	polynomial , modified Laguerre method	c02agc
Evaluation of fitted	polynomial in one variable from Chebyshev series form ...	e02aec
Least-squares	polynomial fit, special data points (including ...	e02afc
Least-squares curve fit, by	polynomials , arbitrary data points	e02adc
... Mahalanobis squared distances for group or	pooled variance-covariance matrices (for use after ...	g03dbc
... for a difference in means between two Normal	populations , confidence interval	g07cac
Machine	precision	X02AJC
Unconstrained minimum,	preconditioned conjugate gradient algorithm, ...	e04dgc
... system, RGMRES, CGS or Bi-CGSTAB method,	preconditioner computed by fl1dac (Black Box)	f11dcc
... CGS, or Bi-CGSTAB method, Jacobi or SSOR	preconditioner (Black Box)	f11dec
Solution of linear system involving incomplete LU	preconditioning matrix generated by fl1dac	f11dbc
... of linear system involving incomplete Cholesky	preconditioning matrix generated by fl1jac	f11jbc
... interval, weight function $1/(x - c)$, Cauchy	principal value (Hilbert transform)	d01sqc
Performs	principal component analysis	g03aac
Performs	principal coordinate analysis, classical metric scaling	g03fac
Computes	probabilities for the standard Normal distribution	g01eac
Computes	probabilities for Student's t -distribution	g01ebc
Computes	probabilities for χ^2 distribution	g01ecc
Computes	probabilities for F -distribution	g01edc
... and lower tail and probability density function	probabilities for the beta distribution	g01eec
Computes	probabilities for the gamma distribution	g01efc
... Kaplan-Meier (product-limit) estimates of survival	probabilities	g12aac
Computes upper and lower tail and	probability density function probabilities for the beta ...	g01eec
Computes	probability for the bivariate Normal distribution	g01hac
... from supplied cumulative distribution function or	probability distribution function	g05exc
Computes	Procrustes rotations	g03bcc
Matrix-vector	product , real rectangular matrix (dgemv)	f06pac
Matrix-vector	product , real rectangular band matrix (dgbmv)	f06pbc
Matrix-vector	product , real symmetric matrix (dsymv)	f06pcc
Matrix-vector	product , real symmetric band matrix (dsbm)	f06pdc
Matrix-vector	product , real symmetric packed matrix (dspmv)	f06pec
Matrix-vector	product , real triangular matrix (dtrmv)	f06pfc
Matrix-vector	product , real triangular band matrix (dtbm)	f06pgc
Matrix-vector	product , real triangular packed matrix (dtpmv)	f06phc
Matrix-vector	product , complex rectangular matrix (zgemv)	f06sac
Matrix-vector	product , complex rectangular band matrix (zgbmv)	f06sbc
Matrix-vector	product , complex Hermitian matrix (zhemv)	f06scc
Matrix-vector	product , complex Hermitian band matrix (zgbmv)	f06sdc
Matrix-vector	product , complex Hermitian packed matrix (zhpmv)	f06sec

Matrix-vector product , complex triangular matrix (ztrmv)	f06sfc
Matrix-vector product , complex triangular band matrix (ztbmv)	f06sgc
Matrix-vector product , complex triangular packed matrix (ztpmv)	f06shc
Matrix-matrix product , two real rectangular matrices (dgemm)	f06yac
Matrix-matrix product , one real symmetric matrix, one real ... (dsymm)	f06ycc
Matrix-matrix product , one real triangular matrix, one real ... (dtrmm)	f06yfc
Matrix-matrix product , two complex rectangular matrices (zgemm)	f06zac
Matrix-matrix product , one complex Hermitian matrix, one ... (zhemm)	f06zcc
Matrix-matrix product , one complex triangular matrix, one ... (ztrmm)	f06zfc
Matrix-matrix product , one complex symmetric matrix, one ... (zsymm)	f06ztc
Computes Kaplan-Meier (product-limit) estimates of survival probabilities	g12aac
Linear programming problem	e04mfc
Quadratic programming problem	e04nfc
Integer programming problem, branch and bound method	h02bbc
Pseudo-random real numbers, uniform distribution ...	g05cac
Pseudo-random real numbers, uniform distribution ...	g05dac
Pseudo-random real numbers, (negative) exponential ...	g05dbc
Pseudo-random real numbers, Normal distribution	g05ddc
Pseudo-random integer from uniform distribution	g05dyc
Pseudo-random permutation of an integer vector	g05ehc
Pseudo-random sample from an integer vector	g05ejc
Pseudo-random integer from reference vector	g05eyc
Pseudo-random multivariate Normal vector from ...	g05ezc
Set up reference vector for generating pseudo-random integers, Poisson distribution	g05ecc
Set up reference vector for generating pseudo-random integers, binomial distribution	g05edc
Generates a vector of pseudo-random numbers from a beta distribution	g05fec
Generates a vector of pseudo-random numbers from a gamma distribution	g05ffc
Cumulative normal distribution function $P(x)$	s15abc
