Year 13 Maths Preview Sheet

Exam Board: Edexcel

Syllabus: 9MA0

Module 1

Proof (Pages 1 – 2)
- Proof by contradiction

Algebra and Functions (Pages 3 – 44)
- Simplifying expressions
- Mappings and functions
- Composite functions
- Inverse functions
- Composite functions
- Modulus
- Transformations of graphs
- Partial fractions

Trigonometry (Pages 45 – 88)
- Arcs and Sectors
- Small angle formula
- Inverse trig functions
- Cosec, Sec and Cot
- Identities involving Cosec, Sec and Cot
- The addition formula
- The Double Angle formula
- The R Addition formula
- Modelling with trig functions

Module 2

Coordinate geometry (Pages 89 – 96)
- Parametric equations of curves
- Parametric and Cartesian equations

Sequences and Series (Pages 97 – 120)
- Sequences
- Arithmetic sequences
- Arithmetic series
- Geometric sequences and Series
- Modelling problems

Binomial expansion (page 121 – 135)
- The binomial expansion
- Using the binomial expansion as an approximation
- Binomial expansion and partial fractions

Module 3

Differentiation (Pages 136 – 180)
- Points of inflection
- Chain rule
- Differentiation of exponential and logs
- Differentiating trig functions
- Product rule
- Quotient rule
- Connected rates of change
- Differentiation with parametric equations
- Implicit differentiation

Integration (Pages 181 – 230)
- Integration of $(ax + b)^n$
- Integration of trigonometric functions
- Using trigonometric identities in integration
- Finding areas using integration
- Integration by substitution
- Integration by parts
- Integration using partial fractions
- Differential equations

Numerical methods (Pages 231 – 251)
- Location of root
- Iterative methods
- Sketching iterations
- The Newton-Raphson method
- The Trapezium rule

Vectors (Pages 252 – 258)
- Vectors in three dimensions
- Calculating with vectors

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Module 4

Correlation and Regression (Pages 259 – 266)
- Regression
- The Product Moment Correlation Coefficient

Probability (Pages 267 – 277)
- Conditional probability
- Modelling with Probability

The Normal Distribution (Page 278 – 303)
- The Normal Distribution
- Normal approximation to a Binomial Distribution
- Choosing probability distribution
- Hypothesis tests of the mean of a distribution

Kinematics (Pages 204 – 325)
- Projectiles
- Non-uniform acceleration in 2 dimensions

Dynamics (Pages 326 – 354)
- Resolving forces
- Friction
- Newton law of motion

Moments (Pages 355 – 374)
- Moments
- Reactions forces and friction

Modules 5 & 6

Revision of the year

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