

GCSE ONLINE TUTORING

IN PARTNERSHIP WITH RS REMOTE TUTORING

AQA GCSE (9-1) MATHEMATICS 8300

AQA 8300 MASTER SPECIFICATION REFERENCE & REVISION AUDIT

Foundation + Higher | 97 specification references | detailed student-facing guide

INDEPENDENT PUBLICATION NOTICE

This independently authored resource is mapped to the publicly available AQA GCSE Mathematics (8300) specification and AQA-published results information. It is not produced, approved or endorsed by AQA.

No AQA past-paper question, mark-scheme wording, logo, screenshot or proprietary illustration is reproduced. AQA is a trademark of AQA Education. All explanatory text, worked examples, checklists and analysis in this publication are independently authored.

Copyright © 2026 GCSE Online Tutoring and RS Remote Tutoring. All rights reserved.

Source set verified: 29 October 2026

How to use this document

This book converts every AQA 8300 subject-content reference into a readable revision target. It is designed to sit beside lessons, topic tests and past-paper work: use the official reference code to trace a skill back to AQA, then use the audit prompts to decide whether it is genuinely secure.

Section	What it gives you
Part 1	Assessment structure, tier rules and assessment objectives.
Part 2	Detailed reference-by-reference curriculum guide for N, A, R, G, P and S.
Part 3	End-of-book revision audit and priority planner.
References	Direct AQA specification and assessment sources.

Source tags such as [SPEC-N4] or [ER23-H3] are defined in the References section. They are there so a tutor, student or editor can audit where each factual statement came from.

Part 1 - Qualification and assessment structure

AQA GCSE Mathematics 8300 is assessed by three 80-mark papers, giving 240 marks in total. Paper 1 is non-calculator; Papers 2 and 3 are calculator papers. Foundation tier covers grades 1 to 5. Higher tier covers grades 4 to 9, with a grade 3 safety-net boundary in the published boundary table. All content areas may appear across the papers rather than being permanently assigned to one paper.

Source: AQA 8300 specification at a glance / scheme of assessment [ASSESS].

Tier	Number	Algebra	Ratio/rates	Geometry	Probability + statistics
Foundation	25%	20%	25%	15%	15%
Higher	15%	30%	20%	20%	15%

Higher tier is not simply “Foundation plus harder numbers”. The specification allocates a larger proportion of Higher assessment to Algebra and Geometry, and Higher also contains specific extension content such as conditional probability, circle theorems, iterative methods and non-right-triangle trigonometry.

Assessment-objective balance

Foundation

Weighting: AO1 50% | AO2 25% | AO3 25%

Revision implication: Do not revise only procedures. AO2 requires reasoning and communication; AO3 requires selecting mathematics in unfamiliar/multi-step problems.

Source: [ASSESS]

Higher

Weighting: AO1 40% | AO2 30% | AO3 30%

Revision implication: Do not revise only procedures. AO2 requires reasoning and communication; AO3 requires selecting mathematics in unfamiliar/multi-step problems.

Source: [ASSESS]

Part 2 - Detailed specification guide

Number

This section contains 16 official content references. The wording below is independently paraphrased for revision use; the AQA reference is retained for auditing.

N1 - Ordering and inequality notation

AQA reference: N1

Foundation requirement: Order positive/negative integers, decimals and fractions; use equality and inequality symbols and number lines

Higher requirement: Same core skill; apply fluently in multi-step contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N1] AQA GCSE Mathematics 8300 subject content

N2 - Four operations, place value and finance

AQA reference: N2

Foundation requirement: Use four operations with integers, decimals, fractions and mixed numbers; place value; financial vocabulary

Higher requirement: Same core skill at greater complexity

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N2] AQA GCSE Mathematics 8300 subject content

N3 - Inverse operations and order of operations

AQA reference: N3

Foundation requirement: Use inverse operations and correct order of operations, including powers, roots and reciprocals