Incomplete Gamma functions $P(a, x)$ and $Q(a, x)$	s14bac
QP : See Quadratic programming	
Converts MPSX data file defining LP or QP problem to format required by e04nkc	e04mzc
Convex QP problem or linearly-constrained linear least-squares ...	e04ncc
LP or QP problem (sparse)	e04nkc
Minimum, function of several variables, sequential QP method, nonlinear constraints, using function ...	e04ucc
... a sum of squares, nonlinear constraints, sequential QP method, using function values and optionally 1st ...	e04unc
Read MPSX data for IP, LP or QP problem from a file	h02buc
QR factorization of real m by n matrix ($m \geq n$)	f01qcc
QR factorization of complex m by n matrix ($m \geq n$)	f01rcc
Quadratic programming problem	e04nfc
1-D quadrature , integration of function defined by data ...	d01gac
1-D quadrature , adaptive, finite interval, strategy due to ...	d01sjc
1-D quadrature , adaptive, finite interval, method suitable ...	d01skc
1-D quadrature , adaptive, finite interval, allowing for ...	d01slc
1-D quadrature , adaptive, infinite or semi-infinite interval	d01smc
1-D quadrature , adaptive, finite interval, weight function ...	d01snc
1-D quadrature , adaptive, finite interval, weight function ...	d01spc
1-D quadrature , adaptive, finite interval, weight function ...	d01sqc
1-D quadrature , adaptive, semi-infinite interval, weight ...	d01ssc
1-D Gaussian quadrature	d01tac
Multi-dimensional adaptive quadrature over hyper-rectangle	d01wcc
Multi-dimensional quadrature over hyper-rectangle, Monte Carlo method	d01xbc
Discrete quarter-wave sine transform	c06hcc
Discrete quarter-wave cosine transform	c06hdc
... of a sum of squares, combined Gauss-Newton and quasi-Newton algorithm using 1st derivatives	e04gbc
Minimum, function of several variables, quasi-Newton algorithm, simple bounds, using ...	e04jbc
Minimum, function of several variables, quasi-Newton algorithm, simple bounds, using 1st ...	e04kbc
Quotient of two complex numbers	a02cdc
... of cumulative normal distribution function $Q(x)$	s15acc
... eigenvectors of generalized eigenproblem by QZ algorithm, real matrices	f02bjc
Pseudo-random real numbers, uniform distribution over (0,1)	g05cac
Initialize random number generating functions to give ...	g05cbc
Initialize random number generating functions to give non- ...	g05ccc
Save state of random number generating functions	g05cfc
Restore state of random number generating functions	g05cgc
Pseudo-random real numbers, uniform distribution over (a, b)	g05dac
Pseudo-random real numbers, (negative) exponential distribution	g05dbc
Pseudo-random real numbers, Normal distribution	g05ddc
Pseudo-random integer from uniform distribution	g05dyc
Set up reference vector for generating pseudo-random integers, Poisson distribution	g05ecc
Set up reference vector for generating pseudo-random integers, binomial distribution	g05edc
Pseudo-random permutation of an integer vector	g05ehc

Pseudo- random sample from an integer vector	g05ejc
Pseudo- random integer from reference vector	g05eyc
Pseudo- random multivariate Normal vector from reference vector	g05ezc
Generates a vector of pseudo- random numbers from a beta distribution	g05fec
Generates a vector of pseudo- random numbers from a gamma distribution	g05ffc
Analysis of variance, randomized block or completely randomized design, treatment means and standard errors	g04bbc
Pseudo- random sample from an integer vector	g05ejc
Pseudo- random permutation of an integer vector	g05ehc
ODEs, IVP, Runge–Kutta method, integration over range with output	d02pcc
ODEs, IVP, resets end of range for d02pcd	d02pwc
Safe range of floating-point arithmetic	X02AMC
Rank -1 update, complex Hermitian packed matrix (zhpr)	f06sqc
Rank -1 update, complex Hermitian matrix (zher)	f06spc
Rank -1 update, complex rectangular matrix, ... (zgerc)	f06snc
Rank -1 update, complex rectangular matrix, ... (zgeru)	f06smc
Rank -1 update, real symmetric packed matrix (dspr)	f06pqc
Rank -1 update, real symmetric matrix (dsyrr)	f06ppc
Rank -1 update, real rectangular matrix (dger)	f06pmc
Rank -2 update, complex Hermitian packed ... (zhpr2)	f06ssc
Rank -2 update, complex Hermitian matrix (zher2)	f06src
Rank -2 update, real symmetric packed matrix (dspr2)	f06psc
Rank -2 update, real symmetric matrix (dsyr2)	f06prc
Rank -2 <i>k</i> update of a complex symmetric matrix (zher2k)	f06zwc
Rank -2 <i>k</i> update of a complex Hermitian matrix (zher2k)	f06zrc
Rank -2 <i>k</i> update of a real symmetric matrix (dsyr2k)	f06yrc
Rank - <i>k</i> update of a complex symmetric matrix (zsyrc)	f06zuc
Rank - <i>k</i> update of a complex Hermitian matrix (zherk)	f06zpc
Rank - <i>k</i> update of a real symmetric matrix (dsyrk)	f06ypc
