

# Advance information November 2022

## GCSE Mathematics (8300)

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### Version 1.0

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Because of the ongoing impacts of the Coronavirus (COVID-19) pandemic, we are providing advance information on the focus of **November 2022** exams to help students revise.

This is the advance information for GCSE Mathematics (8300).

### Information

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- This advance information covers all examined components.
- There are no restrictions on who can use this.
- The format/structure of the papers remains unchanged.
- For each paper the list shows the major focus of questions.
- The information is presented in broadly specification order and not in question order.
- You are **not** permitted to take this advance information into the exam.
- There are separate lists for Foundation and Higher tiers.

### Advice

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- The following areas of content are suggested as key areas of focus for revision and final preparation, in relation to the November 2022 examinations.
- 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 your understanding in relation to the areas being tested in November 2022.
- Students will be credited for using any relevant or appropriate knowledge from any topic areas when answering questions.

## Focus of the November 2022 exam

Foundation Tier  
8300/1F November 2022

Topic	Detail
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Number (see Ratio)	
Arithmetic	Decimal long multiplication
	Related calculations
Fractions	Arithmetic
	Fraction of a number
	Fraction to decimal
Properties	Odd and even
	Square
Indices	Laws of indices
Other	Money problem

Algebra	
Equations	Linear
Manipulation	Simplification
Reasoning	Expression
Other	Double inequality

Ratio (see Number)	
Conversions	Time
	Lengths
Percentages	Amount as a percentage
	Percentage total
Fractions	Fraction and percentage
Ratio	n : 1 form
	Share in a ratio
	Simplest form
Applications	Distance problem
	Ratio problem

Geometry and Measures	
Shape	Circle parts
	Rhombus
	Trigonometry
	Trigonometry exact value
Area and Volume	Parallelogram
	Rectangle
Other	Column vectors

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<b>Statistics</b>
Frequency table
Median
Range
Two-way table
Venn diagram
<b>Probability</b>
Problem

Foundation Tier  
8300/2F November 2022

Topic	Detail
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<b>Number (see Ratio)</b>	
<b>Arithmetic</b>	Four operations
<b>Fractions</b>	Arithmetic
<b>Properties</b>	Cube root problem
	Highest common factor problem
	Lowest value
	Multiple
	Place value
<b>Indices</b>	Value
<b>Standard form</b>	Calculation
<b>Other</b>	Money problem
	Number problem
	Units
	Use of calculator

<b>Algebra</b>	
<b>Equations</b>	Linear
	Set up and solve
<b>Manipulation</b>	Change subject
	Formula
	Simplification
	Substitution
<b>Graphs</b>	Coordinate problem
	Distance-time
	Intercept
	Interpret
<b>Reasoning</b>	Equation

<b>Ratio (see Number)</b>	
<b>Percentages</b>	Percentage increase
	Percentage of an amount
<b>Applications</b>	Cost problem
	Rate
	Ratio problem

<b>Geometry and Measures</b>	
<b>Shape</b>	Circle parts
	Line of symmetry
	Pythagoras' theorem
	Type of triangle
<b>Area and Volume</b>	Perimeter problem
	Surface area of cube
	Volume of cuboid problem
<b>Angles</b>	Around point

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<b>Statistics</b>
Composite bar chart
Pictogram problem
Pie chart problem

  

<b>Probability</b>
Probability

**Foundation Tier  
8300/3F November 2022**

Topic	Detail
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<b>Number (see Ratio)</b>	
<b>Arithmetic</b>	Negative numbers
<b>Fractions</b>	Fraction of a number
<b>Properties</b>	Cube number
	Multiples
	Number line decimal
	Number problem
	Prime numbers
	Rounding
<b>Other</b>	Significant figures
	Inequality notation
	Reasoning

