T1 sequence	T1 arithmetic sequence	T1 common difference
T1 series	T1 geometric sequence	T1 common ratio
T1 assumption	T1 compound interest	T1 depreciation

T1 The constant amount added to each term to obtain the next term in an arithmetic sequence.	T1 A sequence whose consecutive terms differ by a constant amount.	T1 An ordered list of numbers, called terms, following a rule.
T1 The factor multiplying each term to obtain the next term in a geometric sequence.	T1 A sequence in which each term is obtained by multiplying the previous term by a fixed common ratio.	T1 A sum of the terms of a sequence, which may contain finitely or infinitely many terms.
T1 A reduction in the value of an asset over time, often modelled as a percentage decrease.	T1 Interest calculated on the original principal together with previously accumulated interest.	T1 A statement accepted as a starting point for reasoning, analysis or a model.

T1 inflation	T1 amortised	T1 annuity
T1 standard form	T1 significant figure	T1 lower bound
T1 upper bound	T1 logarithm	T1 natural logarithm

T1 In financial mathematics, a series of equal payments made at regular time intervals.	T1 Paid off gradually by equal regular payments that cover the interest and part of the loan.	T1 A sustained increase in the general price level of goods and services.
T1 A value less than or equal to every value in a set or permitted range.	T1 The meaningful digits in a measured or rounded number, beginning with its first non-zero digit.	T1 A number written as a $\times$ 10^k, where $1 \leq a < 10$ and k is an integer.
T1 The logarithm to base e, the inverse of the exponential function with base e.	T1 The exponent to which a specified base must be raised to produce a given positive number.	T1 A value that is greater than or equal to every value in the set being considered.

T1 complex number	T1 Argand diagram	T1 modulus
T1 argument	T1 complex conjugate	T1 matrix
T1 identity matrix	T1 determinant	T1 inverse matrix

T1 The non-negative magnitude of a number; for a real number, its distance from zero.	T1 A diagram showing complex numbers as points, with the real part across and the imaginary part up.	T1 A number expressible as a real part plus an imaginary part, using i with i squared equal to minus one.
T1 A rectangular array of numbers arranged in rows and columns.	T1 A complex number with the same real part and the opposite imaginary part as another complex number.	T1 An angle describing the direction of a nonzero complex number from the positive real axis in the complex plane.
T1 A matrix that gives the identity matrix when multiplied by the original matrix in either order.	T1 A scalar calculated from a square matrix that indicates properties such as invertibility and area or volume scaling.	T1 A square matrix with ones on its main diagonal and zeros elsewhere, which leaves compatible matrices unchanged under multiplication.

T1 eigenvector	T1 eigenvalue	T1 characteristic polynomial
T1 steady state	T2 model	T2 gradient
T2 parallel	T2 perpendicular	T2 linear model

T1 The polynomial $\det(A - \lambda I)$, whose roots are the eigenvalues of the matrix A.	T1 A number λ for which $Av = \lambda v$ for some non-zero vector v: the factor by which the eigenvector is stretched.	T1 A nonzero vector that a linear transformation maps to a scalar multiple of itself.
T2 The change in the vertical coordinate divided by the change in the horizontal coordinate.	T2 A simplified representation of a system used to explain, analyse or predict its behaviour.	T1 The long-run state of a system that no longer changes from one step to the next.
T2 A model that describes a relationship using a linear equation.	T2 Meeting at a right angle of 90 degrees.	T2 Describing lines in the same plane that never meet, however far extended.

T2 function	T2 domain	T2 range
T2 inverse function	T2 zero	T2 asymptote
T2 quadratic model	T2 axis of symmetry	T2 exponential model

T2 The set of output values actually attained by a function on its stated domain.	T2 The set of input values for which a function is defined.	T2 A mapping that assigns exactly one output to each allowed input.
T2 A line that a curve approaches arbitrarily closely as its input or output tends to a particular limit.	T2 An input value at which a function's output equals zero.	T2 A function that reverses another function's mapping on a domain where that mapping is one-to-one.
T2 A model in which equal input increments multiply the output by a constant factor.	T2 The vertical line that divides a parabola into two mirror-image halves, through its turning point.	T2 A model that describes a relationship using a polynomial of degree two.

