

Advance Information for Summer 2022

Level 3 FSMQ

Additional Mathematics

6993

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

Information

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- The format/structure of the paper remains unchanged.
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- You are **not** permitted to take this Advance Information into the exam.
- This document has **3** pages.

Advice

- The following areas of content are suggested as key areas of focus for revision and final preparation, in relation to the summer 2022 examinations.
- The information is provided in specification content order and does not reflect the number of questions, the question order or the allocation of marks.
- The aim should still be to cover all specification content in teaching and learning.
- You should consider how you revise other parts of the specification, for example to review whether other topics may provide knowledge which helps your understanding in relation to the areas being tested in 2022.
- Students' responses to individual questions may draw upon other areas of specification content where relevant, and credit will be given for this where appropriate.
- Students and teachers can discuss this Advance Information.
- Students can ask their teachers for advice.

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FSMQ topic area	FSMQ content	Content description
Algebra	Algebraic Manipulation	AL4 Find linear factors of a polynomial.
	Applications of equations	AL6 Set up and solve problems leading to linear, quadratic and cubic equations in one unknown, and to simultaneous equations in two unknowns.
	Inequalities	AL7 Manipulate inequalities.
Enumeration	Permutations	<p>EN2 Construct and use tree diagrams, two way tables, Venn diagrams or the binomial distribution to enumerate outcomes.</p> <p>EN3 Use the product rule for counting numbers of outcomes of combined events.</p> <p>EN4 Enumerate the number of ways of obtaining an ordered linear subset (permutation) of r elements from a set of n distinct objects.</p>
	Applications	EN6 Solve problems about outcomes, including problems in the context of probability.
Coordinate Geometry	The straight line	<p>CG1 Calculate the distance between two points.</p> <p>CG2 Find the mid-point of a line segment.</p>
	The coordinate geometry of circles	CG3 Know and use the equation of a circle $(x - a)^2 + (y - b)^2 = r^2$ where (a, b) is the centre and r is the radius of the circle.
	Graphs	<p>CG4 Sketch and plot linear, polynomial, trigonometric and exponential functions.</p> <p>CG5 Know, understand and use gradient, intercept, tangent and normal in problems involving points that can be defined by equations and inequalities.</p>
Pythagoras' Theorem and Trigonometry	Ratios of any angles	PT1 Use the definitions of $\sin\theta$, $\cos\theta$ and $\tan\theta$ for any angle and their graphs.
	Trigonometrical identities	PT4 Know and use the identity $\sin^2\theta + \cos^2\theta \equiv 1$.
	Trigonometrical equations	<p>PT5 Solve simple trigonometric equations in given intervals.</p> <p>PT6 Apply Pythagoras' Theorem and trigonometry to 2- and 3-dimensional problems.</p>

FSMQ topic area	FSMQ content	Content description
Calculus	Differentiation	CA4 Find the equation of a tangent and normal at any point on a curve.
	Integration	CA8 Integrate kx^n where n is a positive integer or 0, and the sum of such functions. CA9 Be aware that integration is the reverse of differentiation. CA13 Find the area between two curves.
	Application to kinematics	CA15 Recognise the special case where the use of constant acceleration formulae is appropriate.
Numerical Methods	Gradients of tangents	NM4 Use a chord to estimate gradient of a tangent to a curve at a point.
	Area under a curve	NM6 Use rectangular strips to estimate the area between a curve and the x-axis. NM8 Recognise whether an estimate would be an over or under estimate, and understand how to calculate an improved estimate.
Exponentials and logarithms	Properties of the logarithmic function	EL2 Know and use the definition of $\log_a x$ as the inverse of a^x EL3 Understand and use the laws of logarithms.
	Equations involving exponentials	EL6 Solve equations of the form $a^x = b$ for $a > 0$.

END OF ADVANCE INFORMATION



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