

## Advance Information for Summer 2022

### AS Level

### Further Mathematics A

### H235

We have produced this advance information to support teachers and students with revision for the Summer 2022 examinations.

#### Information

- This notice covers all examined components.
- There are no restrictions on who can use this notice.
- You are **not** permitted to take this notice into the exam.
- 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.
- AS Level Further Mathematics assumes all subject content of AS Level Mathematics.
- Students and teachers can discuss this advance information.

If you have any queries about this notice, please call our Customer Support Centre on **01223 553998** or email [general.qualifications@ocr.org.uk](mailto:general.qualifications@ocr.org.uk).

**Y531/01 Pure Core**

- Mathematical induction
- Complex numbers; solution of equations
- Loci; Argand diagrams
- Matrix addition and multiplication; determinants
- Invariance; linear transformations
- Vector equation of a line; angles between vectors
- Scalar product
- Roots of equations

**Y532/01 Statistics**

- Probability: combinatorics
- Probability distributions for general discrete random variables; probabilities
- Binomial distribution; geometric distribution
- Poisson distribution
- Contingency tables
- Hypothesis tests: Spearman's rank correlation coefficient
- Linear regression

**Y533/01 Mechanics**

- Dimensional analysis
- Energy; work; power
- Work-energy principle; impulse
- Power
- Linear momentum; restitution; energy
- Linear momentum; restitution; multiple collisions
- Uniform motion in a circle
- Motion in a vertical circle

**Y534/01 Discrete Mathematics**

- Mathematical preliminaries: arrangement and selection problems; set notation
- Algorithms: working with algorithms; definition of an algorithm
- Algorithms: strategies for sorting; efficiency and complexity
- Network algorithms
- Decision making in project management: critical path analysis
- Graphical linear programming: formulating LP problems; graphical solutions; working with constraints
- Game theory: pay-off matrix; pure strategies

**Y535/01 Additional Pure Mathematics**

- Recurrence relations and solving recurrence systems; divisibility
- Fibonacci and related numbers
- Divisibility tests
- Groups; subgroups; cyclic groups; properties of groups
- Vector product
- 3-D surfaces; sections and contours
- Surfaces and partial differentiation; stationary points

**END OF ADVANCE INFORMATION**

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