

*St. Machar Academy*

*Maths*  
*Vocabulary*  
*Book*

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## Contents

Prologue .....	0
Arithmetic .....	1
Algebra .....	13
Geometry and Trigonometry .....	25
Functions and Graphs .....	45
Money and Finance .....	53
Statistics and Probability .....	65
Calculus .....	73
Mensuration and Units .....	83
Sets, Logic, Proofs and Genera .....	94
Epilogue .....	104

## Prologue

This is a rather comprehensive vocabulary list of words and phrases ('terms') encountered in the Scottish secondary school mathematics curriculum from S1 - S6.

The first column gives the term to be defined. The second column gives the meaning of each term. Latin terms are italicised. Bolded terms are those which the author feels should be known by all practitioners of numeracy.

Many terms are currently not required for assessment purposes; however, there is scope for further investigation of such terms.

M. Patel (June 2011)

*One great use of words is to hide our thoughts*

*Voltaire (18<sup>th</sup> century)*

## Arithmetic

<b>Abacus</b>	Device used for simple calculations
Absolute value	The value of a number, disregarding its sign
<b>Add</b>	<b>Combine two numbers by counting to get a total</b>
<b>Addend</b>	<b>Number to be added</b>
<b>Addition</b>	<b>To add</b>
<b>Amount</b>	<b>How much there is</b>
<b>Arabic numerals</b>	<b>The numerals 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9</b>
<b>Arithmetic</b>	<b>Branch of maths dealing with numbers and how to add, subtract, multiply and divide them</b>
<b>Ascending order</b>	<b>In order from smallest to biggest</b>
<b>Base</b>	<b>Number that is raised to a certain power; the number b in <math>b^n</math></b>
Base sixty	Number system with 60 as base
<b>Base ten</b>	<b>Number system with 10 as base</b>
<b>Basic operations</b>	<b>The 4 operations of multiplication, division, addition and subtraction</b>
<b>Binary</b>	<b>Number system with 2 as base</b>
<b>BODMAS</b>	<b>Order in which calculations are to be performed: Brackets, Orders (i.e. exponents and roots), Division, Multiplication, Addition and Subtraction</b>
<b>Borrow</b>	<b>Regroup to help with subtraction</b>

*Arithmetic*

Braces	The symbols { and } found in sets and piecewise functions
Brackets	The symbols [ and ]; sometimes ( and )
Carry	Regroup to help with addition
Characteristic	Integer part of a common logarithm
Chimney sum	Sum (usually adding) set out with numbers underneath each other with correct place value
Clock arithmetic	Modulo arithmetic
Common factor	Same factor for two or more (usually natural) numbers
Common fraction	Fraction
Complex conjugate	Complex number with the same real part but negative imaginary part of $a + bi$
Complex number	Number with real and imaginary parts
Congruence	When 2 numbers have the same remainder after dividing by a positive integer $n$
Congruence class modulo $n$	Set of all integers having the same remainder upon dividing by $n$
Conjugate surds	Surds of the form $a + b\sqrt{c}$ and $a - b\sqrt{c}$
Consecutive	Next to each other in a list
Correct to the nearest	Round to the nearest
Count	Find out how much there is
Count back	Subtract by starting from one number

*Arithmetic*

Counting rods	Rods used in China for calculation (including fractions)
Count on	Add by starting from one number
Cube	To multiply a number by itself 3 times
Cube root	Number $x$ which satisfies $x^3 = y$ , for some number $y$
Decimal	Number which has an integer and a fractional part
Decimal fraction	Fraction with the denominator equal to a power of ten
Decimal place	In rounding, how many numbers are to be written after the decimal point
Decimal point	Point used to separate the integer and fractional parts of a number
Decimal representation	Writing a number as a decimal
Decimal separator	Decimal point
Denominator	Bottom part of a fraction
Descending order	In order from biggest to smallest
Dienes' blocks	Cube blocks used in arithmetic
Difference	Answer to a take away sum
Digit	Whole number
Directed number	Positive or negative number
Divide	Share out equally
Dividend	Number which is to be divided into

