Y11 Mock Exam Preparation: *Further Maths*

Mock Exam(s):
Paper 1: Non-calculator - 105 minutes
Paper 2: Calculator - 105 minutes

Revision Topic List	
Content	**Skills**
- **Number**	- **Product rule for counting** - **Calculating with standard form** - **Manipulation of surds, including rationalising the denominator** - **Manipulation of index numbers** - **Index laws, including fractional and negative indice**
- **Algebra**	- **Expand Triple Brackets** - **Factorising** - **Use and manipulation of formulae and expressions** - **Limiting value of a sequence as $n \to \infty$** - **Simplify Algebraic Fractions** - **Piecewise functions** - **Dividing a polynomial** - **Factor theorem** - **Form and solve linear inequalities** - **Manipulation of rational expressions: Use of + − × ÷ for algebraic fractions with denominators being numeric, linear or quadratic** - **Solving quadratics** - **Cubic graphs** - **Linear and quadratic Sequences** - **Algebraic solution of simultaneous equations in two unknowns, where the equations could both be linear or one linear and one second order** - **Composite and inverse Functions** - **nth terms of linear and quadratic sequences** - **Domain and range of a function** - **Exponential Equations** - **Expand $(a + b)^n$ for positive integer n (Binomial expansion - can use Pascal's)**
- **Coordinate geometry**	- **Drawing linear graphs** - **Equation of a Line** - **Know the relationship between the**

	gradients of parallel and perpendicular lines - Use of quadratic and linear graphs to solve an equation - Points of Intersection and Turning Points - Understand the equation of a circle with centre (a, b) and radius r - Points of Intersection and Turning Points - Equation of a straight line - Use Pythagoras' theorem to calculate the distance between two points
- Calculus	- Differentiate a function - Use of differentiation to find stationary point - Understand and use the 2nd derivative - Using calculus to find maxima and minima in simple problems - Know that the gradient of a function is the gradient of the tangent at that point. - The equation of a tangent and normal at any point on a curve
- Matrices	- Matrix multiplication and solving equations - Matrix transformations
- Geometry	- Be able to apply pythagoras' theorem and trigonometry in right and non-right angled triangles with/without a calculator - Non-Right Angle Trigonometry - Exact trigonometric values and the cosine rule - 3-D Pythagoras' theorem - Surface Area and 3D Trigonometry - Understand and use circle theorems - Know and use $\tan\theta = \sin\theta / \cos\theta$ and $\sin^2\theta + \cos^2\theta = 1$ - Solution of simple trigonometric equations in given intervals - Be able to use the definitions sin θ, cos θ and tan θ, for any positive angle up to 360°(measured in degrees only)

Tips on different revision techniques, including subject specific activities can be found in the Student Study Support Guide.

Top Further Maths websites for revision are:

Corbett Maths - https://corbettmaths.com/more/further-maths
1st class Maths - https://www.1stclassmaths.com/l2-further-maths