

OCR GCSE maths advance information

Information here accompanies the summary tables produced by 3rd Space Learning (also available in the open resources folder 'GCSE 2022')

Foundation:

Number and ratio

The first thing to note about OCR's advance information is that it's significantly more difficult to identify crossover content due to non-standard terminology.

For example, it's likely that 'prime factors' on Foundation reference the same question as 'factors and multiples' on Higher, but it's definitely not as clear-cut as the other boards.

The number lists are quite lengthy, and appear to list most of the topics on the specification. It's likely that reverse percentages and lower and upper bounds will appear in the crossover content on Paper 1, and standard form calculations in the crossover content for Paper 2. Product of prime factors seems most likely to appear on Paper 2.

We have non-specific use of ratio and proportion on all three papers, with inverse proportion and direct proportion appearing in the crossover content for Papers 2 and 3 respectively.

Simple interest is worth reviewing with students before Paper 3, as some have a tendency to tackle every question mentioning interest as a compound change problem.

Algebra

The guidance for algebra is equally broad. Solving quadratic equations appears on the crossover content, so this is likely to be a factorisation where the coefficient of x^2 is 1.

Solving linear equations is mentioned a couple of times, and solving linear inequalities appears in the crossover content for Paper 1. Therefore, it might be good to include linear inequalities in all revision work on linear equations, ensuring that students aren't put off by seeing the inequality symbol.

Graphs of real-world contexts on Paper 3 could link to the statement about 'growth and decay problems and graphs'.

Geometry and measure

There's quite a bit of area overall, with rectangle, triangle, composite and circle across the three papers. It seems likely that the 'volume including cylinder, pyramid and sphere' is crossover content, which implies we're looking at a pyramid or sphere from the equivalent statement on Higher.

Pythagoras' theorem isn't mentioned anywhere in the Foundation information, although it does appear on the Higher Paper 1. However, there is quite a bit of focus on trigonometry, including exact trigonometric values in Paper 2.

There's a reference to constructing loci on the Higher Paper 2; this could be referencing the same question as the constructions point regarding angle bisector and line bisector on Foundation.

Probability and statistics

There is no probability content given for Paper 1. There's considerable overlap with Higher probability on Paper 2, which implies that the relative frequency question will be fairly challenging, possibly involving forming algebraic expressions.

Calculation with the laws of probability appears on Paper 3. It's worth noting that students are given the laws on the formula sheet, but this will be extremely challenging for Foundation candidates.

In statistics, graphical misrepresentation appears a couple of times, as does averages. The crossover material contains scatter graphs and pie charts, hence the latter is likely to be assessed at a higher level.

Higher:

Number and ratio

Again, the number content from OCR lacks the specificity it needs to be particularly useful.

It is possible that we will see some easier marks from the crossover content on each paper: order of operations, reverse percentages, upper and lower bounds, and standard form are a few examples. Surds appear on Paper 5, and there's quite a bit of work across Papers 5 and 6 on the laws of indices.

Direct proportion and solving proportion problems appear on Paper 4; these are not in the crossover content, so we might predict a proportion equations question, possibly linking to formulating algebraic expressions mentioned in the algebra section.

The proportional reasoning on Papers 5 and 6 could be more accessible. There isn't much detail on ratio other than 'use ratio' – so again, too broad to be particularly useful.

Algebra

The algebra lists are probably more useful on Higher. We've got a steer towards equations of circles and proof on Paper 4, and kinematics and iteration on Paper 5. The mention of graphical inequalities and solution set for inequalities, along with drawing and interpreting graphs on Paper 6 suggests we could expect a question on solving a more complex linear (or potentially quadratic) inequality and graphing the solution set.

The quadratic equations question on Paper 5 appears in the crossover content, so this could be a factorisation where the coefficient of x^2 is 1. Remember that this can include difference of two squares!

Geometry and measure

A few key topics here include circle theorems, angles in polygons (likely interior or exterior angle calculations or reasoning), length, area and volume scale factors on Paper 6, possibly linked to area of a triangle.

Circumference of a circle is mentioned on all three papers – it's possible that it's linked with circle theorems on Paper 4, and likely to be arc length on Paper 5.

Pythagoras' theorem isn't mentioned anywhere in the Foundation information, so it's likely that the reference on the Higher Paper 4 is a more challenging application.

Trigonometry on Paper 5 is included in the crossover content, so should be fairly

straightforward for most Higher candidates, but there's a reference to trigonometry in non-right-angled triangles on Paper 6.

Probability and statistics

Conditional probability appears on all three papers. As calculation with laws of probability is mentioned on Paper 4, this is probably using the conditional probability law as given on the formula sheet. On Paper 5, the Venn diagrams question could potentially have a follow-up question involving conditional probability.

The detail for statistics seems lacking compared to the other two boards. Therefore, it's difficult to draw any meaningful conclusions, beyond ensuring students have recently revised scatter graphs, pie charts, time series graphs and cumulative frequency. It is possible that the graphical misrepresentation questions will address some of the other chart types.

This information is produced with grateful thanks to Christine Norledge, writing for 3rd Space Learning, for her in-depth analysis

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