Kendall/Spearman non-parametric rank correlation coefficients, casewise treatment of ...	g02brc
Order a set of arbitrary objects (rank sort)	m01dsc
Ranks , Normal scores, approximate Normal scores or ...	g01dhc
Converts ranks to indices, or vice-versa	m01zac
Read MPSX data for sparse LP or QP problem from ...	e04mzc
Read MPSX data for IP, LP or QP problem from a file	h02buc
Read optional parameter values from a file	h02xyc
Rearrange a linked list into ascending or descending ...	m01cuc
Rearrange a set of arbitrary objects into an order ...	m01esc
Multi-dimensional adaptive quadrature over hyper- rectangle	d01wcc
Multi-dimensional quadrature over hyper- rectangle , Monte Carlo method	d01xbc
... functions, fitting bicubic spline, data on rectangular grid	e01dac
... splines with automatic knot placement, data on rectangular grid	e02dcc
Matrix-vector product, real rectangular matrix (dgemv)	f06pac
Matrix-vector product, real rectangular band matrix (dgbmv)	f06pbc
Rank-1 update, real rectangular matrix (dger)	f06pmc
Matrix-vector product, complex rectangular matrix (zgemv)	f06sac
Matrix-vector product, complex rectangular band matrix (zgbmv)	f06sbc
Rank-1 update, complex rectangular matrix, unconjugated vector (zgeru)	f06smc
Rank-1 update, complex rectangular matrix, conjugated vector (zgerc)	f06snc
Matrix-matrix product, two real rectangular matrices (dgemm)	f06yac
... real symmetric matrix, one real rectangular matrix (dsymm)	f06ycc
... one real triangular matrix, one real rectangular matrix (dtrmm)	f06yfc
Matrix-matrix product, two complex rectangular matrices (zgemm)	f06zac
... one complex Hermitian matrix, one complex rectangular matrix (zhemm)	f06zcc
... one complex triangular matrix, one complex rectangular matrix (ztrmm)	f06zfc
... one complex symmetric matrix, one complex rectangular matrix (zsymm)	f06ztc
Set up reference vector for multivariate Normal distribution	g05eac
Set up reference vector for generating pseudo-random ...	g05ecc
Set up reference vector for generating pseudo-random ...	g05edc
Set up reference vector from supplied cumulative distribution ...	g05exc
Pseudo-random integer from reference vector	g05eyc
Pseudo-random multivariate Normal vector from reference vector	g05ezc
reference vector for ARMA time series model with ...	g05hac
Nonlinear regression	e04
Simple linear regression with or without constant term, missing values	g02cac
Simple linear regression confidence intervals	g02cbc
Fits a general (multiple) linear regression model	g02dac
Add/delete an observation to/from a general linear regression model	g02dcc
Estimates of linear parameters and general linear regression model from updated model	g02ddc
Add a new variable to a general linear regression model	g02dec
Delete a variable from a general linear regression model	g02dfc
Fits a general linear regression model for new dependent variable	g02dgc

... standard errors of parameters of a general linear regression model for given constraints	g02dkc
Computes estimable function of a general linear regression model and its standard error	g02dnc
Robust regression , standard M -estimates	g02hac
Interpolating functions, method of Renka and Cline, two dimensions	e01sac
NAG memory freeing function for use with Renka and Cline method	e01szc
Real sparse unsymmetric matrix reorder routine	f11zac
Real sparse symmetric matrix reorder routine	f11zbc
ODEs, IVP, resets end of range for d02pdcf	d02pwc
... analysis model, factor loadings, communalities and residual correlations	g03cac
Calculates standardized residuals and influence statistics	g02fac
... time series, noise spectrum, bounds, impulse response function and its standard error	g13cgc
Solution of real sparse unsymmetric linear system, RGMRES , CGS or Bi-CGSTAB method, ...	f11dcc
Solution of real sparse unsymmetric linear system, RGMRES , CGS, or Bi-CGSTAB method, Jacobi or ...	f11dec
... simultaneous linear equations with multiple right-hand sides	f04adc
Solution of real simultaneous linear equations, one right-hand side	f04arc
Solves a system of equations with multiple right-hand sides, complex triangular ... (ztrsm)	f06zjc
Solves a system of equations with multiple right-hand sides, real triangular coefficient ... (dtrsm)	f06yjc
Robust regression, standard M -estimates	g02hac
Robust estimation, median, median absolute deviation, ...	g07dac
Robust estimation, M -estimates for location and scale ...	g07dbc
Calculates a robust estimation of a correlation matrix, Huber's ...	g02hkc
Square root of a complex number	a02dcc
ODEs, IVP, Adams method with root-finding	d02qfc
Computes orthogonal rotations for loading matrix, generalized orthomax ...	g03bac