*Arithmetic*

<b>Divisible</b>	<b>Number that is divided by another number to give an answer with 0 remainder</b>
<b>Division</b>	<b>To divide</b>
<b>Divisor</b>	<b>Number that divides into another number with zero remainder</b>
<b>Dozen</b>	<b>Twelve</b>
Egyptian fraction	Fraction written as the sum of different unit fractions
<b>Equal</b>	<b>Same</b>
<b>Equality</b>	<b>Being equal</b>
<b>Equivalent fractions</b>	<b>Fractions that are the same</b>
<b>Even</b>	<b>Number divisible by 2</b>
Exact value	Leaving a number simplified without working out roots, dividing etc.
<b>Exponent</b>	<b>Number <math>n</math> in <math>a^n</math></b>
<b>Exponentiation</b>	<b>Repeated multiplication</b>
<b>Factor</b>	<b>Number that divides exactly (no remainder) into another number</b>
<b>Factorisation</b>	<b>Product of factors of a (usually natural) number</b>
<b>Factorise</b>	<b>Write a (usually natural) number as a product of two or more of its factors</b>
<b>Factor tree</b>	<b>Diagram showing factors of a number</b>

*Arithmetic*

Fibonacci number	Number in the Fibonacci sequence
Fibonacci sequence	The sequence 1, 1, 2, 3, 5, 8, 13, ... starting with 1, 1 and adding 2 successive terms
<b>Figure</b>	<b>Digit</b>
<b>Fraction</b>	<b>Number written as one integer divided by a non-zero integer</b>
<b>Fractional</b>	<b>To do with fractions</b>
<b>Fractional part</b>	<b>Proper fraction part of a decimal number</b>
Fundamental theorem of arithmetic	Result that every natural number bigger than 2 can be written in exactly one way (ignoring order) as a product of prime powers
<b>GCD</b>	<b>Greatest Common Divisor - the HCF</b>
Genaille-Lucas rulers	Set of rulers with triangles, used for simple multiplication
<b>Greater than</b>	<b>Bigger than</b>
<b>HCF</b>	<b>Highest Common Factor; biggest positive integer that exactly divides two or more non-zero integers</b>
Hexadecimal	Base 16
<b>Hindu-Arabic numeral</b>	<b>Arabic numerals</b>
<b>Hundredth</b>	<b>1 part out of 100</b>
<b>Improper fraction</b>	<b>Fraction with the numerator bigger than the denominator</b>

*Arithmetic*

<b>Index</b>	<b>Power</b>
<b>Integer</b>	<b>Whole number, the negative of a whole number or 0</b>
<b>Integer part</b>	<b>Integer part of a decimal number</b>
<b>Integral</b>	<b>To do with integers</b>
<b>Inverse</b>	<b>The opposite process</b>
<b>Irrational number</b>	<b>Number that is not rational; can't be written as a fraction</b>
<b>Iteration</b>	<b>Repeat a process</b>
<b>LCM</b>	<b>Lowest Common Multiple; smallest positive integer that 2 or more integers exactly divide into</b>
<b>Leading zero</b>	<b>Any zero that occurs before the first non-zero digit in a number</b>
<b>Less than</b>	<b>Smaller than</b>
<b>Logarithm</b>	<b>The number <math>x</math> in <math>b^x = a</math>, alternatively written as <math>x = \log_b a</math></b>
<b>Magnitude</b>	<b>Size</b>
<b>Mantissa</b>	<b>Fractional part of a logarithm</b>
<b>Minuend</b>	<b>Number that is taken away from</b>
<b>Minus</b>	<b>Subtract</b>
<b>Mixed number</b>	<b>Improper fraction written as a whole number plus a proper fraction</b>
<b>Modulo arithmetic</b>	<b>Arithmetic based on congruence classes</b>
<b>Modulus</b>	<b>The number <math>n</math> in a congruence class</b>
<b>Multiple</b>	<b>Number multiplied by an integer</b>