<b>Algebra</b>	
<b>Equations</b>	Linear
	Number machine
	Set up and solve
	Statement
<b>Graphs</b>	Coordinates
	Gradient problem
	Solve equation
	Straight line
<b>Sequences</b>	Fibonacci problem
	Linear
	Reasoning

<b>Ratio (see Number)</b>	
<b>Conversions</b>	Currency
<b>Applications</b>	Average speed
	Capacity problem
	Combined proportions
	Conversion problem
	Density problem
	Inverse proportion
	Ratio problem
	Relative frequency problem
Scale diagram	

<b>Geometry and Measures</b>	
<b>Shape</b>	Arc length
	Congruent shapes
	Enlargement
	Name shape
<b>Area and Volume</b>	Combined shape
	Trapezium
	Triangle
<b>Angles</b>	Angle name
	Compass points
	In triangle
	On straight line
	Opposite angles

<b>Statistics</b>
Interpret correlation
Line of best fit
Mean from diagram
Mean problem
Mode from diagram
Two-way table
Vertical line chart

<b>Probability</b>
Frequency tree
Ordering probabilities
Probability from diagram
Relative frequency

**Foundation Tier Aggregated Content November 2022**  
**Number (see Ratio – some overlap of topic areas)**

<b>Topic</b>	<b>Detail</b>
<b>Arithmetic</b>	Decimal long multiplication
	Four operations
	Negative numbers
	Related calculations
<b>Fractions</b>	Arithmetic
	Fraction of a number
	Fraction to decimal
<b>Properties</b>	Cube number
	Cube root problem
	Highest common factor problem
	Lowest value
	Multiple/multiples
	Number line decimal
	Odd and even
	Place value
	Prime numbers
	Number problem
	Rounding
	Significant figures
	Square
<b>Indices</b>	Laws of indices
	Value
<b>Standard Form</b>	Calculation
<b>Other</b>	Inequality notation
	Money problem
	Number problem
	Reasoning
	Units
	Use of calculator



## Algebra

Topic	Detail
Equations	Linear
	Number machine
	Set up and solve
	Statement
Manipulation	Change subject
	Formula
	Simplification
	Substitution
Graphs	Coordinates
	Coordinate problem
	Distance-time
	Gradient problem
	Intercept
	Interpret
	Solve equation
	Straight line
Reasoning	Equation
	Expression
Sequences	Fibonacci problem
	Linear
	Reasoning
Other	Double inequality

## Ratio (see Number – some overlap of topic areas)

Topic	Detail
Conversions	Currency
	Lengths
	Time
Percentages	Amount as a percentage
	Percentage increase
	Percentage of an amount
	Percentage total
Fractions	Fraction and percentage
Ratio	n : 1 form
	Share in a ratio
	Simplest form
Applications	Average speed
	Capacity problem
	Combined proportions
	Conversion problem
	Cost problem
	Density problem
	Distance problem
	Inverse proportion
	Ratio problem
	Rate
	Relative frequency problem
	Scale diagram

## Geometry and Measures

Topic	Detail
Shape	Arc length
	Circle parts
	Congruent shapes
	Enlargement
	Line of symmetry
	Name shape
	Pythagoras' theorem
	Rhombus
	Trigonometry
	Trigonometry exact value
	Type of triangle
Area and Volume	Combined shape
	Parallelogram
	Perimeter problem
	Rectangle
	Surface area of cube
	Trapezium
	Triangle
Volume of cuboid problem	
Angles	Angle name
	Around point
	Compass points
	In triangle
	On straight line
	Opposite angles
Other	Column vectors

## Statistics

Diagrams	Composite bar chart
	Frequency table
	Interpret correlation
	Line of best fit
	Pictogram problem
	Pie chart problem
	Two-way table
	Venn diagram
	Vertical line chart
Measures	Mean from diagram
	Mean problem
	Median
	Mode from diagram
	Range

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**Probability**

Frequency tree
Ordering probabilities
Probability
Probability from diagram
Problem
Relative frequency