Computes Procrustes rotations	g03bcc
... observations to groups according to selected rules (for use after g03dac)	g03dcc
ODEs, IVP, Runge-Kutta method, integration over range with ...	d02pcc
ODEs, IVP, Runge-Kutta method, integration over one step	d02pdc
NAG memory freeing function for use with Runge-Kutta method	d02ppc
smoothed data sequence, using running median smoothers	g10cac
Safe range of floating-point arithmetic	X02AMC
Pseudo-random sample from an integer vector	g05ejc
Computes a trimmed and winsorized mean of a single sample with estimates of their variance	g07ddc
Univariate time series, sample autocorrelation function	g13abc
Univariate time series, smoothed sample spectrum using spectral smoothing by the ...	g13cbc
Multivariate time series, smoothed sample cross spectrum using spectral smoothing by the ...	g13cdc
... scores, approximate Normal scores or exponential (Savage) scores	g01dhc
Robust estimation, M -estimates for location and scale parameters, standard weight functions	g07dbc
... principal coordinate analysis, classical metric scaling	g03fac
Performs non-metric (ordinal) multidimensional scaling	g03fcc
... by bicubic splines with automatic knot placement, scattered data	e02ddc
Computes factor score coefficients (for use after g03cac)	g03ccc
Produces standardized values (z - scores) for a data matrix	g03zac
Ranks, Normal scores, approximate Normal scores or exponential (Savage) scores	g01dhc
Search a set of arbitrary objects for first or last match	m01fsc
Selected eigenvalues and eigenvectors of real ...	f02ecc
Selected eigenvalues and eigenvectors of complex ...	f02gcc
Allocates observations to groups according to selected rules (for use after g03dac)	g03dcc
Allocates observations to groups according to selected rules (for use after g03dac)	g03dcc
1-D quadrature, adaptive, infinite or semi-infinite interval	d01smc
1-D quadrature, adaptive, semi-infinite interval, weight function $\cos(\omega x)$...	d01ssc
... number generating functions to give repeatable sequence	g05cbc
... generating functions to give non-repeatable sequence	g05ccc
Complex conjugate of Hermitian sequence	c06gbc
Complex conjugate of complex sequence	c06gcc
Complex conjugate of multiple Hermitian sequences	c06gjc
Convert Hermitian sequences to general complex sequences	c06gsc
Minimum, function of several variables, sequential QP method, nonlinear constraints, using ...	e04ucc
Minimum of a sum of squares, nonlinear constraints, sequential QP method, using function values and ...	e04unc
Shapiro and Wilk's W test for Normality	g01ddc
Unconstrained minimum, simplex algorithm, function of several variables using ...	e04ccc
Solution of complex simultaneous linear equations with multiple ...	f04adc
Solution of real symmetric positive-definite simultaneous linear equations (coefficient matrix ...	f04agc
Solution of real simultaneous linear equations (coefficient matrix ...	f04ajc
Solution of complex simultaneous linear equations (coefficient matrix ...	f04akc
Solution of real simultaneous linear equations, one right-hand side	f04arc
Solution of complex Hermitian positive-definite simultaneous linear equations (coefficient matrix ...	f04awc
... symmetric positive-definite variable-bandwidth simultaneous linear equations (coefficient matrix ...	f04mcc
Largest permissible argument for sin and cos	X02AHC
Sine integral $\text{Si}(x)$	s13adc
Complex sine	a02djc

Discrete	sine transform	c06hac
Discrete quarter-wave	sine transform	c06hcc
	Singular value decomposition: See SVD	
... quadrature, adaptive, finite interval, allowing for	singularities at user-specified break-points	d01slc
... finite interval, weight function with end-point	singularities of algebraico-logarithmic type	d01spc
	sinh x	s10abc
arc	sinh x	s11abc
Mean, variance,	skewness , kurtosis etc, one variable, from raw data	g01aac
	Smallest positive model number	X02AKC
	smoothed data sequence, using running median ...	g10cac
Univariate time series,	smoothed sample spectrum using spectral smoothing ...	g13cbc
Multivariate time series,	smoothed sample cross spectrum using spectral ...	g13cdc
smoothed data sequence, using running median	smoothers	g10cac
... series, smoothed sample spectrum using spectral	smoothing by the trapezium frequency (Daniell) window	g13cbc
... smoothed sample cross spectrum using spectral	smoothing by the trapezium frequency (Daniell) window	g13cdc
	Sort a set of real numbers (Quicksort)	m01cac
	Sort a set of arbitrary objects (Quicksort)	m01csc
	Sort a set of arbitrary objects (stable sort)	m01ctc
Sort a set of arbitrary objects (stable	sort)	m01ctc
... list into ascending or descending order (chain	sort)	m01cuc