*Arithmetic*

<b>Multiplicand</b>	<b>Number that is multiplied</b>
<b>Multiplication</b>	<b>To multiply</b>
<b>Multiplier</b>	<b>Number that does the multiplying</b>
<b>Multiply</b>	<b>Repeated addition of the same number</b>
<b>Napier's bones</b>	<b>Abacus used for multiplying and dividing whole numbers</b>
<b>Napier's rods</b>	<b>Napier's bones</b>
<b>Natural number</b>	<b>The counting numbers 1, 2, 3, 4, ...</b>
<b>Negative</b>	<b>Number less than 0</b>
<b>Negative square root</b>	<b>The negative number <math>N</math> in <math>N^2 = y</math></b>
<b>Non-zero</b>	<b>Not zero</b>
<b><math>n^{\text{th}}</math> root of <math>y</math></b>	<b>The number <math>x</math> in <math>x^n = y</math></b>
<b>Number</b>	<b>Something used in counting and measuring</b>
<b>Number base</b>	<b>Base</b>
<b>Number bonds</b>	<b>Simple two-number addition sum</b>
<b>Number line</b>	<b>Line with equally spaced numbers</b>
<b>Number system</b>	<b>Set of numbers with at least one operation</b>
<b>Numeral</b>	<b>Symbol for a number</b>
<b>Numerator</b>	<b>Top part of a fraction</b>
<b>Numerical</b>	<b>To do with numbers</b>
<b>Obelus</b>	<b>The division symbol <math>\div</math></b>
<b>Odd</b>	<b>Number which gives remainder 1 when divided by 2</b>

*Arithmetic*

<b>Operand</b>	<b>Number acted on by an operator</b>
<b>Operation</b>	<b>Way of combining numbers</b>
<b>Order of magnitude</b>	<b>Scale of comparing sizes of numbers, usually using base 10</b>
<b>Order of operations</b>	<b>Order in which to do calculations - BODMAS</b>
<b>Palindrome</b>	<b>Number that reads the same backwards as forwards (e.g. 565)</b>
<b>Parentheses</b>	<b>The symbols ( and )</b>
<b>Per</b>	<b>Out of</b>
<b>Percent</b>	<b>Out of 100</b>
<b>Percentage</b>	<b>Way of writing a fraction with denominator equal to 100; 1 % is 1 hundredth</b>
<b>Per mille</b>	<b>Out of 1 000</b>
<b>Place-value notation</b>	<b>Positional notation</b>
<b>Positional notation</b>	<b>Way of writing numbers, using the same symbol for different orders of magnitude</b>
<b>Positive</b>	<b>Number greater than 0</b>
<b>Positive square root</b>	<b>The positive number P in <math>P^2 = y</math></b>
<b>Power</b>	<b>Exponent</b>
<b>Prime factor</b>	<b>Prime number that is a factor</b>
<b>Prime factorisation</b>	<b>Factorisation of an integer into its prime factors</b>

*Arithmetic*

<b>Prime number</b>	<b>Number that has exactly 2 factors, the number itself and the number 1</b>
<b>Product</b>	<b>Result of multiplying two numbers</b>
<b>Proper fraction</b>	<b>Fraction with the numerator smaller than the denominator</b>
<b>Property of one</b>	<b>1 times any number equals that number</b>
<b>Property of zero</b>	<b>0 times any number equals 0; 0 add any number equals that number</b>
<b>Quotient</b>	<b>Number of times the divisor goes into the dividend</b>
<b>Radical symbol</b>	<b>The symbol <math>\sqrt{\quad}</math></b>
<b>Radicand</b>	<b>Number under a root</b>
<b>Radix</b>	<b>Base</b>
<b>Radix point</b>	<b>Symbol used to separate the integer part from the fractional part of a number in any base</b>
<b>Raised to the power of</b>	<b>To the power of</b>
<b>Ratio</b>	<b>One number divided by another</b>
<b>Rational number</b>	<b>Number that can be written as a fraction or as a repeating decimal</b>
<b>Real number</b>	<b>Number that is either rational or irrational</b>
<b>Recurring decimal</b>	<b>Repeating decimal</b>
<b>Recurring digit(s)</b>	<b>Repeating block</b>
<b>Remainder</b>	<b>Whole number that is left after dividing</b>