Higher requirement: Same core skill at greater algebraic complexity

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N3] AQA GCSE Mathematics 8300 subject content

N4 - Primes, factors, multiples, HCF and LCM

AQA reference: N4

Foundation requirement: Prime numbers; factors/multiples; HCF/LCM; prime-factor decomposition in index form

Higher requirement: Same core skill in harder problem solving

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N4] AQA GCSE Mathematics 8300 subject content

N5 - Systematic listing and counting

AQA reference: N5

Foundation requirement: Systematic listing using lists, tables or diagrams

Higher requirement: Use product rule for counting

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N5] AQA GCSE Mathematics 8300 subject content

N6 - Powers and roots

AQA reference: N6

Foundation requirement: Positive integer powers and roots; recognise common powers

Higher requirement: Estimate powers and roots of positive numbers

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N6] AQA GCSE Mathematics 8300 subject content

N7 - Indices and roots

AQA reference: N7

Foundation requirement: Calculate with roots and integer indices

Higher requirement: Calculate with fractional indices

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N7] AQA GCSE Mathematics 8300 subject content

N8 - Exact calculation, pi and surds

AQA reference: N8

Foundation requirement: Exact fractions and exact multiples of π

Higher requirement: Exact surd calculation, simplification and rationalising denominators

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N8] AQA GCSE Mathematics 8300 subject content

N9 - Standard form

AQA reference: N9

Foundation requirement: Calculate with and interpret standard form $A \times 10^n$, with/without calculator

Higher requirement: Same skill in demanding calculations

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N9] AQA GCSE Mathematics 8300 subject content

N10 - Fractions and decimals

AQA reference: N10

Foundation requirement: Convert between terminating decimals and fractions

Higher requirement: Convert recurring decimals to fractions and vice versa

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N10] AQA GCSE Mathematics 8300 subject content

N11 - Fractions in ratio

AQA reference: N11

Foundation requirement: Use fractions in ratio problems

Higher requirement: Same core skill

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N11] AQA GCSE Mathematics 8300 subject content

N12 - Fractions and percentages as operators

AQA reference: N12

Foundation requirement: Use fractions and percentages as operators; percentage multipliers

Higher requirement: Same core skill in multi-step contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N12] AQA GCSE Mathematics 8300 subject content

N13 - Measures and unit conversion

AQA reference: N13

Foundation requirement: Use standard units and metric conversions for length, area, volume/capacity, mass, time and money

Higher requirement: Same core skill plus demanding compound-measure contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N13] AQA GCSE Mathematics 8300 subject content

N14 - Estimation and checking

AQA reference: N14

Foundation requirement: Estimate answers and check reasonableness using approximation

Higher requirement: Same skill in complex problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N14] AQA GCSE Mathematics 8300 subject content

N15 - Rounding and error intervals

AQA reference: N15

Foundation requirement: Round to decimal places/significant figures; use simple error intervals from rounding/truncation

Higher requirement: Use error intervals confidently in multi-stage problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N15] AQA GCSE Mathematics 8300 subject content

N16 - Bounds and limits of accuracy

AQA reference: N16

Foundation requirement: Apply and interpret limits of accuracy

Higher requirement: Upper/lower bounds and calculations with bounds

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I complete a non-calculator version? • Can I estimate the size/sign of my answer before accepting it? • Have I kept units/rounding consistent?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-N16] AQA GCSE Mathematics 8300 subject content

Algebra

This section contains 25 official content references. The wording below is independently paraphrased for revision use; the AQA reference is retained for auditing.