Order a set of arbitrary objects (rank	sort)	m01dsc
	Real sparse unsymmetric linear systems, incomplete <i>LU</i> ...	f11dac
	Solution of real sparse unsymmetric linear system, RGMRES, CGS ...	f11dcc
	Solution of real sparse unsymmetric linear system, RGMRES, CGS ...	f11dec
	Real sparse symmetric matrix, incomplete Cholesky ...	f11jac
	Solution of real sparse symmetric linear system, conjugate ...	f11jcc
	Solution of real sparse symmetric linear system, conjugate ...	f11jec
	Real sparse unsymmetric matrix reorder routine	f11zac
	Real sparse symmetric matrix reorder routine	f11zbc
	Kendall/ Spearman non-parametric rank correlation coefficients, ...	g02brc
Least-squares polynomial fit,	special data points (including interpolation)	e02afc
Approximation of	special functions	s
... coherency, bounds, univariate and bivariate (cross)	spectra	g13cec
... phase, bounds, univariate and bivariate (cross)	spectra	g13cfc
... time series, smoothed sample spectrum using	spectral smoothing by the trapezium frequency ...	g13cbc
... time series, smoothed sample cross spectrum using	spectral smoothing by the trapezium frequency ...	g13cdc
Univariate time series, smoothed sample	spectrum using spectral smoothing by the trapezium ...	g13cbc
Multivariate time series, smoothed sample cross	spectrum using spectral smoothing by the trapezium ...	g13cdc
Multivariate time series, cross amplitude	spectrum , squared coherency, bounds, univariate and ...	g13cec
Multivariate time series, noise	spectrum , bounds, impulse response function and its ...	g13cgc
Interpolating functions, cubic	spline interpolant, one variable	e01bac
Interpolating functions, fitting bicubic	spline , data on ...	e01dac
Least-squares curve cubic	spline fit (including interpolation)	e02bac
Evaluation of fitted cubic	spline , function only	e02bbc
Evaluation of fitted cubic	spline , function and derivatives	e02bcc
Evaluation of fitted cubic	spline , definite integral	e02bdc
Least-squares cubic	spline curve fit, automatic knot placement	e02bec
Evaluation of a fitted bicubic	spline at a vector of points	e02dec
Evaluation of a fitted bicubic	spline at a mesh of points	e02dfc
	B-splines	e02
Least-squares surface fit by bicubic	splines with automatic knot placement, data on ...	e02dcc
Least-squares surface fit by bicubic	splines with automatic knot placement, scattered data	e02ddc
	Square root of a complex number	a02dcc
Kalman filters,	square root, covariance, time varying	g13eac
Kalman filters,	square root, covariance, time invariant	g13ebc
Kalman filters,	square root, information, time varying	g13ecc
Kalman filters,	square root, information, time invariant	g13edc
Computes Mahalanobis	squared distances for group or pooled ...	g03dbc
Multivariate time series, cross amplitude spectrum,	squared coherency, bounds, univariate and bivariate ...	g13cec
	Least- squares curve fit, by polynomials, arbitrary data ...	e02adc
	Least- squares polynomial fit, special data points (including ...	e02afc
	Least- squares curve cubic spline fit (including interpolation)	e02bac
	Least- squares cubic spline curve fit, automatic knot placement	e02bec
	Least- squares surface fit by bicubic splines with automatic ...	e02dcc
	Least- squares surface fit by bicubic splines with automatic ...	e02ddc
... QP problem or linearly-constrained linear least- squares problem		e04ncc
Covariance matrix for nonlinear least- squares problem		e04ycc
Unconstrained minimum of a sum of squares , combined Gauss–Newton and modified ...		e04fcc
Unconstrained minimum of a sum of squares , combined Gauss–Newton and quasi-Newton ...		e04gbc
Minimum of a sum of squares , nonlinear constraints, sequential QP method, ...		e04unc
... CGS, or Bi-CGSTAB method, Jacobi or SSOR preconditioner (Black Box)		f11dec

... conjugate gradient/Lanczos method, Jacobi or SSOR preconditioner (Black Box)	f11jec
Computes probabilities for the standard Normal distribution	g01eac
Computes deviates for the standard Normal distribution	g01fac
Estimates and standard errors of parameters of a general linear ...	g02dkc
... of a general linear regression model and its standard error	g02dnc
Estimates and standard errors of parameters of a general linear model ...	g02gkc
... function of a generalized linear model and its standard error	g02gnc
Robust regression, standard M -estimates	g02hac
... randomized design, treatment means and standard errors	g04bbc
... complete factorial design, treatment means and standard errors	g04cac
... median, median absolute deviation, robust standard deviation	g07dac
... M -estimates for location and scale parameters, standard weight functions	g07dbc
