

NAG Fortran Library Chapter Contents

D01 – Quadrature

Note: please refer to the Users' Note for your implementation to check that a routine is available.

D01 Chapter Introduction

Routine Name	Mark of Introduction	Purpose
D01AHF	8	One-dimensional quadrature, adaptive, finite interval, strategy due to Patterson, suitable for well-behaved integrands
D01AJF	8	One-dimensional quadrature, adaptive, finite interval, strategy due to Piessens and de Doncker, allowing for badly behaved integrands
D01AKF	8	One-dimensional quadrature, adaptive, finite interval, method suitable for oscillating functions
D01ALF	8	One-dimensional quadrature, adaptive, finite interval, allowing for singularities at user-specified break-points
D01AMF	2	One-dimensional quadrature, adaptive, infinite or semi-infinite interval
D01ANF	8	One-dimensional quadrature, adaptive, finite interval, weight function $\cos(\omega x)$ or $\sin(\omega x)$
D01APF	8	One-dimensional quadrature, adaptive, finite interval, weight function with end-point singularities of algebraico-logarithmic type
D01AQF	8	One-dimensional quadrature, adaptive, finite interval, weight function $1/(x - c)$, Cauchy principal value (Hilbert transform)
D01ARF	10	One-dimensional quadrature, non-adaptive, finite interval with provision for indefinite integrals
D01ASF	13	One-dimensional quadrature, adaptive, semi-infinite interval, weight function $\cos(\omega x)$ or $\sin(\omega x)$
D01ATF	13	One-dimensional quadrature, adaptive, finite interval, variant of D01AJF efficient on vector machines
D01AUF	13	One-dimensional quadrature, adaptive, finite interval, variant of D01AKF efficient on vector machines
D01BAF	7	One-dimensional Gaussian quadrature
D01BBF	7	Pre-computed weights and abscissae for Gaussian quadrature rules, restricted choice of rule
D01BCF	8	Calculation of weights and abscissae for Gaussian quadrature rules, general choice of rule
D01BDF	8	One-dimensional quadrature, non-adaptive, finite interval
D01DAF	5	Two-dimensional quadrature, finite region
D01EAF	12	Multi-dimensional adaptive quadrature over hyper-rectangle, multiple integrands
D01FBF	8	Multi-dimensional Gaussian quadrature over hyper-rectangle
D01FCF	8	Multi-dimensional adaptive quadrature over hyper-rectangle
D01FDF	10	Multi-dimensional quadrature, Sag–Szekeres method, general product region or n -sphere
D01GAF	5	One-dimensional quadrature, integration of function defined by data values, Gill–Miller method
D01GBF	10	Multi-dimensional quadrature over hyper-rectangle, Monte Carlo method
D01GCF	10	Multi-dimensional quadrature, general product region, number-theoretic method
D01GDF	14	Multi-dimensional quadrature, general product region, number-theoretic method, variant of D01GCF efficient on vector machines
D01GYF	10	Korobov optimal coefficients for use in D01GCF or D01GDF, when number of points is prime

D01GZF	10	Korobov optimal coefficients for use in D01GCF or D01GDF, when number of points is product of two primes
D01JAF	10	Multi-dimensional quadrature over an n -sphere, allowing for badly behaved integrands
D01PAF	10	Multi-dimensional quadrature over an n -simplex
