



Mathematics Curriculum - IDAT for IB

STAGE 5	SKILL	IDAT OUTCOMES
5	Equations M5.1.1	Use the form $y = mx + c$ to identify parallel {and perpendicular} lines; find the equation of the line through two given points, or through one point with a given gradient
	Patterns and Algebra M5.1.2	Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate
	Lines and Polygons M5.1.3	Apply the concepts of congruence and similarity, including the relationships between lengths, {areas and volumes} in similar figures
	Transformation M5.1.4	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity the transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides
	Chance, Rates, Ratios M5.1.5	Solve problems using ratio and scale factors in similar figures. Calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams
	Fractions and Decimals M5.1.6	Apply the four operations to simple algebraic fractions with numerical denominators
	Patterns and Algebra M5.1.7	Apply the four operations to simple algebraic fractions with numerical denominators. Simplify and manipulate algebraic expressions (using those involving surds {and algebraic functions}).
	Whole Numbers M5.1.8	Substitute values into formulas to determine an unknown.
	Areas & Volume M5.1.9	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems . Calculate surface areas and volumes of spheres, pyramids, cones and composite solids
	Scale & Time M5.1.10	Solve problems using ratio and scale factors in similar figures. Investigate and describe bivariate numerical data where the independent variable is time
	Mean, graphs and tables M5.1.11	Interpret, analyse and compare the distributions of data sets through appropriate measures of central tendency (including modal class) and spread {including quartiles and inter-quartile range}

STAGE 6	SKILL	IDAT OUTCOMES
6	Trigonometry: Pythagoras' Theorem & Right-angled Triangles M6.1.1	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
	Trigonometry: Sine & Cosine Rules M6.1.2	Apply the law of Sines and law of cosines to find unknown measurements in right and non-right triangles.
	Area of a Triangle M6.1.2	Determine the area of a triangle given two sides and an included angle by using the rule $\text{Area} = \frac{1}{2}ab\sin C$, or given three sides by using Heron's rule, and solve related practical problems
	Arithmetic Sequence M6.1.3	Use the formula for the n th term and for the sum of the first n terms to solve problems involving arithmetic or geometric progressions
	Geometric Sequence M6.1.4	Use the formula for the n th term and for the sum of the first n terms to solve problems involving arithmetic or geometric progressions
	Trigonometric Functions M6.1.5	Understand the definition of a radian and use the relationship between radians and degrees. recognize the radian as an alternative unit to the degree for angle measurement, define the radian measure of an angle as the length of the arc that subtends this angle at the centre of a unit circle, and develop and apply the relationship between radian and degree measure
	Binomial Theorem M6.1.6	Know and apply the Binomial Theorem for the expansion of $(x+y)^n$ in powers of x and y for a positive integer n , where x and y are any numbers, with coefficients determined for example by Pascal's Triangle
	Real & Complex Numbers: Imaginary Number M6.1.7	Prove and apply the factor theorem and the remainder theorem for polynomials.
	Conjugate of Complex Numbers M6.1.8	Determine and use complex conjugates.
	Operations of Complex Numbers M6.1.9	Carry out operations of addition, subtraction, multiplication and division of two complex numbers expressed in Cartesian form $x + iy$. Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation.
	Matrices M6.1.10	Use the general solution and determine linear factors of real quadratic polynomials. Work with 2×2 matrices as a transformations of the plane, and interpret the absolute value of the determinant in terms of area.
Probability M6.1.11	12.A.1.6 determine whether two events are independent or dependent and whether one event is conditional or another event, and solve related probability problems [e.g., calculate $P(A \text{ and } B)$, $P(A \text{ or } B)$, $P(A \text{ given } B)$] using a variety of strategies (e.g., tree diagrams, lists, formulas). Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model .	