

A Guide to GCSE Mathematics

This guide is for students, parents and carers. It outlines: Information about the GCSE course; the topics on each examination paper and where students can find revision resources; and ends with examination tips specific to this subject.

Course Title and Exam Board

| | |
|---------------------------------|--|
| Exam board | Edexcel |
| Course title | Mathematics |
| Course structure and assessment | 3 x 90 minute papers 1 Non calculator 2 calculator |

GCSE Examinations

| Paper | Marks | Duration | Topics on this paper |
|--------------------------|-------|----------|---|
| Paper 1 – Non Calculator | 80 | 90mins | <ol style="list-style-type: none">1. Number2. Algebra3. Geometry and Measure4. Statistics5. Probability6. Ratio and proportion |
| Paper 2 – Calculator | 80 | 90mins | <ol style="list-style-type: none">1. Number2. Algebra3. Geometry and Measure4. Statistics5. Probability6. Ratio and proportion |
| Paper 3 – Calculator | 80 | 90mins | <ol style="list-style-type: none">1. Number2. Algebra3. Geometry and Measure4. Statistics5. Probability6. Ratio and proportion |

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Three Examination Tips Specific to this Subject

See in the school's public area - student area – REVISION - Maths folders for Maths maps, Flash cards, Question cards, Model answers and Past Papers

Where are the revision resources?

All revision resources for all maths exam papers are stored in the school's public drive area:

P:\Students\REVISION\Maths\Foundation or Higher

- *Exam Paper and Model Answers*
- *Knowledge for All Exam Papers*
- *Online Resources*
- *Quizzes Questions and Resources*

Or, use Heggarty Maths, see below:

| Foundation Tier Exam paper | Heggarty Maths Clip Number | Tick |
|---|----------------------------|------|
| 3D shapes | 829 | |
| 3D shapes (faces, edges, vertices) | 830 | |
| Add or subtract fractions | 65 | |
| Adding fractions | 66 | |
| Addition and subtraction with decimals | 47 | |
| Angle problem solving, properties of a kite | 477, 560, 824 | |
| Area and perimeter of a square | 554 | |
| Area of a circle problem solving | 542 | |
| Area of a trapezium, money (problem solving) | 559, 754 | |
| Area problem solving | 557, 556 | |
| Bar charts, mean from frequency tables | 425, 418 | |
| Bar charts, one number as a percentage of another | 425, 62, 76 | |
| Best buys, percentage increase and decrease | 771, 90 | |
| Calculate probability from a frequency tree | 368 | |
| Calculating probability from a Venn diagram | 374, 375, 384 | |
| Calculating values from tariff graphs | | |
| Change from ordinary to standard form | 122 | |
| Change from standard form to an ordinary number | 123 | |
| Change the subject of a formula (2-step) | 281 | |
| Collecting like terms | 156 | |
| Compare decimal numbers | 46 | |
| Compare fractions | 60 | |
| Compare quantities using ratio | 328 | |
| Compare quantities using ratio, simplify ratios | 328, 329 | |
| Complete a frequency tree | 368 | |
| Complex calculations using a calculator | 129 | |
| Compound interest | 94 | |
| Congruence | 680 | |
| Convert decimals to fractions | 52 | |

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| Convert percentages to fractions | 82 | |
| Convert simple decimals to percentages | 55 | |
| Converting length | 692 | |
| Converting length word problems | 694 | |
| Converting mass | 695 | |
| Cubing a number | 100 | |
| Decimal problem solving | 51 | |
| Describing transformations | 652 | |
| Displaying sets in Venn diagrams | 373 | |
| Drawing line graphs from coordinates | 205 | |
| Drawing pie charts | 427 | |
| Drawing quadratic graphs from a table | 251 | |
| Equivalent fractions | 59 | |
| Estimation | 131 | |
| Expand double brackets | 164 | |
| Expectation | 355 | |
| Express a probability in numbers | 350 | |
| Factorise quadratic expressions | 223 | |
| Factorise simple expressions | 169 | |
| Factors of a number | 27 | |
| Find percentages of amounts | 87 | |
| Find the x-intercept (roots) of a quadratic graph | 253 | |
| Fractions of an amount | 77 | |
| Fractions of an amount, fraction problem solving | 77, 80 | |
| Gradient, solve 2-step equations | 201, 181 | |
| Independent events and probability trees | 361 | |
| Index form (multiplying and dividing) | 106 | |
| Integer solutions to inequalities | 267 | |
| Interior angles in polygons problem solving | 564 | |
| Inverse proportion | 342 | |
| Linear and geometric sequences (term-to-term rule) | 197, 264 | |
| Linear sequences (nth term) | 198 | |
| Money problem solving | 753 | |
| Money problems | 747 | |
| Multiples of a number | 33 | |
| Mutually exclusive events | 354 | |
| Order of operations | 24 | |
| Percentage change | 97 | |
| Percentage decrease | 90 | |
| Percentage increase | 90 | |
| Percentage of an amount, percentage increase | 84, 88 | |
| Percentage problem solving | 98 | |
| Perimeter and algebra | 552 | |
| Pictograms | 426 | |