**Higher Tier**  
**8300/1H November 2022**

Topic	Detail
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<b>Number (see Ratio)</b>	
<b>Arithmetic</b>	Negative numbers
<b>Fractions</b>	Arithmetic
	Fraction to decimal
<b>Properties</b>	Square root, power
<b>Decimals</b>	Decimal to fraction
	Recurring
	Recurring to fraction
<b>Indices</b>	Fractional
	Laws of indices
	Negative
<b>Surds</b>	Rationalise denominator
	Simplification

<b>Algebra</b>	
<b>Equations</b>	Identity
	Linear
	Number line
	Quadratic inequality
	Quadratic problem
<b>Manipulation</b>	Multiply out
	Simplification
<b>Graphs</b>	Points on quadratic problem
<b>Other</b>	Double inequality

<b>Ratio (see Number)</b>	
<b>Ratio</b>	n : 1 form
	Share in a ratio
<b>Applications</b>	Graph problem
	Ratio to fraction problem

<b>Geometry and Measures</b>	
<b>Shape</b>	Circle theorems
	Invariant point
	Isosceles triangle
	Reflection
	Rotation
	Tangent to a circle problem
	Trigonometry exact values
<b>Other</b>	Column vectors
	Geometric proof

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<b>Statistics</b>
Cumulative frequency graph
Cumulative frequency table
Frequency table
Interpret
Lower quartile
Median
Range
Venn diagram

Higher Tier  
8300/2H November 2022

Topic	Detail
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Number (see Ratio)	
Properties	Cube root problem
	Highest common factor problem
Standard Form	Calculation
Other	Product rule for counting
	Use of calculator

Algebra	
Equations	Linear
	Quadratic
	Set up and solve
Manipulation	Change subject
	Difference of two squares
	Factorisation
	Simplification
Graphs	Intercept
	Interpret
	Recognise
	Speed-time
Reasoning	Equation
Functions	Composite
	Inverse
Sequences	Linear sequence problem
	Triangular numbers

Ratio (see Number)	
Conversions	Area
Applications	Iterative process
	Rate
	Speed
	Vectors
Percentages	Percentage of an amount
	Reverse percentage

Geometry and measures	
Area and Volume	Perimeter problem
	Surface area of cube
	Trapezium
	Volume of cuboid problem
Shape	3D Sine rule / Cosine rule
	Pythagoras' theorem
	Similar triangles
	Sine rule / Cosine rule
Vectors	Vector proof
Other	Bearing

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<b>Statistics</b>
Box plot
Composite bar chart
Estimate mean from table
Interpret box plot
Interpret histogram
Lower quartile
Median
Reasoning
Upper quartile

<b>Probability</b>
Dependent events
Independent events

**Higher Tier**  
**8300/3H November 2022**

Topic	Detail
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<b>Number (see Ratio)</b>	
<b>Fractions</b>	Fraction of a number
<b>Properties</b>	Bounds
	Inequality
	Power
	Significant figures
<b>Standard Form</b>	Conversion

<b>Algebra</b>	
<b>Equations</b>	Circle
	Set up and solve
<b>Manipulation</b>	Change subject
	Multiply out
	Simplification of algebraic fractions
<b>Graphs</b>	Coordinates
	Gradient of tangent
	Gradient problem
	Interpret
	Sketch related curve
<b>Sequences</b>	Fibonacci problem
	Reasoning

<b>Ratio (see Number)</b>	
<b>Applications</b>	Average speed
	Density
	Inverse proportion
	Ratio problem
	Relative frequency problem
	Repeated percentage change
<b>Percentages</b>	Greater than 100%
<b>Conversions</b>	Mass



<b>Geometry and Measures</b>	
<b>Area and Volume</b>	Combined shape
	Combined volumes
	Trapezium
	Triangle
	Volume of cube
	Volume of cone
	Volume of hemisphere
<b>Shape</b>	Arc length
	Area of a triangle
	Circle theorems
	Congruence
	Enlargement
	Similar triangles
	Translation
<b>Angles</b>	In triangle

