

Mapping

Cambridge IGCSE™

International Mathematics 0607

Cambridge IGCSE™ / Cambridge IGCSE (9–1)

Mathematics 0580 / 0980

For examination from 2020



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Introduction

In this document we have mapped Cambridge IGCSE International Mathematics Extended curriculum topics to Cambridge IGCSE Mathematics Extended curriculum topics.

Cambridge IGCSE International Mathematics is a syllabus that reflects the way today's learners like to learn. It has been developed for schools offering an international curriculum and complements the IB curriculum, offering an assessment and certification at the end of the Cambridge Upper Secondary Pathway.

The syllabus follows the Cambridge approach, which is embedded in all Cambridge mathematics syllabuses: building a solid foundation of mathematical skills and learning how to develop strategies for solving open-ended problems. However, Cambridge IGCSE International Mathematics takes this a stage further and allows learners to develop and sharpen their investigation and modelling skills. It also introduces learners to the use of graphical calculators – a necessary part of their study for the IB Diploma.

Feedback from schools around the world has been extremely positive, with teachers welcoming the alignment of curriculum, teaching and assessment, which the syllabus offers. Learners and teachers also recognised that the open-ended problem solving approach can help develop skills that can be used across the curriculum – not only in mathematics. Learners highlighted that they were finding the skills they had developed very useful for their scientific studies.

Overview

The syllabuses for Cambridge IGCSE International Mathematics and Cambridge IGCSE Mathematics have many topics in common. For example, Cambridge IGCSE International Mathematics and Cambridge IGCSE Mathematics include both Core and Extended curriculums (papers). Core being aimed at learners who are eligible for grades C to G, and Extended papers aimed at learners who are aiming for grades A* to E.

There are differences in the use and type of calculators.

- Cambridge IGCSE International Mathematics has Paper 1 (Core) and Paper 2 (Extended) calculator free. No calculators may be used in these exams. Cambridge IGCSE Mathematics does not have this rule; a calculator may be used in all of the papers.
- Cambridge IGCSE International Mathematics also specifies that the learners must be in possession of a graphics calculator for the remaining papers. Cambridge IGCSE Mathematics does not allow the use of a graphics calculator.

Cambridge IGCSE International Mathematics is the only course that has an investigation task for Core level learners and one investigation and one modelling task for the Extended learners that are carried out under exam conditions and make up Paper 5 and Paper 6 of the programme.

Cambridge IGCSE International Mathematics is the only syllabus that includes mathematical modelling to describe real life situations and use statistical techniques to explore relationships in the real world – perhaps due to the uniqueness of Paper 5 and Paper 6.

Syllabus aims

The aims in Cambridge IGCSE syllabuses discuss the appreciation of patterns, a feel for numbers, application of mathematics in everyday situations and application of mathematics in other subjects. Cambridge IGCSE International Mathematics also has the appreciation of the international aspect of mathematics as one of its aims. The aims are listed in the syllabuses available at www.cambridgeinternational.org.

Assessment objectives

The syllabuses include assessment objectives as listed below:

Cambridge IGCSE International Mathematics	Cambridge IGCSE Mathematics
AO1: Demonstrate knowledge and understanding of mathematical techniques	
Candidates should be able to recall and apply mathematical knowledge, terminology and definitions to carry out routine procedures or straightforward tasks requiring single or multi-step solutions in mathematical or everyday situations, including:	
organising, interpreting and presenting information accurately in written, tabular, graphical and diagrammatic forms	organising, processing and presenting information accurately in written, tabular, graphical and diagrammatic forms
using and interpreting mathematical notation, terminology, diagrams and graphs	using and interpreting mathematical notation correctly
performing calculations and procedures by suitable methods, including using a calculator	performing calculations and procedures by suitable methods, including using a calculator
estimating, approximating and working to degrees of accuracy appropriate to the context and converting between equivalent numerical forms	understanding systems of measurement in everyday use and making use of these
recognising patterns and structures	estimating, approximating and working to degrees of accuracy appropriate to the context and converting between equivalent numerical forms
using mathematical instruments to draw and measure to an acceptable degree of accuracy	using geometrical instruments to measure and to draw to an acceptable degree of accuracy
using technology, including a graphic display calculator	recognising and using spatial relationships in two and three dimensions.