A1 - Algebraic notation

AQA reference: A1

Foundation requirement: Use algebraic notation correctly: products, powers, fractions, coefficients and brackets

Higher requirement: Same notation fluently in complex expressions

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A1] AQA GCSE Mathematics 8300 subject content

A2 - Substitution

AQA reference: A2

Foundation requirement: Substitute numerical values into expressions and formulae

Higher requirement: Same skill with more complex/scientific formulae

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A2] AQA GCSE Mathematics 8300 subject content

A3 - Algebraic vocabulary and identities

AQA reference: A3

Foundation requirement: Understand expression, equation, formula, inequality, term and factor

Higher requirement: Also understand and use identities

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A3] AQA GCSE Mathematics 8300 subject content

A4 - Manipulation, expansion and factorisation

AQA reference: A4

Foundation requirement: Collect like terms; expand a single bracket; factor common factors; use index laws; expand two binomials; factor simple quadratics/difference of squares

Higher requirement: Manipulate surds/algebraic fractions; expand multiple binomials; factor ax^2+bx+c

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A4] AQA GCSE Mathematics 8300 subject content

A5 - Formulae and changing the subject

AQA reference: A5

Foundation requirement: Use standard formulae and rearrange formulae to change subject

Higher requirement: Same skill with demanding rearrangements

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A5] AQA GCSE Mathematics 8300 subject content

A6 - Identities, arguments and proof

AQA reference: A6

Foundation requirement: Know equation vs identity; construct algebraic arguments

Higher requirement: Construct formal algebraic proofs

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A6] AQA GCSE Mathematics 8300 subject content

A7 - Functions

AQA reference: A7

Foundation requirement: Interpret simple expressions as input-output functions

Higher requirement: Use inverse/composite functions and $f(x)$, $fg(x)$, $f^{-1}(x)$

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A7] AQA GCSE Mathematics 8300 subject content

A8 - Coordinates

AQA reference: A8

Foundation requirement: Coordinates in all four quadrants

Higher requirement: Same skill in graph/geometry problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A8] AQA GCSE Mathematics 8300 subject content

A9 - Straight-line graphs and $y = mx + c$

AQA reference: A9

Foundation requirement: Plot straight-line graphs; use $y=mx+c$; parallel lines; line through points/given gradient

Higher requirement: Identify perpendicular lines using gradients

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A9] AQA GCSE Mathematics 8300 subject content

A10 - Gradient and intercept

AQA reference: A10

Foundation requirement: Interpret gradient and intercept graphically and algebraically

Higher requirement: Same, including complex contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A10] AQA GCSE Mathematics 8300 subject content

A11 - Quadratic roots and turning points

AQA reference: A11

Foundation requirement: Read roots/intercepts/turning points of quadratics; deduce roots algebraically

Higher requirement: Deduce turning points by completing the square

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A11] AQA GCSE Mathematics 8300 subject content

A12 - Recognising and sketching functions

AQA reference: A12

Foundation requirement: Recognise/sketch linear, quadratic, simple cubic and reciprocal graphs

Higher requirement: Also exponential and trigonometric function graphs for angles of any size

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A12] AQA GCSE Mathematics 8300 subject content

A13 - Transformations of functions

AQA reference: A13

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Sketch translations and reflections of functions

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A13] AQA GCSE Mathematics 8300 subject content

A14 - Graphs in real contexts

AQA reference: A14

Foundation requirement: Plot/interpret real-context graphs and find approximate solutions

Higher requirement: Include reciprocal and exponential graph contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A14] AQA GCSE Mathematics 8300 subject content

A15 - Gradients and areas under graphs

AQA reference: A15

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Estimate gradients and areas under non-linear graphs; interpret distance/speed/financial contexts

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A15] AQA GCSE Mathematics 8300 subject content

A16 - Circle equations and tangents

AQA reference: A16

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Equation of circle centred at origin; equation of tangent at a point

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A16] AQA GCSE Mathematics 8300 subject content

A17 - Linear equations

AQA reference: A17

Foundation requirement: Solve linear equations; approximate graphical solutions; unknowns both sides

Higher requirement: Same with more demanding algebra

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A17] AQA GCSE Mathematics 8300 subject content

A18 - Quadratic equations

AQA reference: A18

Foundation requirement: Solve quadratics by factorising; approximate graphically

Higher requirement: Also rearrange, complete square and use quadratic formula

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A18] AQA GCSE Mathematics 8300 subject content