... bounds, impulse response function and its standard error	g13cgc
Calculates standardized residuals and influence statistics	g02fac
Produces standardized values (z -scores) for a data matrix	g03zac
Computes test statistic for equality of within-group covariance ...	g03dac
Computes t -test statistic for a difference in means between two Normal ...	g07cac
Calculates standardized residuals and influence statistics	g02fac
χ^2 statistics for two-way contingency table	g11aac
ODEs, stiff IVP, BDF method, until function of solution is ...	d02ejc
Computes probabilities for Student's t -distribution	g01ebc
Computes deviates for Student's t -distribution	g01fbc
Unconstrained minimum of a sum of squares, combined Gauss–Newton and modified ...	e04fcc
Unconstrained minimum of a sum of squares, combined Gauss–Newton and ...	e04gbc
Minimum of a sum of squares, nonlinear constraints, sequential QP ...	e04unc
Computes a five-point summary (median, hinges and extremes)	g01alc
Summation of Series	c06
Least-squares surface fit by bicubic splines with automatic knot ...	e02dcc
Least-squares surface fit by bicubic splines with automatic knot ...	e02ddc
Computes Kaplan–Meier (product-limit) estimates of survival probabilities	g12aac
SVD of real matrix	f02wec
SVD of complex matrix	f02xec
Fresnel integral $S(x)$	s20acc
LDL^T factorization of real symmetric positive-definite variable-bandwidth matrix	f01mcc
All eigenvalues of real symmetric matrix	f02aac
All eigenvalues and eigenvectors of real symmetric matrix	f02abc
... of the form $Ax = \lambda Bx$ where A and B are symmetric and B is positive-definite	f02adc
... of the form $Ax = \lambda Bx$ where A and B are symmetric and B is positive-definite	f02aec
LL^T factorization and determinant of real symmetric positive-definite matrix	f03aec
Solution of real symmetric positive-definite simultaneous linear ...	f04agc
Solution of real symmetric positive-definite variable-bandwidth ...	f04mcc
Real sparse symmetric matrix, incomplete Cholesky factorization	f11jac
Solution of real sparse symmetric linear system, conjugate gradient/Lanczos ...	f11jcc
Solution of real sparse symmetric linear system, conjugate gradient/Lanczos ...	f11jec
Matrix-vector product, real symmetric matrix (dsymv)	f06pcc
Matrix-vector product, real symmetric band matrix (dsbm)	f06pdc
Matrix-vector product, real symmetric packed matrix (dspmv)	f06pec
Rank-2 update, real symmetric packed matrix (dspr2)	f06psc
Rank-2 update, real symmetric matrix (dsyr2)	f06prc
Rank-1 update, real symmetric packed matrix (dspr)	f06pqc
Rank-1 update, real symmetric matrix (dsyrr)	f06ppc
Matrix-matrix product, one real symmetric matrix, one real rectangular matrix (dsymm)	f06ycc
Rank- k update of a real symmetric matrix (dsyrk)	f06ypc
Rank- $2k$ update of a real symmetric matrix (dsyr2k)	f06yrc
Real sparse symmetric matrix reorder routine	f11zbc
Matrix-matrix product, one complex symmetric matrix, one complex rectangular ... (zsymm)	f06ztc
Rank- k update of a complex symmetric matrix (zsyrrk)	f06zuc
Rank- $2k$ update of a complex symmetric matrix (zher2k)	f06zwc
Symmetrised elliptic integral of 1st kind $R_F(x, y, z)$	s21bbc
Symmetrised elliptic integral of 2nd kind $R_D(x, y, z)$	s21bcc
Symmetrised elliptic integral of 3rd kind $R_J(x, y, z, r)$	s21bdc
Degenerate symmetrised elliptic integral of 1st kind $R_C(x, y)$	s21bac
System of equations, real triangular matrix (dtrsv)	f06pjc
System of equations, real triangular band matrix (dtbsv)	f06pkc
System of equations, real triangular packed ... (dtpsv)	f06plc
System of equations, complex triangular matrix (ztrsv)	f06sjc
System of equations, complex triangular ... (ztbsv)	f06skc
System of equations, complex triangular ... (ztpsv)	f06slc
Solution of system of nonlinear equations using function values only	c05tbc
Solution of system of nonlinear equations using 1st derivatives	c05ubc
Solution of real sparse unsymmetric linear system , RGMRES, CGS or Bi-CGSTAB method, ...	f11dcc

Solution of real sparse unsymmetric linear system , RGMRES, CGS, or Bi-CGSTAB method, ...	f11dec
Solution of real sparse symmetric linear system , conjugate gradient/Lanczos method, /	f11jcc
Solution of real sparse symmetric linear system , conjugate gradient/Lanczos method, Jacobi or ...	f11jec
Solves a system of equations with multiple right-hand ... (dtrsm)	f06yjc
Solves a system of equations with multiple right-hand ... (ztrsm)	f06zjc
Real sparse unsymmetric linear systems , incomplete <i>LU</i> factorization	f11dac
Computes probabilities for Student's <i>t</i> -distribution	g01ebc
Computes deviates for Student's <i>t</i> -distribution	g01fbc
Computes <i>t</i> -test statistic for a difference in means between ...	g07cac