*Arithmetic*

Repeating block	Repeating digit or set of digits (usually found in decimals)
Repeating decimal	Decimal number with a repeating block
Repeating digit(s)	Number that repeats or a set of numbers in a certain order that repeat
Repetend	Repeating block
Residue class	Congruence class
Rod calculus	Using counting rods for calculation
Roman numeral	The numerals, I, V, X, L, C, D and M
Root	Number with a radical symbol
Round to the nearest	Approximation of a number by specifying to how many units, tens, hundreds, tenths or hundredths etc. it is to be written
Scientific notation	Number written as $b \times 10^n$ , with $b$ a decimal number between 1 and 10 (not including 10) and $n$ an integer
Score	Twenty
Sequence	List of numbers
Sexagesimal	Base sixty
Share equally	Divide
Sieve of Eratosthenes	Method of finding prime numbers
Sign	Positive or negative

*Arithmetic*

Significant figure	Digits of a number that specify the degree of accuracy
Simple fraction	Fraction
Slide rule	Device used for performing many types of calculations, including multiplication, division, taking roots, trigonometry, logarithms and exponentials
Solidus	Division symbol / (not ÷)
Square	Number times itself
Square number	Number (usually whole) that is the square of another number; number in the sequence, 1, 4, 9, 16, 25, 36, ...
Square root of $y$	Number(s) $x$ in $x^2 = y$
Standard form	Scientific notation
Subitising	Instantly knowing how many objects there are without counting
Subtract	Take away
Subtraction	To take away
Subtrahend	Number that is taken away
Successive terms	Numbers next to each other
Sum	Usually means add, but can mean any type of calculation
Sum of	Add
Surd	Root of a number that is irrational
Take away	Make less by removing
Tenth	1 part out of 10

## Arithmetic

Term	Number in a sequence
Thousandth	1 part out of 1 000
Times	Multiply
Top-heavy fraction	Improper fraction
Total	Sum of
To the power of	Exponentiation
Trachtenberg system	System of mental calculations involving the four basic operations
Trailing zero	Any zero that occurs after the last non-zero digit in a number
Triangular number	Number in the sequence, 1, 3, 6, 10, 15, 21, 28, 36, ...
Unit fraction	Fraction with numerator equal to 1
Unity	The number 1
Vinculum	Horizontal bar placed over the repetend in a decimal
Vulgar fraction	Fraction
Whole	Everything; all of
Whole number	Number in the set {0, 1, 2, 3, 4, ...}
Zero	Number indicating nothing; number which, when added to any integer, gives the same integer back

## Algebra

Add	Combine two quantities to get a total
Addend	Quantity to be added
Additive identity	Quantity (usually written as 0) which, when added to any quantity $x$ , gives $x$
Additive inverse	Quantity (usually written as $-x$ ) which, when added to any quantity $x$ , gives 0
Algebra	Branch of maths dealing with numbers, variables and the four basic operations together with taking roots
Algebraic expression	Expression involving numbers and letters with some or all of the four basic operations and possibly roots
Algebraic fraction	Fraction in which both the numerator and denominator are algebraic expressions
Algebraic term	Algebraic expression
Arithmetic sequence	Sequence in which any two successive terms have the same difference
Associative law	Rule that the order in which terms are bracketed for a single operation is irrelevant
Augmented matrix	Matrix formed by attaching at least one column vector to a given matrix; for inverting the given matrix, the identity matrix is attached
Back substitution	Substituting variables back into previous equations to solve for other variables
Balance	Keep the same



## *Algebra*

Binomial	Polynomial involving exactly two terms
Binomial coefficient	Coefficient in the binomial theorem
Binomial theorem	Formula for expanding $(x + y)^n$ for any whole number $n$
Biquadratic	Quartic
Bivariate polynomial	Polynomial in 2 variables
<b>Cancel</b>	<b>To simplify an expression or equation by performing the same operation to each part of the expression or to both sides of the equation so that at least one term or part of a term disappears</b>
<b>Change the subject</b>	<b>Make a variable the subject of a formula</b>
<b>Coefficient</b>	<b>Quantity (usually a number) in front of a term in an expression</b>
Cofactor	Signed (plus or minus) minor
Collect like terms	Add or subtract two or more terms of the same type to simplify an expression
Common difference	Difference between any 2 successive terms (next minus previous) in an arithmetic sequence
<b>Common factor</b>	<b>Factor that is common to 2 or more quantities</b>
Common ratio	Ratio of any 2 successive terms (next divided by previous) in a geometric sequence