Cambridge IGCSE International Mathematics	Cambridge IGCSE Mathematics
AO2: Reason, interpret and communicate mathematically when solving problems	
Candidates should be able to analyse a problem, select a suitable strategy and apply appropriate techniques to obtain its solution, including:	
drawing logical conclusions from information and demonstrating the significance of mathematical or statistical results	making logical deductions, making inferences and drawing conclusions from given mathematical data
recognising patterns and structures in a variety of situations and forming generalisations	recognising patterns and structures in a variety of situations, and forming generalisations
communicating methods and results in a clear and logical form, using appropriate terminology, symbols, tables, diagrams and graphs	presenting arguments and chains of reasoning in a logical and structured way
solving unstructured problems by putting them into a structured form involving a series of processes	solving unstructured problems by putting them into a structured form involving a series of processes

Cambridge IGCSE International Mathematics	Cambridge IGCSE Mathematics
AO2: Reason, interpret and communicate mathematically when solving problems	
applying combinations of mathematical skills and techniques to solve a problem	applying combinations of mathematical skills and techniques using connections between different areas of mathematics in problem solving
solving a problem by investigation, analysis, the use of deductive skills and the application of an appropriate strategy	assessing the validity of an argument and critically evaluating a given way of presenting information
using spatial awareness in solving problems	interpreting results in the context of a given problem and evaluating the methods used and solutions obtained.
using the concepts of mathematical modelling to describe a real-life situation and draw conclusions	
using statistical techniques to explore relationships in the real world	interpreting and communicating information accurately and changing from one form of presentation to another
using a graphic display calculator to interpret properties of functions and to solve problems using appropriate strategies in dealing with an investigative and a modelling task	
using appropriate strategies in dealing with an investigative and a modelling task	
testing conjectures and determining their validity	
testing a mathematical model for validity and fitness for purpose	

Syllabus topics

There is quite a lot of overlap between these two syllabuses. Both syllabuses have a few topics that do not appear in the other. However, Cambridge IGCSE International Mathematics has more of a focus on the learner being able to solve problems using their graphics calculator as well as the more traditional methods whereas Cambridge IGCSE Mathematics focuses mainly on the more traditional methods of solving problems.

Topic correlation

- ✓: Cambridge IGCSE International Mathematics topics that overlap with Cambridge IGCSE Mathematics topics.
- ✗: Cambridge IGCSE International Mathematics topics where there is no significant overlap with Cambridge IGCSE Mathematics topics.

Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	Topic 7	Topic 8	Topic 9	Topic 10	Topic 11
1.1 ✓	2.1 ✓	3.1 ✗	4.1 ✓	5.1 ✓	6.1 ✓	7.1 ✓	8.1 ✓	9.1 ✓	10.1 ✓	11.1 ✓
1.2 ✓	2.2 ✗	3.2 ✓	4.2 ✓	5.2 ✓	6.2 ✓	7.2 ✓	8.2 ✗	9.2 ✓	10.2 ✓	11.2 ✓
1.3 ✓	2.3 ✓	3.3 ✗	4.3 ✓	5.3 ✓	6.3 ✓	7.3 ✓	8.3 ✓	9.3 ✓	10.3 ✓	11.3 ✓
1.4 ✓	2.4 ✓	3.4 ✓	4.4 ✓	5.4 ✓	6.4 ✓	7.4 ✓	8.4 ✓	9.4 ✓	10.4 ✓	11.4 ✓
1.5 ✓	2.5 ✓	3.5 ✓	4.5 ✓	5.5 ✓	6.5 ✓	7.5 ✓	8.5 ✓		10.5 ✓	11.5 ✓
1.6 ✗	2.6 ✓	3.6 ✗	4.6 ✓	5.6 ✓	6.6 ✗		8.6 ✓		10.6 ✓	11.6 ✓
1.7 ✓	2.7 ✓	3.7 ✓	4.7 ✓	5.7 ✓				8.7 ✓		
1.8 ✓	2.8 ✓	3.8 ✗	4.8 ✓							
1.9 ✓	2.9 ✓	3.9 ✓								
1.10 ✗	2.10 ✓	3.10 ✗								
1.11 ✓	2.11 ✗									
1.12 ✓	2.12 ✓									
1.13 ✓	2.13 ✓									

Topic overlap

Cambridge IGCSE International Mathematics	Cambridge IGCSE Mathematics
E1 Number	
1.1 Vocabulary and notation for sets of numbers	1.1 Identify and use types of number
1.2 Use of four operations and brackets	1.8 Use the four rules for calculations
1.3 Highest common factor (HCF) , lowest common multiple (LCM)	1.1 Identify and use types of numbers
1.4 Calculation of powers and roots	1.3 Calculate with squares, cubes and other powers
1.5 Ratio and proportion	1.11 Ratio, proportion, rate
1.7 Equivalence between decimals, fractions, and percentages	1.5 Language and notation of vulgar and decimal fractions and percentages
1.8 Percentages including applications such as interest and profit	1.12 Percentages
	1.16 Personal finance
1.9 Meaning of exponents in Standard Form	1.7 Standard form
1.11 Estimating, rounding, decimal places and significant figures	1.9 Make estimates
	1.10 Limits of accuracy
1.12 Calculations involving time	1.14 Calculate times
1.13 Problems involving speed, distance and time	1.11 Calculate average speed
	2.9 Use function notation (graphs in practical situations)
E2 Algebra	
2.1 Interpretation of inequalities	2.5 Solve linear inequalities
2.3 Solution of linear equations	2.5 Solve linear inequalities
2.4 Indices	2.4 Indices
2.5 Derivation, rearrangement and evaluation of formulae	2.1 Algebraic representation and formulae
2.6 Solution of simultaneous linear equations	2.5 Solve linear equations and inequalities
2.7 Expansion of brackets	2.2 Algebraic manipulation
2.8 Factorisation	2.2 Algebraic manipulation
2.9 Simplification of algebraic fractions	2.3 Manipulate algebraic fractions