T2 directly proportional	T2 inversely proportional	T2 sinusoidal model
T2 period	T2 amplitude	T2 principal axis
T2 assumption	T2 interpolation	T2 extrapolation

T2 A model of the form y = a sin(bx) + d or y = a cos(bx) + d, for quantities that repeat regularly.	T2 Describes two quantities whose product is constant, so when one doubles the other halves.	T2 Describes two quantities whose ratio is constant, so when one doubles the other doubles.
T2 The horizontal centre line y = d about which a sinusoidal graph goes up and down.	T2 The maximum displacement from an equilibrium position.	T2 The time taken for one complete oscillation or cycle.
T2 Estimating a value outside the range of observed data by extending a pattern or model.	T2 Estimating a value inside the range of the data used to build the model.	T2 A statement accepted as a starting point for reasoning, analysis or a model.

T2 composite function	T2 logistic model	T2 carrying capacity
T2 semi-log graph	T2 log-log graph	T3 midpoint
T3 slant height	T3 pyramid	T3 cone

T2 The largest value that a logistic model approaches in the long run, such as the most a habitat can support.	T2 A growth model that rises quickly at first and then levels off at a maximum value.	T2 A function formed by applying one function to the output of another.
T3 The point halfway between the endpoints of a line segment.	T2 A graph with logarithmic scales on both axes, on which power-law data lie on a straight line.	T2 A graph with a logarithmic scale on one axis only, on which exponential data lie on a straight line.
T3 A solid with a circular base and a curved surface that narrows to a vertex.	T3 A solid with a flat base and triangular faces that meet at one point, the apex.	T3 The distance from the tip of a cone to the edge of its base, measured along the curved surface.

T3 sphere	T3 hemisphere	T3 space diagonal
T3 hypotenuse	T3 angle of elevation	T3 angle of depression
T3 bearing	T3 sine rule	T3 cosine rule

T3 A line joining two opposite corners of a cuboid that passes through its inside.	T3 One half of a sphere.	T3 A three-dimensional shape whose surface points are all the same distance from its centre.
T3 The angle measured downwards from a horizontal line to the line of sight to an object.	T3 The angle measured upwards from a horizontal line to the line of sight to an object.	T3 The side opposite the right angle in a right-angled triangle.
T3 The rule relating a triangle's sides and an angle: one side squared equals the sum of the other two sides squared minus twice their product times the cosine of the included angle.	T3 The rule that each side of a triangle divided by the sine of its opposite angle has the same value.	T3 A direction measured as an angle clockwise from north, usually written with three digits.

T3 arc	T3 sector	T3 perpendicular bisector
T3 Voronoi diagram	T3 site	T3 cell
T3 edge	T3 vertex	T3 nearest neighbour interpolation

T3 A line that crosses a line segment at its midpoint and at a right angle.	T3 A region of a circle bounded by two radii and the arc between them.	T3 A continuous portion of a curved line, such as part of a circle's circumference.
T3 The region of a Voronoi diagram that contains all the points nearest to one site.	T3 One of the given points, such as a school or a weather station, around which a Voronoi diagram is drawn.	T3 A map divided into cells, each holding the points closer to one site than to any other site.
T3 Estimating a value at a point by using the value at the nearest site, the site of the cell containing the point.	T3 A corner or meeting point of edges, a turning point of a parabola, or a node in a graph, depending on the context.	T3 Connections between vertices in a graph, or boundary segments of a geometric shape.