A19 - Simultaneous equations

AQA reference: A19

Foundation requirement: Solve two linear simultaneous equations algebraically/graphically

Higher requirement: Also linear/quadratic simultaneous equations

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A19] AQA GCSE Mathematics 8300 subject content

A20 - Iteration

AQA reference: A20

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Find approximate solutions numerically using iteration

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A20] AQA GCSE Mathematics 8300 subject content

A21 - Forming and solving equations from contexts

AQA reference: A21

Foundation requirement: Translate contexts into expressions/formulae/equations; solve and interpret

Higher requirement: Same skill in demanding geometrical/contextual problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A21] AQA GCSE Mathematics 8300 subject content

A22 - Inequalities

AQA reference: A22

Foundation requirement: Solve linear inequalities in one variable and show on number line

Higher requirement: Solve linear inequalities in one/two variables and quadratic inequalities; set notation/graphs

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A22] AQA GCSE Mathematics 8300 subject content

A23 - Generating sequences

AQA reference: A23

Foundation requirement: Generate sequence terms from term-to-term or position-to-term rules

Higher requirement: Same in complex patterns

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A23] AQA GCSE Mathematics 8300 subject content

A24 - Recognising sequence types

AQA reference: A24

Foundation requirement: Recognise triangular/square/cube numbers and arithmetic sequences; Fibonacci-type, quadratic and simple geometric progressions

Higher requirement: Geometric sequences including surd ratios and other sequences

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A24] AQA GCSE Mathematics 8300 subject content

A25 - nth-term rules

AQA reference: A25

Foundation requirement: Find nth term of linear sequences

Higher requirement: Find nth term of quadratic sequences

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I show every algebraic step without changing the equality? • Can I substitute my result back to check it? • Can I recognise the same skill when embedded in a word/geometry problem?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-A25] AQA GCSE Mathematics 8300 subject content

Ratio, proportion and rates of change

This section contains 16 official content references. The wording below is independently paraphrased for revision use; the AQA reference is retained for auditing.

R1 - Unit conversion and compound units

AQA reference: R1

Foundation requirement: Convert standard and compound units in numerical contexts

Higher requirement: Use density/pressure and compound units in numerical/algebraic contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R1] AQA GCSE Mathematics 8300 subject content

R2 - Scale factors, diagrams and maps

AQA reference: R2

Foundation requirement: Use scale factors, scale diagrams and maps

Higher requirement: Same with complex geometric reasoning

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R2] AQA GCSE Mathematics 8300 subject content

R3 - One quantity as a fraction of another

AQA reference: R3

Foundation requirement: Express one quantity as a fraction of another

Higher requirement: Same in multi-step contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R3] AQA GCSE Mathematics 8300 subject content

R4 - Ratio notation

AQA reference: R4

Foundation requirement: Use and simplify ratio notation

Higher requirement: Same in demanding contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R4] AQA GCSE Mathematics 8300 subject content

R5 - Sharing, scaling, mixing and best buys

AQA reference: R5

Foundation requirement: Share quantities in ratios; part:part and part:whole; best buy, mixtures, concentrations

Higher requirement: Same with multi-stage reasoning

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R5] AQA GCSE Mathematics 8300 subject content

R6 - Multiplicative relationships

AQA reference: R6

Foundation requirement: Express multiplicative relationships as ratio or fraction

Higher requirement: Same in algebraic contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R6] AQA GCSE Mathematics 8300 subject content

R7 - Proportion

AQA reference: R7

Foundation requirement: Use proportion as equality of ratios

Higher requirement: Same with algebraic modelling

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R7] AQA GCSE Mathematics 8300 subject content

R8 - Ratio, fractions and linear functions

AQA reference: R8

Foundation requirement: Connect ratios, fractions and linear functions

Higher requirement: Same with modelling

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R8] AQA GCSE Mathematics 8300 subject content