<b>Statistics</b>	
	Mean problem
	Two-way table

<b>Probability</b>	
	Conditional probability
	Exhaustive probabilities
	Independent probabilities
	Mutually exclusive probabilities
	Relative frequency

**Higher Tier Aggregated Content November 2022**  
**Number (see Ratio – some overlap of topic areas)**

<b>Topic</b>	<b>Detail</b>
<b>Arithmetic</b>	Negative numbers
<b>Fractions</b>	Arithmetic
	Fraction of a number
	Fraction to decimal
<b>Properties</b>	Bounds
	Cube root problem
	Highest common factor problem
	Inequality
	Power
	Significant figures
	Square root, power
<b>Decimals</b>	Decimal to fraction
	Recurring
	Recurring to fraction
<b>Indices</b>	Fractional
	Laws of indices
	Negative
<b>Standard Form</b>	Calculation
	Conversion
<b>Surds</b>	Rationalise denominator
	Simplification
<b>Other</b>	Product rule for counting
	Use of calculator

## Algebra

Topic	Detail
<b>Equations</b>	Circle
	Identity
	Linear
	Number line
	Quadratic
	Quadratic inequality
	Quadratic problem
	Set up and solve
<b>Manipulation</b>	Change subject
	Difference of two squares
	Factorisation
	Multiply out
	Simplification
	Simplification of algebraic fractions
<b>Graphs</b>	Coordinates
	Gradient of tangent
	Gradient problem
	Intercept
	Interpret
	Points on quadratic problem
	Recognise
	Sketch related curve
	Speed-time
<b>Reasoning</b>	Equation
<b>Functions</b>	Composite
	Inverse
<b>Sequences</b>	Fibonacci problem
	Linear sequence problem
	Reasoning
	Triangular numbers
<b>Other</b>	Double inequality

**Ratio (see Number – some overlap of topic areas)**

Topic	Detail
<b>Ratio</b>	n : 1 form
	Share in a ratio
<b>Percentages</b>	Greater than 100%
	Percentage of an amount
	Reverse percentage
<b>Conversions</b>	Area
	Mass
<b>Applications</b>	Average speed
	Density
	Graph problem
	Inverse proportion
	Iterative process
	Rate
	Ratio problem
	Ratio to fraction problem
	Relative frequency problem
	Repeated percentage change
	Speed
Vectors	

**Geometry and Measures**

Topic	Detail
<b>Shape</b>	3D Sine rule / Cosine rule
	Arc length
	Area of a triangle
	Circle theorems
	Congruence
	Enlargement
	Invariant point
	Isosceles triangle
	Pythagoras' theorem
	Reflection
	Rotation
	Similar triangles
	Sine rule / Cosine rule
	Tangent to a circle problem
	Translation
	Trigonometry exact values

<b>Area and Volume</b>	Combined shape
	Combined volumes
	Perimeter problem
	Surface area of cube
	Trapezium
	Triangle
	Volume of cube
	Volume of cone
	Volume of cuboid problem
	Volume of hemisphere
<b>Vectors</b>	Vector proof
<b>Angles</b>	In triangle
<b>Other</b>	Bearing
	Column vectors
	Geometric proof

### Statistics

Topic	Detail
<b>Diagrams</b>	Box plot
	Composite bar chart
	Cumulative frequency graph
	Cumulative frequency table
	Frequency table
	Interpret
	Interpret box plot
	Interpret histogram
	Two-way table
	Venn diagram
<b>Measures</b>	Estimate mean from table
	Lower quartile
	Mean problem
	Median
	Range
	Reasoning
	Upper quartile

### Probability

Conditional probability
Dependent events
Exhaustive probabilities
Independent events
Independent probabilities
Mutually exclusive probabilities
Relative frequency

END OF ADVANCE INFORMATION