AQA 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

While AQA's guidance seems a little general, it's worth noting the use of the word 'problem' in some of the statements. For example, Paper 2 states 'proportion *problem*', presumably implying there's a context-based scenario.
There's a handy list of applications in the ratio section, including cost, density, better value and rate of output, so I'd dig out some previous exam questions around these topics to practise with students.
Systematic listing and error intervals are a couple of number topics that sometimes get overlooked as newer content. It looks likely that we'll see a two-part standard form calculation question, with part (a) converting either to or from standard form, and part (b) carrying out a calculation on Paper 1.
Ratio n : 1 form and scale drawings go nicely together; these could possibly be part of the same question.

Algebra

The first thing that jumps out in this strand is the amount of graph work, particularly on Paper 2. We might assume that there will be a question on graph shapes, and potentially plotting a quadratic (rather than a linear graph) on Paper 1, because linear graphs also appear on that paper and in some depth on Paper 2. There's some crossover content on finding roots and turning point from a quadratic graph on Paper 3.
There's also quite a bit on sequences on Paper 3. This is likely to be more crossover content, so we could guess nth term of an arithmetic sequence, followed by some manipulation of a geometric sequence, possibly writing down the next two terms.

Geometry and measure

Area/volume of a compound shape appears on both Paper 2 and 3 (it's not clear from the guidance whether it's area or volume in either case).
There are a few statements just giving shape names; it's possible that knowledge of these shape properties will be required to answer other questions, perhaps finding the volume of a cylinder on Paper 3, or naming a sphere.
Sector of a circle at Foundation is likely to be procedural and might be an easy win. It may help students to select correct methods if they know there's a Pythagoras question to look out for on Paper 2 and some trigonometry on Paper 3.

Probability and statistics

There's some fair detail in probability with topics like frequency trees, tree diagrams and Venn diagrams to focus on.
Relative frequency and expected value are likely to be assessed as part of the same question on experimental probability.
Two-way tables appear twice. There could be a link on Paper 1 with the probability problem, potentially requiring students to calculate a probability from a two-way table.

Higher:

Number and ratio

Looking at the crossover content, it is possible that there will be a few fairly procedural questions on standard form conversions and calculations, fraction arithmetic, number properties, and HCF and LCM. Error intervals and the product rule for counting can both catch students out, so they're worth a bit of revision.
It's not particularly clear what the statement 'fractions: products' refers to; it's unlikely to be simple fraction multiplication, as this would presumably be given as fraction arithmetic. A best guess at this point is that it refers to product of fractional gradients required for perpendicular lines.
In the ratio strand, share into a ratio isn't in the crossover content, along with the inclusion of ratio on a line, so we might suspect that these two are linked to the geometrical proof question.

Algebra

There's a broad range of algebra skills across all three papers. We should be looking out for factorising a quadratic inequality to find a region on Paper 1.
On Paper 2, we've got completing the square (and a mention of turning points), and on Paper 3, the quadratic equation is likely to refer to the one involved in the linear/quadratic simultaneous equation. With all this work already on quadratics, I'd be surprised to see a quadratic formula question.
Triple brackets and inequalities on a number line might provide some easier marks; functions work can also be quite accessible, so it's worth revising this with students.

Geometry and measure

As they're in the crossover content, we can probably expect questions on sector of a circle, Pythagoras, trigonometry and vector arithmetic to be fairly accessible.
Area/volume of a compound shape appears on both Paper 2 and 3 (it's not clear from the guidance whether it's area or volume in either case), again in crossover content. It's likely, therefore, that the volume scale factor question will involve either cones or hemispheres.
As bearings appear on Higher only, this could be an applied question linked with sine or cosine rule.

Probability and statistics

Venn diagrams, relative frequency and expected value are likely to be accessible as they appear in the crossover content. Tree diagrams are on Paper 1 and could tie in with independent events.
On Paper 2, the statement about notation is presumably the use of P() notation for probability and laws of probability given on the formula sheet.
Paper 3 has a nice long list of statistics content, so I'd get students to really focus on that in their last-minute preparation for the final paper. There's a mention of line of best fit and outliers, so presumably, we're looking at a scatter graph – students might need this pointing out!

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