R9 - Percentages and percentage change

AQA reference: R9

Foundation requirement: Percentages, percentage change, reverse percentages and simple interest

Higher requirement: Same plus complex multi-step financial problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R9] AQA GCSE Mathematics 8300 subject content

R10 - Direct and inverse proportion

AQA reference: R10

Foundation requirement: Direct/inverse proportion using numerical, graphical and algebraic representations

Higher requirement: Same with demanding algebra

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R10] AQA GCSE Mathematics 8300 subject content

R11 - Compound measures

AQA reference: R11

Foundation requirement: Compound units: speed, pay rates, unit prices; density and pressure

Higher requirement: Same with rearrangement and comparison

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R11] AQA GCSE Mathematics 8300 subject content

R12 - Length, area and volume scale factors

AQA reference: R12

Foundation requirement: Compare lengths/areas/volumes using ratios and scale factors

Higher requirement: Connect to similarity and trigonometric ratios

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R12] AQA GCSE Mathematics 8300 subject content

R13 - Proportion equations

AQA reference: R13

Foundation requirement: Interpret direct/inverse proportion equations

Higher requirement: Construct and interpret direct/inverse proportion equations

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R13] AQA GCSE Mathematics 8300 subject content

R14 - Gradient as a rate of change

AQA reference: R14

Foundation requirement: Interpret gradient as rate of change; recognise direct/inverse proportion graphs

Higher requirement: Same in demanding contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R14] AQA GCSE Mathematics 8300 subject content

R15 - Instantaneous rate of change

AQA reference: R15

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Instantaneous rate of change; gradients of tangents/chords

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R15] AQA GCSE Mathematics 8300 subject content

R16 - Growth, decay and iterative processes

AQA reference: R16

Foundation requirement: Growth/decay including compound interest

Higher requirement: General iterative processes

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Can I identify what is multiplicative rather than additive? • Can I set up a unit/ratio table before calculating? • Can I explain the meaning of the rate or percentage in context?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-R16] AQA GCSE Mathematics 8300 subject content

Geometry and measures

This section contains 25 official content references. The wording below is independently paraphrased for revision use; the AQA reference is retained for auditing.

G1 - Geometrical language and notation

AQA reference: G1

Foundation requirement: Use standard geometry terminology/notation; label triangles; draw diagrams from descriptions

Higher requirement: Same terminology in proofs

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G1] AQA GCSE Mathematics 8300 subject content

G2 - Constructions and loci

AQA reference: G2

Foundation requirement: Ruler/compass constructions; loci; perpendicular distance

Higher requirement: Same in compound constructions

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G2] AQA GCSE Mathematics 8300 subject content

G3 - Angle facts and parallel lines

AQA reference: G3

Foundation requirement: Angles at point/straight line/vertically opposite/parallel lines; triangle/polygon angle sums

Higher requirement: Use facts fluently in multi-step proofs

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G3] AQA GCSE Mathematics 8300 subject content

G4 - Properties of triangles, quadrilaterals and polygons

AQA reference: G4

Foundation requirement: Properties of quadrilaterals, triangles and common polygons

Higher requirement: Use properties in proof/problem solving

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G4] AQA GCSE Mathematics 8300 subject content

G5 - Triangle congruence

AQA reference: G5

Foundation requirement: Triangle congruence: SSS, SAS, ASA, RHS

Higher requirement: Apply congruence in proofs

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G5] AQA GCSE Mathematics 8300 subject content

G6 - Geometric reasoning and proof

AQA reference: G6

Foundation requirement: Use angle facts, congruence, similarity and quadrilateral properties to derive results and simple proofs

Higher requirement: More formal geometric proof

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G6] AQA GCSE Mathematics 8300 subject content

G7 - Transformations and enlargement

AQA reference: G7

Foundation requirement: Rotation/reflection/translation/enlargement; fractional scale factors