T3 radian	T3 unit circle	T3 transformation matrix
T3 reflection	T3 rotation	T3 enlargement
T3 stretch	T3 determinant	T3 vector

T3 A matrix that moves points by multiplication, for example a rotation, reflection, enlargement or stretch.	T3 A circle with radius one, usually centred at the origin.	T3 The angle subtended at a circle's centre by an arc equal in length to its radius.
T3 A transformation that scales distances from a fixed centre by a specified scale factor.	T3 A transformation that turns points through a specified angle about a fixed centre or axis.	T3 A transformation that maps each point to its mirror image across a line or plane.
T3 A quantity represented by both magnitude and direction, or by an ordered set of components.	T3 A scalar calculated from a square matrix that indicates properties such as invertibility and area or volume scaling.	T3 A transformation that multiplies the distances in one direction by a scale factor.

T3 magnitude	T3 unit vector	T3 position vector
T3 scalar product	T3 vector product	T3 vector equation of a line
T3 velocity vector	T3 graph	T3 degree

T3 The vector from the origin to a point, which gives the point's position.	T3 A vector whose magnitude is one.	T3 The size or numerical value of a quantity.
T3 An equation r = a + λb, which reaches every point of a line from a point a by moving along a direction b.	T3 The cross product of two three-dimensional vectors, perpendicular to both with magnitude equal to their magnitudes times the sine of the angle between them.	T3 The sum of the products of corresponding vector components, equal to the product of their magnitudes and the cosine of their angle.
T3 An angular unit equal to one three-hundred-and-sixtieth of a full turn.	T3 A mathematical structure consisting of vertices connected by edges.	T3 A vector giving the speed and direction of motion; its magnitude is the speed.

T3 complete graph	T3 weighted graph	T3 directed graph
T3 connected	T3 tree	T3 Eulerian circuit
T3 Eulerian trail	T3 Hamiltonian cycle	T3 adjacency matrix

T3 A graph whose edges have directions, shown by arrows.	T3 A graph whose edges carry numbers, such as distances, times or costs.	T3 A graph in which every pair of vertices is joined by an edge.
T3 A route that uses every edge of a graph exactly once and returns to its start.	T3 A connected graph containing no cycles.	T3 Describes a graph in which every vertex can be reached from every other vertex.
T3 A matrix whose entry in row i and column j is the number of edges from vertex i to vertex j.	T3 A route that visits every vertex of a graph exactly once and returns to its start.	T3 A route that uses every edge of a graph exactly once but ends at a different vertex.

T3 transition matrix	T3 spanning tree	T3 minimum spanning tree
T3 Kruskal's algorithm	T3 Prim's algorithm	T3 Chinese postman problem
T3 travelling salesman problem	T3 upper bound	T3 lower bound

T3 The spanning tree of a weighted graph with the smallest total weight.	T3 A tree that joins all the vertices of a graph without any cycles.	T3 A matrix of the probabilities of moving from each state, or vertex, to each other one in one step.
T3 The problem of finding the shortest route that uses every edge of a graph at least once and returns to the start.	T3 A method for a minimum spanning tree: start at one vertex and keep adding the shortest edge that reaches a new vertex.	T3 A method for a minimum spanning tree: take the edges in order of weight and keep each one that does not make a cycle.
T3 A value less than or equal to every value in a set or permitted range.	T3 A value that is greater than or equal to every value in the set being considered.	T3 The problem of finding the shortest route that visits every vertex of a graph and returns to the start.

T4 population	T4 sample	T4 discrete data
T4 continuous data	T4 outlier	T4 mean
T4 median	T4 mode	T4 quartile

T4 Data that can take only separate values, such as counts.	T4 A subset of a population selected for observation, measurement or analysis.	T4 The entire set of individuals, items or outcomes about which a statistical study seeks information.
T4 The sum of a set of values divided by the number of values.	T4 An observation unusually far from the rest of the data or from the pattern expected under a model.	T4 Data that can take any value in a range, such as heights or times.
T4 One of the three boundary values that divide ordered data into four parts of approximately equal size.	T4 The value or category occurring most frequently in a data set.	T4 The middle value when data are arranged in order, or the mean of the two middle values for an even number of observations.