χ^2 statistics for two-way contingency table	g11aac
Computes upper and lower tail and probability density function probabilities for ...	g01eec
Complex tan	a02dlc
tanh <i>x</i>	s10aac
arc tanh <i>x</i>	s11aac
Computes test statistic for equality of within-group covariance ...	g03dac
Computes <i>t</i> - test statistic for a difference in means between two ...	g07cac
Shapiro and Wilk's <i>W</i> test for Normality	g01ddc
reference vector for ARMA time series model with following terms generation	g05hac
Univariate time series, sample autocorrelation function	g13abc
Univariate time series, partial autocorrelations from autocorrelations	g13acc
Multivariate time series, estimation of multi-input model	g13bec
Multivariate time series, state set and forecasts from fully specified ...	g13bjc
Univariate time series, smoothed sample spectrum using spectral ...	g13cbc
Multivariate time series, smoothed sample cross spectrum using ...	g13cdc
Multivariate time series, cross amplitude spectrum, squared ...	g13cec
Multivariate time series, gain, phase, bounds, univariate and ...	g13cfc
Multivariate time series, noise spectrum, bounds, impulse response ...	g13cgc
Kalman filters, square root, covariance, time varying	g13eac
Kalman filters, square root, covariance, time invariant	g13ebc
Kalman filters, square root, information, time varying	g13ecc
Kalman filters, square root, information, time invariant	g13edc
Allocates memory to transfer function model orders	g13byc
Freeing function for the transfer function model orders structure	g13bzc
Fast Fourier transform : See Fourier transform	
Single 1-D real discrete Fourier transform	c06eac
Single 1-D Hermitian discrete Fourier transform	c06ebc
Single 1-D complex discrete Fourier transform	c06ecc
2-D complex discrete Fourier transform	c06fuc
Discrete sine transform	c06hac
Discrete cosine transform	c06hbc
Discrete quarter-wave sine transform	c06hcc
Discrete quarter-wave cosine transform	c06hdc
... $1/(x - c)$, Cauchy principal value (Hilbert transform)	d01sqc
Kalman filters, observer Hessenberg transformation	g13ewc
Kalman filters, controller Hessenberg transformation	g13exc
Multiple 1-D real discrete Fourier transforms	c06fpc
Multiple 1-D Hermitian discrete Fourier transforms	c06fqc
Multiple 1-D complex discrete Fourier transforms	c06frc
Transportation problem	h03abc
... cross spectrum using spectral smoothing by the trapezium frequency (Daniell) window	g13cdc
... sample spectrum using spectral smoothing by the trapezium frequency (Daniell) window	g13cbc
Matrix-vector product, real triangular matrix (dtrmv)	f06pfc
Matrix-vector product, real triangular band matrix (dtbmrv)	f06pgc
Matrix-vector product, real triangular packed matrix (dtpmv)	f06phc
System of equations, real triangular matrix (dtrsv)	f06pjc
System of equations, real triangular band matrix (dtbsv)	f06pkc
System of equations, real triangular packed matrix (dtpsv)	f06plc
Matrix-vector product, complex triangular matrix (ztrmv)	f06sfc
Matrix-vector product, complex triangular band matrix (ztbmrv)	f06sgc
Matrix-vector product, complex triangular packed matrix (ztpmv)	f06shc
System of equations, complex triangular matrix (ztrsv)	f06sjc
System of equations, complex triangular band matrix (ztbsv)	f06skc
System of equations, complex triangular packed matrix (ztpsv)	f06slc
Matrix-matrix product, one real triangular matrix, one real rectangular matrix (dtrmm)	f06yfc
... equations with multiple right-hand sides, real triangular coefficient matrix (dtrsm)	f06yjc
Matrix-matrix product, one complex triangular matrix, one complex rectangular ... (ztrmm)	f06zfc
... equations with multiple right-hand sides, complex triangular coefficient matrix (ztrsm)	f06zjc
Computes a trimmed and winsorized mean of a single sample with ...	g07ddc
Addition of two complex numbers	a02cac
Multiplication of two complex numbers	a02ccc
Quotient of two complex numbers	a02cdc

Equality of two complex numbers	a02cgc
Inequality of two complex numbers	a02chc
Circular convolution or correlation of two real vectors	c06ekc
χ^2 statistics for two-way contingency table	g11aac
Rank-1 update, complex rectangular matrix, unconjugated vector (zgeru)	f06smc
Unconstrained minimum, simplex algorithm, function ...	e04ccc
Unconstrained minimum, pre-conditioned conjugate ...	e04dgc
Unconstrained minimum of a sum of squares, ...	e04fcc
Unconstrained minimum of a sum of squares, ...	e04gbc
Switch for taking precautions to avoid underflow	X02DAC
Pseudo-random real numbers, uniform distribution over (0,1)	g05cac
Pseudo-random real numbers, uniform distribution over (<i>a</i> , <i>b</i>)	g05dac
