

## Advance Information for Summer 2022

### A Level

### Mathematics A

### H240

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#### Information

- This notice covers all examined components.
- There are no restrictions on who can use this notice.
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- This document has **3** pages.

#### Advice

- The information is presented in specification order by the main topic of each question and not in question order.
- Topics not explicitly given in the list may appear in low tariff items or via synoptic questions.
- It is advised that teaching and learning should still cover the entire subject content in the specification.
- Students and teachers can discuss this advance information.

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**H240/01 Pure Mathematics**

- Proof
- Quadratic equations and inequalities
- Investigation of curves; polynomial and trigonometric functions
- Transformations; exponential functions and logarithms
- Parametric equations; coordinate geometry
- Binomial expansions
- Exponential decay
- Implicit differentiation
- Integration by substitution
- Solving differential equations; exponential functions and logarithms
- Numerical methods; circles; trigonometric equations
- Trapezium rule

**H240/02 Pure Mathematics with Statistics****Pure Mathematics**

- Proof
- Solving equations; algebra techniques
- Functions
- Sequences and series
- Differentiation; investigation of curves
- Integration techniques; trigonometric functions
- Solving differential equations
- Vectors and geometry

**Statistics**

- Data representation; measures of location and central tendency
- Probability; conditional probability; Venn diagram
- Normal distribution; data representation
- Hypothesis test: binomial distribution
- Hypothesis test: normal distribution

## H240/03 Pure Mathematics with Mechanics

### Pure Mathematics

- Modulus function
- Functions: transformations and inverses
- Investigation of curves; differentiation; Newton-Raphson method
- Coordinate geometry of circles
- Arithmetic and geometric series
- Inverse and reciprocal trigonometric ratios, identities and equations
- Area under curves; exponential function

### Mechanics

- Kinematics graphs
- Kinematics in 2 dimensions using vectors
- Projectiles
- Forces, friction
- Pulley; rough surface, Newton's Laws
- Statics: forces, friction, equilibrium

## END OF ADVANCE INFORMATION

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