Higher requirement: Include negative scale factors

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G7] AQA GCSE Mathematics 8300 subject content

G8 - Combined transformations

AQA reference: G8

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Combinations of transformations; invariance

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G8] AQA GCSE Mathematics 8300 subject content

G9 - Circle terminology

AQA reference: G9

Foundation requirement: Circle terminology: centre, radius, chord, diameter, circumference, tangent, arc, sector, segment

Higher requirement: Apply terminology in complex problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G9] AQA GCSE Mathematics 8300 subject content

G10 - Circle theorems

AQA reference: G10

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Apply and prove standard circle theorems

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G10] AQA GCSE Mathematics 8300 subject content

G11 - Coordinate geometry

AQA reference: G11

Foundation requirement: Solve coordinate geometry problems

Higher requirement: Same in complex contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G11] AQA GCSE Mathematics 8300 subject content

G12 - Properties of 3D shapes

AQA reference: G12

Foundation requirement: Faces/surfaces/edges/vertices of common solids

Higher requirement: Same plus composite 3D reasoning

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G12] AQA GCSE Mathematics 8300 subject content

G13 - Plans and elevations

AQA reference: G13

Foundation requirement: Interpret plans/elevations

Higher requirement: Construct and interpret plans/elevations

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G13] AQA GCSE Mathematics 8300 subject content

G14 - Measures and units

AQA reference: G14

Foundation requirement: Use standard units and related measurement concepts

Higher requirement: Same with compound conversions

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G14] AQA GCSE Mathematics 8300 subject content

G15 - Scale drawings and bearings

AQA reference: G15

Foundation requirement: Measure lengths/angles; maps/scale drawings; bearings

Higher requirement: Same in multi-stage geometry

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G15] AQA GCSE Mathematics 8300 subject content

G16 - Area and prism volume

AQA reference: G16

Foundation requirement: Areas of triangles/parallelograms/trapezia; volumes of cuboids/right prisms/cylinders

Higher requirement: Same in compound solids

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G16] AQA GCSE Mathematics 8300 subject content

G17 - Circles and 3D mensuration

AQA reference: G17

Foundation requirement: Circle circumference/area; composite 2D perimeter/area

Higher requirement: Surface area/volume of spheres, pyramids, cones, frustums and composite solids

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G17] AQA GCSE Mathematics 8300 subject content

G18 - Arcs and sectors

AQA reference: G18

Foundation requirement: Arc lengths, sector angles and sector areas

Higher requirement: Same in multi-stage exact/algebraic problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G18] AQA GCSE Mathematics 8300 subject content

G19 - Congruence and similarity

AQA reference: G19

Foundation requirement: Congruence/similarity and length scale factors

Higher requirement: Area and volume scale factors for similar figures

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G19] AQA GCSE Mathematics 8300 subject content

G20 - Pythagoras and right-angle trigonometry

AQA reference: G20

Foundation requirement: Pythagoras and trig ratios in 2D right triangles

Higher requirement: Apply in 2D/3D and general geometric settings

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G20] AQA GCSE Mathematics 8300 subject content

G21 - Exact trigonometric values

AQA reference: G21

Foundation requirement: Exact sin/cos values for 0,30,45,60,90; tan for 0,30,45,60

Higher requirement: Use exact values in algebraic/trig reasoning

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G21] AQA GCSE Mathematics 8300 subject content

G22 - Sine rule and cosine rule

AQA reference: G22

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Sine rule and cosine rule for unknown sides/angles

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G22] AQA GCSE Mathematics 8300 subject content

G23 - Area of any triangle

AQA reference: G23

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Area of triangle = $\frac{1}{2} ab \sin C$

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G23] AQA GCSE Mathematics 8300 subject content

G24 - Translation vectors

AQA reference: G24

Foundation requirement: Describe translations using 2D vectors

Higher requirement: Same in geometric contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G24] AQA GCSE Mathematics 8300 subject content

G25 - Vector arithmetic and proof

AQA reference: G25

Foundation requirement: Vector addition/subtraction/scalar multiplication; column/diagram representations

Higher requirement: Use vectors to construct geometric arguments/proofs

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: Have I labelled the diagram and stated the theorem/relationship used? • Are all lengths/angles/units consistent? • Can I justify the result, not just calculate it?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-G25] AQA GCSE Mathematics 8300 subject content

Probability

This section contains 9 official content references. The wording below is independently paraphrased for revision use; the AQA reference is retained for auditing.

