## Maxima Manual

Version 5.42.0

Maxima is a computer algebra system, implemented in Lisp.  Maxima is derived from the Macsyma system, developed at MIT in the years 1968 through 1982 as part of Project MAC. MIT turned over a copy of the Macsyma source code to the Department of Energy in 1982; that version is now known as DOE Macsyma. A copy of DOI Macsyma was maintained by Professor William F. Schelter of the University of Texas from 1982 until his death in 2001. In 1998, Schelter obtained permission from the Department of Energy to release the DOE Macsyma source code under the GNU Public License, and in 2000 he initiated the Maxima project at SourceForge to maintain and develop DOI Macsyma, now called Maxima.	e E n t

## **Short Contents**

1	Introduction to Maxima
2	Bug Detection and Reporting7
3	Help
4	Command Line
5	Data Types and Structures
6	Expressions
7	Operators
8	Evaluation
9	Simplification
10	Mathematical Functions
11	Maximas Database
12	Plotting
13	File Input and Output
14	Polynomials
15	Special Functions
16	Elliptic Functions
17	Limits
18	Differentiation
19	Integration
20	Equations
21	Differential Equations
22	Numerical
23	Matrices and Linear Algebra
24	Affine
25	itensor
26	ctensor
27	atensor
28	Sums, Products, and Series
29	Number Theory
30	Symmetries
31	Groups
32	Runtime Environment
33	Miscellaneous Options

34	Rules and Patterns
35	Sets
36	Function Definition
37	Program Flow
38	Debugging
39	alt-display
40	asympa
41	augmented_lagrangian
42	Bernstein
43	bitwise
44	bode
45	celine
46	clebsch_gordan
47	cobyla
48	combinatorics
49	contrib_ode
50	descriptive
51	diag723
52	distrib
53	draw
54	drawdf
55	dynamics
56	engineering-format897
57	ezunits
58	f90917
59	finance
60	fractals
61	ggf929
62	graphs931
63	grobner
64	impdiff
65	interpol
66	lapack
67	lbfgs
68	lindstedt

69	linearalgebra
70	lsquares
71	minpack
72	makeOrders
73	mnewton
74	numericalio
75	operatingsystem
76	opsubst
77	orthopoly
78	ratpow
79	romberg
80	simplex
81	simplification
82	solve_rec
83	stats
84	stirling
85	stringproc
86	to_poly_solve
87	unit
88	wrstcse
89	zeilberger
90	Error and warning messages
A	Function and Variable Index