



Online Mathematical Course information

Here's what's in each one!

Title	Recommended Year Level	Content
Algebra without Anxiety -Introductory Algebra	8/9	Intro to Algebra - Algebra explained, addition rules, subtraction rules Multiplying - Multiplication rules for algebra Exponents - How to multiply the same letters Dividing - Division rules for algebra Like Terms - What are like terms? How do we use them?
Algebra without Anxiety – Early Algebra	9	Simplifying and Need to Know - Algebra explained, key understandings Substitution - Finding substitution solutions Simplifying Fractions - Simplifying fractions, algebra with fractions Expanding 1 - One bracket expansions Factorising 1 - Factorising with a common factor
Algebra without Anxiety – Middle Algebra	10	Expanding 2 - Expanding 2 brackets, FOIL Factorising 2 - Factorising quadratics Rearranging Formulae - What is a formula?, Changing the subject Linear Solving 1 - One step equations, Two step equations. Linear Solving 2 - Variable on both sides, Solving with fractions
Algebra without Anxiety – Late Algebra	11	Factorising 3 - Factorising advanced quadratics Solving Quadratics - Solving quadratic equations Linear Solving 3 - Solving word problems, forming equations from stories Simultaneous Equations 1 - Solve simultaneous equations using the substitution method Simultaneous Equations 2 - Solve simultaneous equations using the elimination method

Algebra without Anxiety - Brackets	11	Expanding 1 - One bracket expansions Factorising 1 - Factorising with a common factor Expanding 2 - Expanding 2 brackets, FOIL Factorising 2 - Factorising quadratics Factorising 3 - Factorising advanced quadratics
Algebra without anxiety – MCAT Achieved	11	Substitution - Finding substitution solutions Rearranging Formulae - What is a formula?, Changing the subject Solving Quadratics - Solving quadratic equations Simplifying Quadratic Fractions - Simplifying fractions formed by quadratic expressions Solving Inequalities - How to solve linear and quadratic in equations
Algebra without Anxiety – MCAT Merit/Excellence	11	Exponential Equalities - Solving equations where the variable is an exponent Measurement in Algebra - Finding area and perimeter when dimensions are algebraic expressions Simultaneous Equations 1 - Solve simultaneous equations using the substitution method Simultaneous Equations 2 - Intersections of non-straight lines, Complicated or unorthodox problems Word Problems in Algebra - Unearthing the equations and expressions from word problems
Algebra without Anxiety – Advanced Algebra	12	Quadratic Formula - What is the quadratic formula?, Using the quadratic formula The Discriminant - What is the discriminant?, What does the discriminant tell us? Completing the Square - How to complete the square, Why do we do it? Index Rules - Terms, combining indices, rule sheet Logarithms - The log function, combining logs, rearranging logs
Algebra without Anxiety - Sequences and Series	12	Arithmetic Terms - Finding a term in an arithmetic sequence, giving a general term Arithmetic Sums - Finding the sum of terms in an arithmetic sequence Geometric Terms - Finding a term in a geometric sequence Geometric Sums - Finding the sum of terms in a geometric sequence Infinite Sums - When does a series sum to infinity, finding the sum
Intro to High School	8/9	Factors - What are factors?, How to find factors of a number, Primes Integers - Sums - Introducing the concept of negative numbers, How to add and subtract with negatives Integers - Products - How to multiply and divide with negatives Angles - Introduction - What are angles?, Types of angle, Naming angles Intro to Algebra - Algebra explained, addition rules, subtraction rules
Year 9 Maths Fundamentals	9	Simplifying and Need to Know - Algebra explained, key understandings Statistics Basics - Mean, median, mode, average BEDMAS Busted - Background, Fill in the blanks, Questions Number Strategies - Relative size of numbers and fractions, Negative numbers Fractions, Decimals, and Percentages - Relations between fractions, decimals and percentages

