

# Pearson Edexcel Level 3 GCE

May–June 2022 Assessment Window

Syllabus  
reference

**8FM0**

## Further Mathematics

Advanced Subsidiary  
Advance Information

You are not permitted to take this notice into the examination.  
This document is valid if downloaded from the [Pearson Qualifications website](https://www.pearsonqualifications.com).

### Instructions

- Please ensure that you have read this notice before the examination.

### Information

- This notice covers all examined components.
- The format/structure of the assessments remains unchanged.
- This advance information details the focus of the content of the exams in the May–June 2022 assessments.
- There are no restrictions on who can use this notice.
- This notice is meant to help students to focus their revision time.
- Students and teachers can discuss advance information.
- This document has 5 pages.

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## General advice

- In addition to covering the content outlined in the advance information, students and teachers should consider how to:
  - manage their revision of parts of the specification which may be assessed in areas not covered by the advance information
  - manage their revision of other parts of the specification which may provide knowledge that helps with understanding the areas being tested in 2022.
- For specifications with synoptic assessments, topics not explicitly given in the advance information may appear, e.g. where students are asked to bring together knowledge, skills and understanding from across the specification.
- For specifications with optional papers, students should only refer to the advance information for their intended option.
- For specifications with NEA, advance information does not cover any NEA components.

A link to the Joint Council for Qualifications guidance document on advance information can be found on the Joint Council for Qualifications website or [here](#).

## **Subject advice**

### **Subject specific section**

- For each paper, the lists below show the major focus of the content of the exams.
- Questions will be drawn from one or more of these areas of the specification content.
- The aim should still be to cover all specification content in teaching and learning.
- The information is presented in approximate specification order and not in question order.

### **Paper 8FM0/01 Further Mathematics Core Pure**

- Proof by induction
- Complex numbers: Loci in the Argand diagram. Knowledge of radians is assumed
- Matrices: Solution of three linear simultaneous equations in three variables
- Matrix representation of simple transformations in 3-D
- The relationship between roots and coefficients of polynomial equations
- Understand and use formulae for the sums of integers, squares and cubes and use these to sum other series
- Volumes of revolution
- Vectors: Straight lines and planes, scalar product

### **Paper 8FM0/21 Further Pure Mathematics 1**

- $t$ -formulae
- Coordinate systems: The parabola; Simple loci
- Vector product: Scalar triple product
- Numerical solution of first order differential equations
- Solution of algebraic inequalities

### **Paper 8FM0/22 Further Pure Mathematics 2**

- Groups; Divisibility tests
- Reduction of matrices to a diagonal form
- Further loci and regions in the Argand diagram
- The Euclidian algorithm; Modular arithmetic; Bezout's identity
- The solution of recurrence relations to obtain closed forms

### **Paper 8FM0/23 Further Statistics 1**

- Discrete probability distributions (mean and variance)
- Discrete probability distributions; hypothesis tests
- Chi squared test (goodness of fit, binomial)
- Chi squared test (contingency table)

### **Paper 8FM0/24 Further Statistics 2**

- Cumulative distribution function and probability density function
- Continuous random variables (median, mode and variance)
- Continuous random variables (expected value function to include  $E(g(X))$ )
- Product moment correlation coefficient; least squares linear regression
- Hypothesis test of rank correlation

### **Paper 8FM0/25 Further Mechanics 1**

- Power, resolving forces
- Work-energy, friction, resolving forces
- Direct impact, impulse-momentum
- Successive direct impacts

### **Paper 8FM0/26 Further Mechanics 2**

- Motion in a horizontal circle, friction
- Centres of mass, equilibrium (lamina)
- Centres of mass, equilibrium (framework)
- Variable acceleration of a particle moving in a straight line

### **Paper 8FM0/27 Decision Mathematics 1**

- Sorts, minimum spanning tree
- Shortest inspection route around a network, Dijkstra's algorithm, language of graphs
- Modelling a project from a precedence table
- Interpreting and solving a two-variable graphical linear programme

### **Paper 8FM0/28 Decision Mathematics 2**

- Allocation; Hungarian algorithm
- Flows in networks: proof of maximum flow, cuts
- Game Theory: optimal mixed strategy, stable solution
- Solution of first order non-homogeneous recurrence relations

### **END OF ADVANCE INFORMATION**