

Subject	Higher Mathematics	Exam Board	AQA	Course Code	8300
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Overview

Mock Assessments
One Non-Calculator Paper (Paper 1) 90 minutes. Two Calculator Papers (Papers 2 and 3) 90 minutes for each paper. Full mathematics equipment required.

Thread : Topic : Additional Detail (if needed)

Algebra : Algebraic Fractions : Addition	
Algebra : Algebraic Fractions : Solving Equations	
Algebra : Constructing Arguments : Reasoning	
Algebra : Distance Time Graphs : Estimating Speed	
Algebra : Equations : Forming and Solving Equations	
Algebra : Equations : Solving Linear	
Algebra : Equations of Lines : Understanding $y = mx + c$	
Algebra : Formulae : Changing the subject	
Algebra : Functions : Composite Functions	
Algebra : Functions : Substituting values	
Algebra : Gradients : Perpendicular gradients	
Algebra : Graphs : Equation of a circle	
Algebra : Graphs : Exponential Graphs	
Algebra : Graphs : Inequalities and Regions	
Algebra : Graphs : Transformations of Graphs	
Algebra : Identities : Equating Coefficients	
Algebra : Indices : Laws of Indices	
Algebra : Inequalities : Quadratic	
Algebra : Iteration : Finding values	
Algebra : Linear Graphs : y-Intercept	
Algebra : Manipulation : Factorising one Bracket	
Algebra : Manipulation : Expanding Three Brackets	
Algebra : Proof : Algebraic Proof	
Algebra : Proof : Geometrical Proof	
Algebra : Proportionality : Direct	
Algebra : Quadratics : Completing the Square	
Algebra : Quadratics : Difference of Two Squares	
Algebra : Real-life Graphs : Interpreting graphs	
Algebra : Sequences : Nth Term from pictures	
Algebra : Sequences : Quadratic Sequences	
Algebra : Simultaneous Equations : Solving	
Algebra : Solving Equations : Fractional	
Algebra : Inequalities : Representing Inequalities	
Algebra : Inequalities : Solving Inequalities	
Algebra : Proportionality : Graphs of proportional functions	
Geometry and Measure : 3D Solids : Identifying Solids	
Geometry and Measure : Angle Properties : Angles around a point	
Geometry and Measure : Angle Properties : Circle Theorems	
Geometry and Measure : Angle Properties : Parallel Lines	
Geometry and Measure : Angle Properties : Vertically opposite angles	
Geometry and Measure : Area : Area of a segment	
Geometry and Measure : Area : Rectangles	
Geometry and Measure : Area : Sector Area	
Geometry and Measure : Area : Triangle - Sine Formula	

Geometry and Measure : Bearings
 Geometry and Measure : Circles : Parts of a circle
 Geometry and Measure : Compound Measures : Converting
 Geometry and Measure : Compound Units : Density
 Geometry and Measure : Compound Units : Speed, Distance, Time
 Geometry and Measure : Congruency
 Geometry and Measure : Geometrical Reasoning : Dimensions of Triangles
 Geometry and Measure : Plans and Elevations
 Geometry and Measure : Pythagoras : 3D Pythagoras
 Geometry and Measure : Regular Polygons : Exterior and Interior Angles
 Geometry and Measure : Scale Factors : Area
 Geometry and Measure : Transformation : Enlargements
 Geometry and Measure : Transformations : Describing transformations
 Geometry and Measure : Transformations : Invariant Points
 Geometry and Measure : Transformations : Reflection
 Geometry and Measure : Transformations : Vector Translation
 Geometry and Measure : Trigonometry : Cosine Rule
 Geometry and Measure : Trigonometry : Exact trigonometric values
 Geometry and Measure : Trigonometry : Finding sides
 Geometry and Measure : Trigonometry : Sine Rule for Angles and Lengths
 Geometry and Measure : Units : Converting between units of area
 Geometry and Measure : Vectors : Vector Geometry
 Geometry and Measure : Volume : Cones
 Geometry and Measure : Volume : Prisms
 Geometry and Measure : Volume : Spheres

Number : Approximations : Rounding to Estimate Answers
 Number : Bounds : Calculating Upper and Lower Bounds
 Number : Decimals : Ordering Decimals
 Number : Decimals : Recurring decimals
 Number : Fractions : Fractions of Quantities
 Number : Fractions : Simplifying
 Number : Fractions and Decimals : Converting between fractions and decimals
 Number : Indices : Fractional
 Number : Indices : Negative
 Number : Listing Strategies : Product Rule for Counting
 Number : Percentages : Percentage Increase and Decrease
 Number : Percentages : Percentages of Quantities
 Number : Percentages : Repeated Percentage Increase
 Number : Percentages : Reverse Percentages
 Number : Sequences : Geometric Progressions
 Number : Standard Form : Calculations
 Number : Standard Form : Converting between standard form and ordinary numbers
 Number : Structure and Calculation : Using the symbols =, \neq , $<$, $>$, \leq , \geq
 Number : Surds : Simplifying
 Number : Types of Number : Prime Numbers
 Number : Types of Number : Product of Prime numbers
 Number : Working with Money