Year 10 Maths Fundamentals	10	Expanding 1 - One bracket expansions Factorising 1 - Factorising with a common factor Pythagoras - Theorem of Pythagoras, Finding missing side lengths Probability - What is probability?, Finding probabilities Angles – Fundamentals - Basic angle rules, Angle rules for triangles
Year 11 Maths Fundamentals	11	Expanding 2 - Expanding 2 brackets, FOIL Factorising 2 - Factorising quadratics Parallel Lines - Corresponding angles, Alternate angles, Co-interior angles Area - Quadrilaterals, Triangles, Circles Identifying Linear Patterns - Identifying the formula to describe a pattern
Year 12 Maths Fundamentals	12	Quadratic Formula - What is the quadratic formula?, Using the quadratic formula Index Rules - Terms, combining indices, rule sheet Two-Way Tables - Producing a two-way table, Using a two-way table Tree Diagrams - Producing a tree diagram, Using a tree diagram Sine Rule - Non-right angled triangles, Finding missing sides, Finding missing angles
Year 13 Calculus Fundamentals	13	Differentiation - What is differentiation?, How to differentiate Integration - What is integration?, How to integrate Basic Trig Identities - Useful common trigonometric identities Surd Rules - What is a surd?, Simplifying surds Conics - The Circle - Equation of a circle, defining a circle by its location and size
Carefree Calculus Calculus Basics	12	Differentiation - What is differentiation?, How to differentiate Integration - What is integration?, How to integrate Stationary Points - Maxima and Minima, Second derivative test Tangents - What are tangents?, Finding their equations Applications - Practical applications of calculus, Optimisation, Kinematics
Carefree Calculus Differentiation Basics	13	Graphical Limits - Continuity and differentiability, Graphical representations of derivatives, Values vs limits First Principles - Deriving the method of differentiation by a first principles approach Composite Functions - The Chain Rule - Replacing a complicated function with a simple one, The chain rule, Factorised polynomials Trig Functions - The derivatives of trigonometric functions Exponential and Log Functions - The derivatives of the exponential e^x and the natural logarithm $\ln(x)$
Carefree Calculus Differentiation Expanded	13	Product Rule - Differentiating when two functions are multiplied together Quotient Rule - Differentiating when one function is divided by another Parametrics - Differentiating function where x and y depend on a third variable Implicit Differentiation - Differentiating functions where neither variable can be isolated Related Rates of Change - Differentiation when the rate of change of a value depends on another changing value

Genius at Geometry- Triangles	10/11	Pythagoras - Theorem of Pythagoras, Finding missing side lengths Trigonometry - Sides - Using SOHCAHTOA for sides Trigonometry - Angles - Using SOHCAHTOA for angles Triangles in 3D - Recognising triangles in 3D, Calculations with trig and Pythagoras Similar Triangles - Triangles with same angles, Ratios of sides
Genius at Geometry- Angles	10/11	Angles - Fundamentals - Basic angle rules, Angle rules for triangles Parallel Lines - Corresponding angles, Alternate angles, Co-interior angles Polygons and Bearings - Exterior angles of a polygon, Interior angles of a polygon, Bearings Angles - Circles - Angles on an arc, Angles at circumference Cyclic Quadrilaterals - Cyclic quadrilaterals, Angles involving tangents
Great with Graphs Linear	10/11	Identifying Linear Patterns - Identifying the formula to describe a pattern Equation of a Line - Gradient/Intercept Method - Finding the equation of a straight line using the gradient and the y-intercept Equation of a Line - Point Method - Finding the equation of a straight line using two points Drawing Lines - Gradient Method - Drawing a straight line from an equation of the form $y=mx+c$ Drawing Lines - Intercept Method - Drawing a straight line from an equation of the form $ax+by=c$
Great with Graphs Parabolas	11/11	Identifying Quadratic Patterns - Identifying the formula to describe a quadratic pattern Drawing Parabolas - Vertex Method - The basic shape of a parabola, Drawing parabolas of the form $y=a(x-b)^2+c$ Drawing Parabolas - Intercept Method - Drawing parabolas of the form $a(x-b)(x-c)$ Equation of a Parabola - Vertex Method - Finding the equation of a parabola with a known turning point Equation of a Parabola - Intercept Method - Finding the equation of a parabola with known x-intercepts
No Nuisance Number – Intro to fractions	8/9	Recognising Fractions - Learning how to visually identify a fraction Adding and Subtracting Fractions - Adding fractions, Subtracting fractions Multiplying and Dividing Fractions - Multiplying fractions, Dividing fractions Simplifying Fractions - Factors and common factors, How to find a fraction's simplest form Fractions, Decimals, and Percentages - Relations between fractions, decimals and percentages
No Nuisance Number - Preparing for High School	7/8	Addition Algorithms - Solving addition problems by using an algorithm Subtraction Algorithms - Solving subtraction problems by using an algorithm Multiplication Algorithms - Solving multiplication problems by using an algorithm Division Algorithms - Solving division problems by using an algorithm Rounding - How to round, Decimal places, Significant figures
Junior Algorithms	5/6	Place Values - Identifying place values in numbers Adding - Solving two digit addition problems by using an algorithm Addition Word Problems - How to form an algorithm related to adding from a word problem Subtracting - Solving two digit subtraction problems by using an algorithm Subtraction Word Problems - How to form an algorithm related to subtracting from a word problem
No Nuisance Number	8/9	Number Strategies - Relative size of numbers and fractions, Negative numbers Factors - What are factors?, How to find factors of a number, Primes

Number Basics		Rounding - How to round, Decimal places, Significant figures Integers - Sums - Introducing the concept of negative numbers, How to add and subtract with negatives Integers - Products - How to multiply and divide with negatives
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