Pseudo-random integer from uniform distribution	g05dyc
Operations with unitary matrices, compute QB or $Q^H B$ after ...	f01rdc
Operations with unitary matrices, form columns of Q after ...	f01rec
Univariate time series, sample autocorrelation function	g13abc
Univariate time series, partial autocorrelations from ...	g13acc
Univariate time series, smoothed sample spectrum ...	g13cbc
Multivariate time series, gain, phase, bounds, univariate and bivariate (cross) spectra	g13cfc
... amplitude spectrum, squared coherency, bounds, univariate and bivariate (cross) spectra	g13cec
Real sparse unsymmetric linear systems, incomplete LU ...	f11dac
Solution of real sparse unsymmetric linear system, RGMRES, CGS ...	f11dcc
Solution of real sparse unsymmetric linear system, RGMRES, CGS ...	f11dec
Real sparse unsymmetric matrix reorder routine	f11zac
... and general linear regression model from updated model	g02ddc
Computes upper and lower tail and probability density function ...	g01eec
... functions, cubic spline interpolant, one variable	e01bac
... piecewise cubic Hermite, one variable	e01bec
... computed by e01bec, function only, one variable	e01bfc
... by e01bec, function and 1st derivative, one variable	e01bgc
... computed by e01bec, definite integral, one variable	e01bhc
Mean, variance, skewness, kurtosis etc, one variable , from raw data	g01aac
Add a new variable to a general linear regression model	g02dec
Delete a variable from a general linear regression model	g02dfc
... general linear regression model for new dependent variable	g02dgc
... factorization of real symmetric positive-definite variable-bandwidth matrix	f01mcc
Solution of real symmetric positive-definite variable-bandwidth simultaneous linear equations ...	f04mcc
... conjugate gradient algorithm, function of several variables using 1st derivatives	e04dgc
Minimum, function of several variables , quasi-Newton algorithm, simple bounds, ...	e04jbc
Minimum, function of several variables , quasi-Newton algorithm, simple bounds, ...	e04kbc
Mean, variance , skewness, kurtosis etc, one variable, from ...	g01aac
Analysis of variance , randomized block or completely randomized ...	g04bbc
Analysis of variance , complete factorial design, treatment means ...	g04cac
... mean of a single sample with estimates of their variance	g07ddc
... squared distances for group or pooled variance-covariance matrices (for use after g03dac)	g03dbc
Performs canonical variate analysis	g03acc
Evaluation of a fitted bicubic spline at a vector of points	e02dec
Set up reference vector for multivariate Normal distribution	g05eac
Set up reference vector for generating pseudo-random integers, Poisson ...	g05ecc
Set up reference vector for generating pseudo-random integers, binomial ...	g05edc
Pseudo-random permutation of an integer vector	g05ehc
Pseudo-random sample from an integer vector	g05ejc
Set up reference vector from supplied cumulative distribution function ...	g05exc
Pseudo-random integer from reference vector	g05eyc
Pseudo-random multivariate Normal vector from reference vector	g05ezc
Generates a vector of pseudo-random numbers from a beta ...	g05fec
Generates a vector of pseudo-random numbers from a gamma ...	g05ffc
reference vector for ARMA time series model with ...	g05hac
Circular convolution or correlation of two real vectors	c06ekc
Shapiro and Wilk's W test for Normality	g01ddc
1-D quadrature, adaptive, finite interval, weight function $\cos(\omega x)$ or $\sin(\omega x)$	d01snc
1-D quadrature, adaptive, finite interval, weight function with end-point singularities of ...	d01spc
1-D quadrature, adaptive, finite interval, weight function $1/(x - c)$, Cauchy principal value ...	d01sqc
1-D quadrature, adaptive, semi-infinite interval, weight function $\cos(\omega x)$ or $\sin(\omega x)$	d01ssc
... robust estimation of a correlation matrix, Huber's weight function	g02hkc
... for location and scale parameters, standard weight functions	g07dbc
Computes (optionally weighted) correlation and covariance matrices missing ...	g02bxc
Shapiro and Wilk's W test for Normality	g01ddc
... smoothing by the trapezium frequency (Daniell) window	g13cbc
... smoothing by the trapezium frequency (Daniell) window	g13cdc
Computes a trimmed and winsorized mean of a single sample with estimates of ...	g07ddc

	Zero of continuous function in given interval, ...	c05sdc
... IVP, Adams method, until function of solution is zero , intermediate output		d02cjc
... IVP, BDF method, until function of solution is zero , intermediate output (simple driver)		d02ejc
All zeros of complex polynomial, modified Laguerre method		c02afc
All zeros of real polynomial, modified Laguerre method		c02agc