P1 - Experimental outcomes and frequency

AQA reference: P1

Foundation requirement: Record/describe/analyse experimental outcomes using tables and frequency trees

Higher requirement: Same with complex experiments

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P1] AQA GCSE Mathematics 8300 subject content

P2 - Randomness, fairness and expectation

AQA reference: P2

Foundation requirement: Randomness, fairness, equally likely events, expected outcomes

Higher requirement: Same in multi-stage contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P2] AQA GCSE Mathematics 8300 subject content

P3 - Relative frequency and theoretical probability

AQA reference: P3

Foundation requirement: Relative frequency vs theoretical probability; probability scale 0 to 1

Higher requirement: Same with sampling interpretation

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P3] AQA GCSE Mathematics 8300 subject content

P4 - Exhaustive and mutually exclusive events

AQA reference: P4

Foundation requirement: Exhaustive/mutually exclusive probabilities sum to 1

Higher requirement: Same in multi-event contexts

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P4] AQA GCSE Mathematics 8300 subject content

P5 - Sample size and empirical distributions

AQA reference: P5

Foundation requirement: Understand empirical distributions approach theoretical distributions as sample size increases

Higher requirement: Same, with critical evaluation

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P5] AQA GCSE Mathematics 8300 subject content

P6 - Systematic enumeration, Venn and tree diagrams

AQA reference: P6

Foundation requirement: Systematically enumerate outcomes using tables/grids/Venn diagrams/tree diagrams

Higher requirement: Same in complex set/event problems

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P6] AQA GCSE Mathematics 8300 subject content

P7 - Possibility spaces

AQA reference: P7

Foundation requirement: Construct possibility spaces and calculate theoretical probabilities

Higher requirement: Same in combined experiments

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P7] AQA GCSE Mathematics 8300 subject content

P8 - Independent and dependent combined events

AQA reference: P8

Foundation requirement: Calculate independent/dependent combined-event probabilities; know when to add/multiply

Higher requirement: Same with conditional structure

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P8] AQA GCSE Mathematics 8300 subject content

P9 - Conditional probability

AQA reference: P9

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Calculate/interpret conditional probabilities using expected frequencies, two-way tables, trees and Venn diagrams

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: What is the sample space/event? • Do probabilities add or multiply here, and why? • Do all exhaustive probabilities total 1?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-P9] AQA GCSE Mathematics 8300 subject content

Statistics

This section contains 6 official content references. The wording below is independently paraphrased for revision use; the AQA reference is retained for auditing.

S1 - Sampling and populations

AQA reference: S1

Foundation requirement: Infer population/distribution properties from samples; understand sampling limits

Higher requirement: Same with critical sampling evaluation

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What type of data/diagram is appropriate? • Can I compare centre and spread with values? • Am I distinguishing association from causation?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-S1] AQA GCSE Mathematics 8300 subject content

S2 - Tables, charts and time series

AQA reference: S2

Foundation requirement: Construct/interpret tables, frequency tables, bar/pie/pictograms, vertical line charts and time series

Higher requirement: Choose appropriate representations and interpret trends

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What type of data/diagram is appropriate? • Can I compare centre and spread with values? • Am I distinguishing association from causation?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-S2] AQA GCSE Mathematics 8300 subject content

S3 - Histograms and cumulative frequency

AQA reference: S3

Foundation requirement: Not assessed as Foundation content under this reference.