## *Algebra*

Commutative law	Rule that the order in which 2 quantities are taken for a single operation does not matter
Complex roots	Roots that are complex numbers
Consistent system	System of (usually linear) equations that have a solution
Cubic equation	Degree 3 polynomial equated to zero
Cubic formula	Formula for solving the general cubic equation
Degree of a polynomial	Highest power in a single variable polynomial
De Moivre's theorem	Theorem allowing easy evaluation of powers of complex numbers
Determinant	Number associated with a matrix used to decide if the matrix has an inverse
Diophantine equation	Indeterminate polynomial equation in which all variables are integers
<b>Direct proportion/variation</b>	<b>When 2 variables <math>x</math> and <math>y</math> increase or decrease in the same ratio and are related thus: <math>y = kx</math></b>
Discriminant	Quantity under the square root in the Quadratic formula, used to decide the nature and number of roots
Distributive law	Rule that brackets can be expanded
<b>Dividend</b>	<b>Quantity that is divided by another quantity of the same type</b>

## *Algebra*

Division algorithm (polynomials)	Method for dividing 2 polynomials by working out the quotient and remainder
Division algorithm (whole numbers)	Method for dividing 2 numbers by working out the quotient and remainder
<b>Divisor</b>	<b>Quantity that divides into another quantity with zero remainder</b>
Elementary row operations	Row operations used to solve a system of equations
Element of a matrix	Entry
Entry	Content of a matrix in a specific row and column
Equal roots	Solutions to an equation that are the same
EROs	Elementary Row Operations
Euclidean algorithm	Technique for calculating the HCF of 2 numbers
Factor	Algebraic expression which divides exactly into another algebraic expression
Factorial of n	The quantity $n \times (n - 1) \dots 3 \times 2 \times 1$
Factorise	Take out common terms in an expression, with the answer having brackets
Factorise fully	Factorise by taking out the HCF
Factor theorem	Theorem that a polynomial $f$ has a factor $(x - k)$ if and only if $f(k) = 0$
Finite series	Series with a finite number of terms
First-order recurrence relation	Recurrence relation of the form $u_{n+1} = F(u_n, n)$

## *Algebra*

First-order linear recurrence relation	Recurrence relation of the form $u_{n+1} = a u_n + b$
FOIL	First, Outside, Inside, Last - mnemonic for multiplying 2 brackets each with 2 terms
<b>Formula</b>	<b>Equation for working something out</b>
Fundamental theorem of algebra	Result that every non-constant polynomial with complex coefficients has at least one complex root
Gaussian Elimination	Method of solving a system of linear equations
<b>GCD</b>	<b>Greatest Common Divisor (HCF)</b>
Geometric sequence	Sequence in which any two successive terms have a common ratio
<b>HCF</b>	<b>Highest Common Factor; biggest algebraic expression that can be taken out of two or more algebraic terms</b>
$i$	Positive square root of $-1$ : $i^2 = -1$
Inconsistent system	Set of (usually linear) equations that does not have any solutions
Indeterminate	Variable
Indeterminate equation	Equation for which there are infinitely many solutions
<b>Inequality</b>	<b>Expressing something that is not the same</b>

<b>Inequation</b>	<b>Equation with the equality replaced by an inequality</b>
Infinitely many solutions	Unlimited number of solutions; with linear systems, the solutions are parametrised
Inverse matrix of $A$	Matrix $B$ satisfying $AB = I = BA$
<b>Inverse proportion/variation</b>	<b>When a variable <math>x</math> and the reciprocal of the variable <math>y</math> are related directly thus:</b> $y = k/x$
Invertible matrix	Matrix that has an inverse
Irreducible quadratic	Quadratic expression that has negative determinant
Irreducible quadratic factor	Quadratic factor that is irreducible
Iterate	Value used in an iteration
Iteration	Using old outputs as new inputs in a recurrence relation
Leading coefficient	The coefficient $a_n$ in a single variable polynomial
Leading term	The term $a_n x^n$ in a single variable polynomial
Like terms	Terms of the same type or form
Limit of a linear recurrence relation	Value that is reached when performing iteration on a linear recurrence relation
Linear	Of the form $ax + b$
Linear Diophantine equation	Equation of the form $a_1 x_1 + a_2 x_2 + \dots + a_n x_n = c$