Probability : Independent Events : Conditional Probability
 Probability : Independent events : Tree Diagrams
 Probability : Independent events : Using the AND rule
 Probability : Listing Strategies : Counting
 Probability : Relative Frequency

Probability : Theoretical Probability : Expectation
Probability : Theoretical Probability : Probabilities adding up to 1
Probability : Venn Diagrams : Completing

Ratio : Relations : Relationship between two amounts
Ratio : Sharing a quantity in a given ratio
Ratio : Simplifying : Writing as 1 : n
Ratio : Using and Applying
Ratio : Writing Ratio : Simplifying Ratio

Statistics : Averages : Working with the mean
Statistics : Averages and Spread : Mean and Range
Statistics : Diagrams : Box Plots
Statistics : Diagrams : Cumulative Frequency
Statistics : Diagrams : Histograms

Useful revision resources

Websites

Mathswatch - <https://vle.mathswatch.co.uk/vle/>
Corbett Maths – <https://corbettmaths.com/>
GCSEPod - <https://www.gcsepod.com/>
Seneca Learning - <https://senecalearning.com/en-GB/>
BBC Bitesize Learning - <https://www.bbc.co.uk/bitesize/examspecs/z8sg6fr>
Oak National Academy - <https://classroom.thenational.academy/subjects-by-key-stage/key-stage-4/subjects/maths>
SPARX

Recommended Revision Guides

Collins GCSE AQA revision guides - £4.50 from your mathematics teacher
Corbett Maths revision cards - £6.50 from your mathematics teacher

Recommended Calculators

Casio fx-83 GTX, fx-85 GTX, Casio Classwiz EX-991 (recommended if continuing onto A-Level Mathematics)

Revision Tips

Revision for Mathematics is based upon practice (and more practice). You need to be confident at the skills and concepts that make up the course in order to be able to work through the more challenging problems. Revision should be interactive, not just reading notes

Students can work through the Mathswatch 6 week plan (available from the Mathswatch Website under Extras > GCSE) or identify key topic areas via the Mathswatch list below. On the 6 week plan, students can split it up according to the two assessment periods)

A potential plan of action would be

- Work through the plans below watching the relevant videos (try the one minute videos first and if you do not understand then watch the longer videos)
- Attempting the interactive questions if needed
- Work through maths problems and past papers.
- Do not just read your notes/revision guides as you need to practice your Maths skills.

Any additional information will be placed into the GSHS Maths Revision Area <http://bit.ly/GSHSMathsRevision>

Perimeter, area and volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2}(a + b)h$$

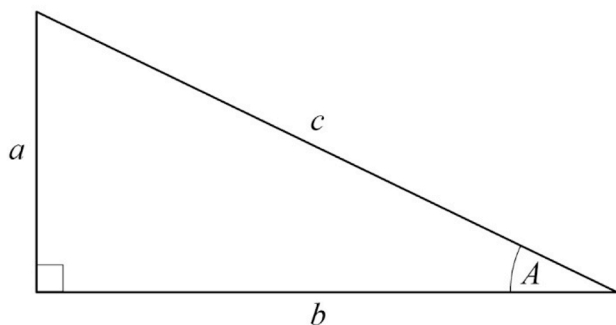
Volume of a prism = area of cross section \times length

Where r is the radius and d is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

Pythagoras' Theorem and Trigonometry

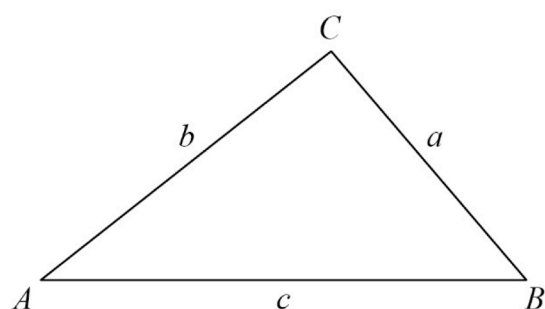


In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a , b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$



In any triangle ABC where a , b and c are the length of the sides:

$$\text{sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area of triangle} = \frac{1}{2} ab \sin C$$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

$$\text{Total accrued} = P \left(1 + \frac{r}{100} \right)^n$$

Quadratic formula

The solution of $ax^2 + bx + c = 0$ where $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Probability

Where $P(A)$ is the probability of outcome A and $P(B)$ is the probability of outcome B :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A \text{ and } B) = P(A \text{ given } B) P(B)$$