



GCSE
MATHEMATICS
C300QS

November 2022 examinations

Component 1	Non-calculator mathematics	Tuesday, 01 November 2022
Component 2	Calculator-allowed mathematics	Thursday, 03 November 2022

Advance Information

General information for students and teachers

This advance information provides the focus of the content of the November 2022 examination papers.

It does not apply to any other examination series.

It is intended to support revision.

It may be used at any time from the date of release.

It must not be taken into the examination.

Released: 27 June 2022

Subject information for students and teachers

A guidance document on advance information has been produced by The Joint Council for Qualifications (JCQ) on behalf of all awarding organisations. It can be found [here](#). Please note, whilst the advance information and assessment materials are new for November 2022, the information contained in the JCQ guidance for summer 2022 remains relevant for November 2022.

This information provides the focus of the assessment on both of the GCSE Mathematics **Foundation tier and Higher tier** question papers. The information for each component is provided in specification order and not in question order.

It is advised that teaching and learning should still cover the entire subject content in the specification. This is to ensure that students are as well prepared as possible for progression to the next stage of their education. Also, topics not included in the list may be assessed in low tariff, multiple choice or synoptic questions.

INFORMATION

- There are no restrictions on who can use this notice.
- The format/structure of the papers remains unchanged.

ADVICE

- Students and teachers should consider how to revise other parts of the specification, for example to review whether other topics may provide knowledge which helps understanding in relation to the areas being assessed.

The following areas of content are suggested as key areas of focus for revision and final preparation for the GCSE mathematics Foundation tier and Higher tier papers in November 2022.

Component 1 Foundation tier and Component 2 Foundation tier

	Component 1 Foundation	Component 2 Foundation
Number		
Structure and calculation	Ordering integers	Ordering integers
	Applying the four operations to integers, decimals and fractions both positive and negative including the vocabulary difference	Applying the four operations
	Order of operations	Place value
	Simplifying fractions	
	Systematic listing	
	Positive integer powers and real roots	
	Calculating exactly with fractions	
	Calculating with and interpreting standard form	

	Component 1 Foundation	Component 2 Foundation
Decimals/Fractions /Percentages*	Interchanging between the three forms	Fraction of an amount
	Fraction of an amount	Percentage of an amount
	Percentage of an amount	
Measures and accuracy	Calculations with money	Calculations with money
	Using inequality notation to specify simple error intervals	Calculations with time
	Applying and interpreting limits of accuracy	Using a calculator efficiently
		Rounding to a given number of decimal places or significant figures
Algebra		
Notation, vocabulary and manipulation	Substituting numerical values into formulae	Substituting numerical values into formulae
	Writing expressions	Collecting like terms
	Collecting like terms	Multiply a single term over a bracket
	Taking out common factors	Taking out common factors
	Expanding two brackets	Understanding and using formulae
	Factorising quadratic expressions	
	Knowing the difference between an identity and an equation	
Graphs	Coordinates in four quadrants	Conversion graphs
	Plotting graphs of equations that correspond to straight line graphs	
Solving equations and inequalities	Translating a procedure into an algebraic expression or formulae	Translating simple situations into algebraic expressions
	Deriving and solving an equation	Linear equations
		Solving two simultaneous equations algebraically
		Linear inequalities
Sequences	Next term of a sequence	
	n th term of a linear sequence	

	Component 1 Foundation	Component 2 Foundation
Ratio, proportion and rates of change		
	Changing units of length, time and capacity	Changing units of volume
	Pressure	Dividing a quantity into more than two parts
	Scale diagrams	Ratio notation
	Dividing a quantity into two parts	Relating ratios to fractions
	Finding the original value	Expressing one quantity as a percentage of another
	Simple interest	Comparing two quantities using percentages
	Direct proportion	Working with percentages greater than 100%
	Exchange rates	Percentage decrease
	Using compound units such as rates of pay, litres per minute	Using compound units such as unit pricing, speed
		Compound interest
Geometry		
Properties and constructions	Using standard conventions for lines, shapes and angles	Using standard conventions for lines, shapes and angles
	Angle calculations	Angle calculations including parallel lines
	Angles in a regular polygon	Properties of triangles and quadrilaterals
	Properties of triangles	Reflection and rotational symmetry
	Transformations including reflection and translation	Congruent and similar shapes
		Circle definitions
Mensuration and calculation	Measuring lines	Using standard units of volume/capacity
	Measuring angles	Area of a square
	Scale drawings	Area of a trapezium
	Bearings	Volume of a cuboid
	Area of a triangle	Perimeters of a 2D shapes
	Volume of a prism	Area of a circle
		Areas of composite shapes
		Trigonometry
Vectors	Describing translations as 2D vectors	
Probability		
	Applying the property that the probabilities of an exhaustive set of outcomes sum to one	Probability including vocabulary and scale
		Possibility space
		Expected outcomes

