

Discovering Mathematics With Magma

[DOWNLOAD HERE](#)

1;Preface;6 2;Magma: The project;8 3;Discovering mathematics: About this volume;14 4;How to read the Magma code;20 5;Contents;24 6;Some computational experiments in number theory;26 6.1;1 Introduction;26 6.2;2 Covering systems;27 6.3;3 Covering systems and explicit primality tests;32 6.4;4 The totient function;40 6.5;5 Class number relations;46 6.6;References;53 7;Applications of the class field theory of global fields;56 7.1;1 Introduction;56 7.2;2 Number fields;57 7.3;3 Global function fields;70 7.4;4 Applications;77 7.5;References;86 8;Some ternary Diophantine equations of signature $(n, n, 2)$;88 8.1;1 Introduction;88 8.2;2 Proof of Proposition 1.3;90 8.3;3 Construction of parametrising curves;91 8.4;4 The equation $x^5 + y^5 = Dz^2$;93 8.5;5 Deciding local solvability;97 8.6;6 Mordell Weil groups of elliptic curves;104 8.7;7 Chabauty methods using elliptic curves;109 8.8;8 The equations $x^n + y^n = Dz^2$ for $n = 6, 7, 9, 11, 13, 17$;113 8.9;References;115 9;Studying the Birch and Swinnerton-Dyer conjecture for modular abelian varieties using Magma;118 9.1;1 Introduction;118 9.2;2 Modular abelian varieties;119 9.3;3 The Birch and Swinnerton-Dyer Conjecture;122 9.4;4 Some computational results;125 9.5;5 Modular symbols;126 9.6;6 Visibility theory;129 9.7;7 Computing special values of modular L-function;130 9.8;8 Computing Tamagawa numbers;131 9.9;9 Computing the torsion subgroup;132 9.10;10 A divisor and multiple of the order of the Shafarevich Tate group;132 9.11;11 An element of the Shafarevich Tate group that becomes visible at higher level;133 9.12;12 Complete Magma log;136 9.13;References;139 10;Computing with the analytic Jacobian of a genus 2 curve;142 10.1;1 Introduction;142 10.2;2 Finding genus 2 CM curves defined over the rationals;145 10.3;3 Isogenies;152 10.4;References;159 11;Graded rings and special K3 surfaces;162 11.1;1 Introduction;162 11.2;2 Elementary example;165 11.3;3 Graded rings of polarised varieties;168 11.4;4 Subcanonical curves;169 11.5;5 K3 database;171 11.6;6 Simple degenerations of the famous 95;173 11.7;7 Unprojection;178 11.8;8 Special K3 surfaces in Fletcher's 84;180 11.9;References;183 12;Constructing the split octonions;186 12.1;1 Introduction;186 12.2;2 Structure constant algebras;188 12.3;3 Lie algebras of type D_4 and E_6 ;191 12.4;4 Triality;194 12.5;5 The Lie algebra of type G_2 ;196 12.6;6 The split octonions;198 12.7;7 The quadratic form;202 12.8;8 The Chevalley groups of type G_2 ;205 12.9;References;210 13;Support varieties for modules;212 13.1;1

Introduction;212 13.2;2 Notes on projectivity;214 13.3;3 Support varieties and rank varieties;215 13.4;4 Finding points on the variety;217 13.5;5 Computing the variety from a set of points;224 13.6;6 Varieties of truncated syzygy modules;226 13.7;References;228 14;When is projectivity detected on subalgebras?;230 14.1;1 Introduction;230 14.2;2 Criterion for projectivity;231 14.3;3 Basic algebras and homological algebra on the computer;233 14.4;4 Support varieties for modules over group algebras;234 14.5;5 Some notes on cohomology and computations;236 14.6;6 An algebra whose projective modules are detected on proper subalgebras;238 14.7;7 An example in which projectivity is not detected on subalgebras;241 14.8;References;244 15;Cohomology and group extensions in Magma;246 15.1;1 Introduction;246 15.2;2 Computing cohomology groups;247 15.3;3 Finding group extensions;261 15.4;References;266 16;Computing the primitive permutation groups of degree less than 1000;268 16.1;1 Some background;268 16.2;2 Mathematical preliminaries;269 16.3;3 Determining conjugacy;271 16.4;4 Maximal irreducible subgroups of $GL(4, 5)$;280 16.5;5 The main algorithm;282 16.6;6 Results;283 16.7;References;284 17;Computer aided discovery of a fast algorithm for testing conjugacy in braid groups;286 17.1;1 Introduction;286 17.2;2 Background: braid groups and testing conjugacy;287 17.3;3 Coming EAN/ISBN : 9783540376347 Publisher(s): Springer, Berlin Discussed keywords: Magma (Programmiersprache) Format: ePub/PDF Author(s): Bosma, Wieb - Cannon, John

[DOWNLOAD HERE](#)

Similar manuals:

[Discovering Mathematics With Magma](#)