T4 interquartile range	T4 standard deviation	T4 cumulative frequency
T4 box plot	T4 scatter diagram	T4 regression line
T4 interpolation	T4 extrapolation	T4 Spearman's rank correlation coefficient

T4 The running total of the frequencies up to the end of each class.	T4 A measure of spread equal to the square root of the variance.	T4 The upper quartile minus the lower quartile, measuring the spread of the middle half of ordered data.
T4 The line of best fit found by least squares, used to predict one variable from the other.	T4 A graph of paired data plotted as points, used to see whether two variables are related.	T4 A display of a distribution using its median and quartiles, with whiskers drawn according to a stated rule.
T4 A measure from -1 to 1 of how well two variables are related by a monotonic pattern, found by applying Pearson's coefficient to their ranks.	T4 Estimating a value outside the range of observed data by extending a pattern or model.	T4 Estimating a value inside the range of the data used to build the model.

T4 probability	T4 sample space	T4 mutually exclusive
T4 independent	T4 tree diagram	T4 discrete random variable
T4 expected value	T4 normal distribution	T4 null hypothesis

T4 Describing events that cannot occur together in the same trial.	T4 The set of all possible outcomes of a random experiment.	T4 A numerical measure of how likely an event is, ranging from zero to one.
T4 A variable that takes separate values, each with a probability, where the probabilities add to 1.	T4 A branching diagram showing possible stages, outcomes or classifications and their relationships.	T4 Describing quantities, events or choices that do not depend on one another in the relationship being considered.
T4 The default claim about a population parameter that a statistical test assesses against an alternative.	T4 A continuous, symmetric bell-shaped probability distribution specified by its mean and standard deviation.	T4 The probability-weighted mean of the possible values of a random variable.

T4 alternative hypothesis	T4 significance level	T4 chi-squared test
T4 contingency table	T4 degrees of freedom	T4 critical value
T4 goodness of fit test	T4 one-tailed	T4 two-tailed

T4 A statistical test that compares observed frequencies with frequencies expected under a null hypothesis.	T4 The chosen probability of rejecting a true null hypothesis in a statistical test.	T4 The statistical claim considered against the null hypothesis, specifying a difference, effect or relationship.
T4 The boundary value of a test statistic beyond which the null hypothesis is rejected.	T4 The number of independent values free to vary after relevant constraints have been imposed.	T4 A table showing frequencies for combinations of categories of two variables.
T4 Describes a test whose alternative hypothesis says the parameter is different from the null value, in either direction.	T4 Describes a test whose alternative hypothesis says the parameter is greater, or less, than the null value, in one direction only.	T4 A chi-squared test of whether observed frequencies fit a given distribution.

T4 reliable	T4 valid	T4 residual
T4 coefficient of determination	T4 unbiased estimate	T4 central limit theorem
T4 confidence interval	T4 Poisson distribution	T4 critical region

T4 An observed value minus the value predicted by a model.	T4 Describes a measurement that measures what it claims to measure.	T4 Describes a measurement that gives consistent results when it is repeated.
T4 The result that the mean of a large random sample is approximately normally distributed, whatever the shape of the population.	T4 A value calculated from a sample whose average over many samples equals the population value.	T4 In ordinary least-squares regression with an intercept, the proportion of response variation explained by the fitted model, denoted R squared.
T4 The set of values of a test statistic that lead to rejecting the null hypothesis.	T4 A probability model for event counts in a fixed interval when events occur independently at a constant average rate.	T4 An interval calculated from sample data using a method with a stated long-run probability of containing the population parameter.

T4 Type I error	T4 Type II error	T4 Markov chain
T4 transition matrix	T4 steady state	T5 secant
T5 tangent	T5 derivative	T5 increasing

T4 A random process moving between states in which the next state depends only on the current state.	T4 Failing to reject a null hypothesis when it is false.	T4 Rejecting a null hypothesis when it is true.
T5 A straight line passing through two distinct points on a curve.	T4 The long-run state of a system that no longer changes from one step to the next.	T4 A matrix of the probabilities of moving from each state, or vertex, to each other one in one step.
T5 Describing a function or sequence whose values rise as its input or index increases over a specified range.	T5 The instantaneous rate of change of a function with respect to its input.	T5 A straight line that touches a curve at a point and has the same direction there.