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| Plotting points | 199 | |
| Prime numbers | 28 | |
| Probability of more than one event | 358 | |
| Probability of single events | 351 | |
| Quadrilaterals | 824 | |
| Ratio problem solving | 335 | |
| Read and write positive integers | 13 | |
| Reading coordinates | 199 | |
| Reflections | 639 | |
| Representing inequalities on a number line | 265 | |
| Rotate a shape | 649 | |
| Round numbers to the nearest 1000 | 17 | |
| Round to significant figures | 130 | |
| Scale diagrams | 865 | |
| Scatter diagrams | 453, 454 | |
| Sharing in a given ratio, right-angle trigonometry | 332, 510 | |
| Similar polygons | 608 | |
| Simple interest | 93 | |
| Simplifying expressions involving multiplication | 158 | |
| Solve 2-step equations (involving multiplication) | 179 | |
| Solve single linear inequalities | 269 | |
| Solving simultaneous equations | 193 | |
| Speed | 717, 721 | |
| Speed, estimating calculations | 721, 131 | |
| Square and cube roots | 101 | |
| Square numbers, odd numbers | 99, 25 | |
| Square root of a decimal | 101 | |
| Standard form calculations | 126, 127, 128 | |
| Substitution | 781 | |
| Substitution (equations of motion) | 788 | |
| Tariff graphs | | |
| Use angle facts to solve problems | 477, 481, 485 | |

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| Higher Tier Exam paper | Clip Number | Tick |
|---|---------------|------|
| 3D trigonometry | 856 | |
| Algebraic inverse proportion | 346 | |
| Area of a circle problem solving | 542 | |
| Area of a trapezium, money (problem solving) | 559, 754 | |
| Bar charts, mean from frequency tables | 425, 418 | |
| Bar charts, one number as a percentage of another | 425, 62, 76 | |
| Best buys with percentages | 771 | |
| Box plots from cumulative frequency diagrams | 440 | |
| Brackets involving surds, rationalising surds | 116, 119 | |
| Calculating probability from a Venn diagram | 374, 375, 384 | |
| Calculations with bounds | 139 | |
| Change from ordinary to standard form | 122 | |
| Change the subject of a formula (2-step) | 281 | |
| Circle theorems (multi-step problems) | 606 | |
| Circumference, area of a triangle, Pythagoras theorem | 499, 535, 557 | |
| Combined transformations | 657 | |
| Combined transformations, invariance | 656, 655 | |
| Comparing distributions using box plots | 436 | |
| Complex calculations using a calculator | 129 | |
| Composite functions | 294 | |
| Composite functions | 293 | |
| Compound interest | 94 | |
| Conditional probability with algebra | 367 | |
| Convert recurring decimals to fractions | 54 | |
| Describing transformations (enlargements) | 651 | |
| Direct algebraic proof | 325, 327 | |
| Displaying sets in Venn diagrams | 373 | |
| Draw a histogram | 446 | |
| Drawing quadratic graphs from a table | 251 | |
| Equation of a circle | 314, 778 | |
| Error intervals | 774 | |
| Estimate the median from a histogram | 447 | |
| Estimation | 131 | |
| Expand triple brackets | 166 | |
| Exponential equations, substitution | 796, 797, 786 | |
| Exponential growth graphs | 800 | |
| Factorise quadratic expressions | 226, 224 | |
| Find perimeter using arc length and sine rule | 522, 545 | |
| Find the turning point of a quadratic graph | 255 | |
| Find the x-intercept (roots) of a quadratic graph | 253 | |
| Frequency polygons | 441 | |

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| Function notation | 288 | |
| Gradient, solve 2-step equations | 201, 181 | |
| Graph transformations $f(-x)/y$ -axis | 312 | |
| Graph transformations $f(x\pm a)$ | 308 | |
| HCF, volume of a cube and cuboid | 31, 568 | |
| Independent events and probability trees | 361 | |
| Index form (combination of rules) | 110 | |
| Index form (multiplying and dividing) | 106 | |
| Indices with algebraic expressions, exponential equations | 174, 796 | |
| Interpreting box plots | 436 | |
| Inverse functions | 295 | |
| Inverse proportion | 342 | |
| Non-calculator trigonometry | 848 | |
| Non-calculator trigonometry (exact values) | 845 | |
| Percentage change | 97 | |
| Percentage of an amount, percentage increase | 84, 88 | |
| Probability of single events | 352 | |
| Product rule for counting | 671 | |
| Proof using circle theorems and angle facts | 477, 593, 597 | |
| Ratio problem solving, simultaneous equations | 336, 191, 329 | |
| Ratio, percentage profit problem solving | 332, 760 | |
| Round to significant figures | 130 | |
| Scatter diagrams | 453, 454 | |
| Sequences from recurrence relations | 262 | |
| Sharing in a given ratio, right-angle trigonometry | 332, 510 | |
| Simplify algebraic fractions involving quadratics | 229 | |
| Simultaneous equations (one linear, one non-linear) | 318, 319 | |
| Solve double quadratic inequalities | 272, 277 | |
| Solve using the quadratic formula, round to SF | 242, 130 | |
| Solving quadratic equations | 233 | |
| Solving simultaneous equations | 193 | |
| Speed | 717, 721 | |
| Speed, estimating calculations | 721, 131 | |
| Standard form calculations, rounding (significant figures) | 126, 127, 130 | |
| Straight line graphs, simultaneous equations | 211, 213, 191, 194 | |
| Substitution (equations of motion) | 788 | |
| Tangent graphs | 305 | |
| Use angle facts to solve problems | 477, 481, 485 | |
| Vectors (geometry problems) | 636 | |
| Volume of similar shapes and ratio | 621 | |
| Volume, similar shapes, average density | 578, 580, 618, 730 | |
| Write algebraic fractions as a single fraction | 224 | |