Cambridge IGCSE International Mathematics	Cambridge IGCSE Mathematics
2.10 Solution of quadratic equations	2.5 Solve equations and inequalities
2.12 Sequences and n th terms	2.7 Patterns and sequences
2.13 Direct variation (proportion)	2.8 Direct and inverse proportion
E3 Functions	
3.2 Recognition of functions from shape of graph	2.11 Recognise, sketch and interpret functions
3.4 Finding quadratic functions	2.11 Recognise, sketch and interpret functions
3.5 Concept of asymptotes and graphical identification	2.11 Recognise, sketch and interpret functions
3.7 Compound functions	2.9 Use function notation
3.9 Inverse functions	2.9 Use function notation
E4 Coordinate geometry	
4.1 Plotting points and reading from a graph in the Cartesian plane	3.1 Cartesian coordinates
4.2 Distance between two points	3.3 Length and midpoint of a line
4.3 Mid-point of a line segment	3.3 Length and midpoint of a line
4.4 Gradient of a line segment	3.2 Gradient of a straight line
4.5 Gradient of parallel and perpendicular lines	3.5 Straight line parallel
	3.6 Gradient of parallel and perpendicular lines
4.6 Equation of a straight line	3.4 Equation of a straight line graph
4.7 Linear inequalities in the Cartesian plane	2.6 Represent inequalities graphically
E5 Geometry	
5.1 Use and interpret geometrical terms	4.1 Geometrical terms
5.2 Line and rotational symmetry	4.6 Symmetry and properties of a circle
5.3 Angle measurement in degrees	4.2 Measure and draw lines and angles
5.4 Angles round a point, straight line, etc.	4.7 Geometrical properties and angles
5.5 Similarity	4.4 Calculate lengths of similar figures
5.6 Pythagoras' theorem including chord properties, etc.	6.2 Pythagoras' theorem
	4.6 Symmetry and properties of a circle

Cambridge IGCSE International Mathematics	Cambridge IGCSE Mathematics
5.7 Properties of circles	4.7 Geometrical properties and angles
E6 Vectors and transformations	
6.1 Vector notation	7.1 Vectors
6.2 Addition and subtraction of vectors, etc.	7.1 Vectors
6.3 Find the magnitude of a vector	7.3 Magnitude of a vector
6.4 Transformation on the Cartesian plane	7.2 Transformations
E7 Mensuration	
7.1 Units	5.1 Units
7.2 Perimeter and area	5.2 Perimeter and area
7.3 Circumference, area of a circle, arc length and area of a sector	5.3 Circles, arc length sector area
7.4 Surface area and volume	5.4 Surface area and volume
7.5 areas and volumes of compound shapes	5.5 Compound shapes
E8 Trigonometry	
8.1 Right-angles triangle trigonometry	6.2 Trigonometry
8.3 Four quadrants	6.3 Trigonometry functions
8.4 Sine rule	6.4 Sine rule, cosine rule, area of triangle
8.5 Cosine rule	6.4 Sine rule, cosine rule, area of triangle
8.6 Area of triangle	6.4 Sine rule, cosine rule, area of triangle
8.7 Applications – three-figure bearings	6.1 Three-figure bearings
E9 Sets	
9.1 Notation	1.2 Number, set notation and language
9.2 Set in descriptive form	1.2 Number, set notation and language
9.3 Venn diagrams	1.2 Number, set notation and language
9.4 Intersection and union	1.2 Number, set notation and language
E10 Probability	
10.1 Probability as a fraction, decimal or percentage	8.1 Probability

Cambridge IGCSE International Mathematics	Cambridge IGCSE Mathematics
10.2 Relative frequency	8.4 Relative frequency and expected number
10.3 Expected frequency of occurrences	8.4 Relative frequency and expected number
10.4 Combining events	8.5 Combined events
10.5 Tree diagrams	8.5 Combined events using Venn diagrams
10.6 Probability from Venn diagram and tables	8.5 Combined events using Venn diagrams
E11 Statistics	
11.1 Reading and interpretation of graphs or table of data	9.1 Statistics
	9.2 Read, interpret tables and statistical diagrams
11.2 Discrete and continuous data	
11.3 Bar chart, line graph, pie chart, pictograms, etc.	9.2 Read, interpret tables and statistical diagrams
	9.3 Construct and interpret charts
11.4 Mean, mode, median, quartiles and range from lists of discrete data	9.4 Mean, median and mode
11.5 Mean from continuous data	9.5 Estimated mean
11.6 Cumulative frequency table and curve	9.6 Cumulative frequency

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