T5 decreasing	T5 normal	T5 stationary point
T5 local maximum	T5 local minimum	T5 integration
T5 constant of integration	T5 definite integral	T5 chain rule

T5 A point on a differentiable curve where its derivative is zero.	T5 A line perpendicular to a surface at a given point.	T5 Describing a function or sequence whose values fall as its input or index increases over a specified range.
T5 Finding an integral, such as an antiderivative or the accumulated value over an interval.	T5 A point where a curve is lower than at all nearby points; the gradient changes from negative to positive there.	T5 A point where a curve is higher than at all nearby points; the gradient changes from positive to negative there.
T5 The rule for differentiating a composite function by multiplying the appropriate derivatives.	T5 The limit of sums of function values multiplied by interval widths, representing signed area under a curve over an interval.	T5 An arbitrary constant included in an indefinite integral to represent the family of antiderivatives.

T5 product rule	T5 quotient rule	T5 second derivative
T5 point of inflection	T5 volume of revolution	T5 displacement
T5 velocity	T5 acceleration	T5 differential equation

T5 The derivative of a function's first derivative, describing how its gradient changes.	T5 The differentiation rule for a ratio: the denominator times the numerator's derivative minus the numerator times the denominator's derivative, divided by the denominator squared.	T5 The differentiation rule for two multiplied functions: the first times the derivative of the second plus the second times the derivative of the first.
T5 The straight-line change in position, including direction.	T5 The volume of a solid formed by rotating a plane region around an axis.	T5 A point on a curve where its concavity changes.
T5 An equation involving a function and one or more of its derivatives.	T5 The rate of change of velocity.	T5 The rate of change of displacement.

T5 separation of variables	T5 slope field	T5 Euler's method
T5 coupled system	T5 phase portrait	T5 equilibrium point
T5 saddle point	T6 mathematical exploration	T6 internal assessment

T5 A step-by-step numerical method for a differential equation that moves along the gradient for a small step h at a time.	T5 A diagram of short line segments showing the slopes specified by a first-order differential equation at different points.	T5 A method for solving $dy/dx = f(x)g(y)$ by putting all the y terms on one side and all the x terms on the other, then integrating both sides.
T5 A point where all the rates of change in a system are zero, so a solution that starts there stays there.	T5 A diagram of the paths that the solutions of a coupled system follow in the plane of the two variables.	T5 A pair of differential equations in which the rate of change of each variable depends on both variables.
T6 Coursework marked by the student's own teacher, with a sample checked by the IB.	T6 The IB mathematics internal assessment: a written investigation of about 12 to 20 pages on a topic the student chooses.	T5 An equilibrium where paths come in along one direction and leave along another, found when the eigenvalues have opposite signs.

T6 moderation	T6 presentation	T6 mathematical communication
T6 personal engagement	T6 reflection	T6 use of mathematics
T6 research question	T6 primary data	T6 secondary data

T6 Exploration criterion B: correct notation, symbols and terms, defined variables and labelled graphs and tables.	T6 Exploration criterion A: how well the work is organised, coherent and concise.	T6 The IB's check of a sample of a school's internal assessment marking, which can raise or lower the marks.
T6 Exploration criterion E: relevant, correct mathematics at the level of the course, used with understanding.	T6 Careful consideration of an experience or action to understand it and improve future decisions.	T6 Exploration criterion C: evidence of the student's own thinking, decisions and approach.
T6 Data collected by someone else, such as a published data set, which must be cited and checked for reliability.	T6 Data that you collect yourself, for example by measuring or by a survey you design.	T6 The specific question an investigation is designed to answer.

T6 regression line	T6 residual	T6 assumption

T6 A statement accepted as a starting point for reasoning, analysis or a model.	T6 An observed value minus the value predicted by a model.	T6 The line of best fit found by least squares, used to predict one variable from the other.