Higher requirement: Construct/interpret histograms (equal/unequal intervals) and cumulative-frequency graphs

What “secure” should look like: You can identify when this Higher-only method is needed, carry it out accurately and justify/reinterpret the result in context.

Audit prompts: What type of data/diagram is appropriate? • Can I compare centre and spread with values? • Am I distinguishing association from causation?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-S3] AQA GCSE Mathematics 8300 subject content

S4 - Comparing distributions and measures

AQA reference: S4

Foundation requirement: Compare distributions using appropriate graphs, mean/median/mode/range, box plots, quartiles/IQR

Higher requirement: Use grouped/continuous data and sophisticated comparison

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What type of data/diagram is appropriate? • Can I compare centre and spread with values? • Am I distinguishing association from causation?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-S4] AQA GCSE Mathematics 8300 subject content

S5 - Describing populations

AQA reference: S5

Foundation requirement: Apply statistics to describe a population

Higher requirement: Same with inference

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What type of data/diagram is appropriate? • Can I compare centre and spread with values? • Am I distinguishing association from causation?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-S5] AQA GCSE Mathematics 8300 subject content

S6 - Scatter graphs, correlation and prediction

AQA reference: S6

Foundation requirement: Scatter graphs/correlation; line of best fit; interpolation/extrapolation; correlation $\neq$ causation

Higher requirement: Same with critical interpretation

What “secure” should look like: You can choose and execute the method independently, show enough working for a marker to follow, and recognise the same skill when it appears inside a multi-step question.

Audit prompts: What type of data/diagram is appropriate? • Can I compare centre and spread with values? • Am I distinguishing association from causation?

Evidence to keep: Date + score from a topic test or past-paper question set; note one error you corrected before ticking “Secure”.

Source: [SPEC-S6] AQA GCSE Mathematics 8300 subject content

Part 3 - Revision priority planner

Use this summary only after completing the reference pages. A “secure” reference should be supported by recent evidence, not familiarity from reading notes.

Area	Total refs	Secure	Developing	Not started	Top three priorities
Number	16	—	—	—	1. _____ 2. _____ 3. _____
Algebra	25	—	—	—	1. _____ 2. _____ 3. _____
Ratio, proportion and rates of change	16	—	—	—	1. _____ 2. _____ 3. _____
Geometry and measures	25	—	—	—	1. _____ 2. _____ 3. _____
Probability	9	—	—	—	1. _____ 2. _____ 3. _____
Statistics	6	—	—	—	1. _____ 2. _____ 3. _____

Source audit note

This publication intentionally does not reproduce AQA's specification wording line-for-line. It uses the AQA reference structure and independently authored summaries so students can revise from a readable guide while tutors/editors can verify each topic against the official specification.

References and source register

[SPEC] AQA GCSE Mathematics (8300), Specification: Subject content (current online specification, checked 29 October 2026). <https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300/specification/subject-content>

[ASSESS] AQA GCSE Mathematics (8300), Scheme of assessment / specification at a glance. <https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300/specification/scheme-of-assessment>

[COPY] AQA assessment-material copyright guidance / All About Maths. Public-facing resources should not reproduce AQA copyrighted past-paper questions or mark schemes. <https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300/assessment-resources>

Editorial and evidence rules used in this publication

- Specification content is paraphrased into student-friendly outcomes; the AQA reference code is retained so the original specification can be checked.
- Historic grade boundaries are descriptive only. AQA sets boundaries after marking each series, so no future grade boundary is guaranteed or predicted.
- AQA results statistics are cumulative percentages across the subject entry, not separate Foundation/Higher pass-rate tables.
- A “Report-evidenced” mistake is one explicitly described in an AQA examiner report available in the public source set. A “Specification risk” is an independently authored diagnostic warning derived from the skill demands in the specification; it is not presented as an AQA frequency claim.
- No AQA past-paper question or mark-scheme wording is reproduced. Original examples are used instead.