	Component 1 Foundation	Component 2 Foundation
Statistics		
	Drawing and interpreting a bar chart	Interpreting a table
	Calculating and interpreting the mean	Interpreting a pie chart
		Median
		Mode
		Range
		Estimating the mean of grouped frequency table
		Using and interpreting scatter graphs

Component 1 Higher tier and Component 2 Higher tier

	Component 1 Higher	Component 2 Higher
Number		
Structure and calculation	Applying the four operations to integers, decimals and fractions	Applying the four operations
	Product rule for counting	
	Positive integer powers and real roots	
	Integer and fractional indices	
	Calculating exactly with fractions	
	Calculating exactly with surds; including rationalising the denominator	
	Calculating exactly with multiples of π	
	Calculating with and interpreting standard form	
	Working interchangeably with terminating decimals and their corresponding fractions	
Decimals/Fractions /Percentages*	Changing recurring decimals into their corresponding fractions and vice versa	
*Additional percentage work is covered in the ratio section		
Measures and accuracy	Using inequality notation to specify simple error intervals	Using standard units of length
	Applying and interpreting limits of accuracy	Rounding numbers to decimal places or significant figures
		Upper and lower bounds

	Component 1 Higher	Component 2 Higher
Algebra		
Notation, vocabulary and manipulation	Taking out common factors	Substituting numerical values into formulae
	Expanding two brackets	Functions; including inverse functions and composite functions
	Factorising quadratic expressions	
	Simplifying expressions including the laws of indices	
	Changing the subject of a formula	
	Know the difference between an identity and an equation	
Graphs	Deducing roots of quadratic functions	Sketching translations and reflections of functions
	Identifying turning points by completing the square	Plotting and interpreting graphs in real contexts
		Estimating gradients of graphs and areas under graphs, and interpreting the results
		Equation of a circle
Solving equations and inequalities	Finding solutions using a graph	Linear equations
	Linear equations	Solving a quadratic equation
	Translating a procedure into an algebraic expression or formulae	Solving two simultaneous equations algebraically
	Deriving and solving an equation	Solving an equation using a numerical method
	Representing inequalities graphically	Translating a procedure into an algebraic expression
		Deriving an equation, solving the equation and interpreting the solution
		Linear inequalities
Sequences	Next term of a sequence	
	n th term of a linear sequence	

	Component 1 Higher	Component 2 Higher
Ratio, proportion and rates of change		
	Changing units of time	Changing units of volume and mass
	Pressure	Density
	Scale factors	Dividing a quantity into more than two parts
	Expressing one quantity as a fraction of another	Ratio notation
	Writing a ratio in its simplest form	Relating ratios to fractions
	Dividing a quantity into two parts	Expressing one quantity as a percentage of another
	Expressing one quantity as a percentage of another	Working with percentages greater than 100%
	Finding the original value	Compound interest
	Using compound units such as litres per minute	Repeated percentage change
	Average speed	
	Comparing volumes using ratio notation	
	Constructing and interpreting equations that describe proportion	
Geometry		
Properties and constructions	Angle calculations	Properties of triangles and quadrilaterals
	Transformations	Circle definitions
	Circle theorems	
Mensuration and calculation	Area of a triangle	Area of a rectangle
	Volume of a prism	Area of a trapezium
	Volume of a sphere	Volume of a cylinder
	Areas and volumes in similar figures	Area of a circle
		Perimeters of 2D shapes
		Areas of composite shapes
		Arc length
		Area of a sector
		Right-angled triangle trigonometry
		Pythagoras theorem in 3-D shapes
		Sine rule
		Cosine rule
	Area of a triangle using trigonometry	
Vectors		Using vectors to construct geometric arguments

	Component 1 Higher	Component 2 Higher
Probability		
	Using data to find a probability	Tree diagrams
	Venn diagrams - completing	Dependent events
	Dependent events	
	Conditional probability	
Statistics		
	Histograms	Interpreting and comparing data using box plots
	Cumulative frequency table and diagram	Estimating the mean of grouped frequency table
		Using and interpreting scatter graphs

End of advance information