	for which all variables $x_i$ are integers
Linear Diophantine equation (2 variables)	Equation of the form $ax + by = c$ for which $x$ and $y$ are integers
Linear equation (1 variable)	Equation of the form $ax + b = c$
Linear equation (2 variables)	Equation of the form $ax + by = c$
Linear factor	Factor of an algebraic expression that is linear
Linear recurrence relation	Recurrence relation of the form $u_{n+1} = a_n u_n + a_{n-1} u_{n-1} + \dots + a_1 u_1$ , where each $a_i$ is a constant number
Lost solution	Solution of an equation that is not found due to an unjustified step
Matrix	Bracketed array of numbers arranged in rows and columns
Member	Entry of a matrix
Minor	Determinant of a smaller matrix formed by eliminating a row and column of a larger matrix
<b>Minuend</b>	<b>Quantity that is taken away from</b>
Monic polynomial	Polynomial with leading coefficient equal to 1
Monomial	Polynomial consisting of only 1 term
Multiple	Product of one quantity (especially an

## Algebra

	integer or function) by another
<b>Multiplicand</b>	<b>Quantity that is multiplied</b>
Multiplicative identity	Quantity (usually written as 1) which when multiplied by any quantity $x$ gives $x$
Multiplicative inverse	Quantity (usually written as $1/x$ or $x^{-1}$ ) which when multiplied by $x$ gives 1
<b>Multiplier</b>	<b>Quantity that multiplies</b>
<b>Multiply</b>	<b>Repeated addition of the same quantity</b>
Multivariate	Involving more than 1 variable
Nature of roots	Real or complex roots
Non-invertible matrix	Matrix which does not have an inverse
<b>No solution(s)</b>	<b>No answer(s) to an equation or inequation</b>
Order (matrix)	Size of a matrix
Order (polynomial)	Degree of a polynomial
Parameter	Quantity connecting functions and variables
Parametric equation(s)	Equation(s) used to write a function using one or more parameters
Partial fractions	Way of writing a rational function as a sum of proper rational functions with the denominator of each a factor of the original function's denominator
Partial sum	Sum of the first $n$ terms of a sequence
Polynomial	Finite algebraic expression written using

## Algebra

	variables and constants linked by addition, subtraction, multiplication and non-negative whole number powers
Polynomial (1 variable)	Polynomial written with 1 variable: $a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0$
Polynomial equation	Equation that can be rearranged into the form $P = 0$ , for some polynomial $P$
Polynomial long division	Process of dividing a polynomial to obtain a quotient and remainder
<b>Proportion</b>	<b>How 2 or more variables are related in accordance with some law</b>
Quadratic equation	Equation that can be rearranged into the form $ax^2 + bx + c = 0$
Quadratic equation (standard form)	Equation of the form $ax^2 + bx + c = 0$
Quadratic expression	Expression of the form $ax^2 + bx + c$
Quadratic formula	Formula for solving the general quadratic equation
Quadratic trinomial	Quadratic with all 3 coefficients non-zero
Quartic equation	Equation that can be rearranged into the form $ax^4 + bx^3 + cx^2 + dx + e = 0$
Quartic formula	Formula for solving the general quartic equation
Radicand	Quantity under a root
<b>Ratio</b>	<b>How a quantity can be divided into</b>

## Algebra

	<b>parts; size of 2 or more quantities compared to each other; for 2 quantities, how many times the first is contained in the second</b>
Rationalise	To make rational
Rationalise a denominator	Multiply the denominator of an algebraic fraction by the conjugate surd of the denominator to make the denominator rational
Reciprocal of x	1 divided by x
Recurrence relation	Equation of the form $u_{n+1} = F(u_n, u_{n-1}, u_{n-2}, \dots, u_2, u_1, n)$
Remainder	Something left over after dividing
Remainder theorem	Theorem that when a polynomial f is divided by (x - a), the remainder equals f(a)
Repeated linear factor	Factor of an algebraic expression of the form $(ax + b)^2$
Repeated roots	Equal roots
Root (equation)	Solution of an equation
Root (general)	Root of an algebraic expression
Roots of unity	The n solutions of $x^n = 1$
Rules of indices	Rules for rewriting and manipulating expressions involving indices
Rules of logarithms	Rules for rewriting and manipulating expressions involving logarithms

## Algebra

Rules of surds	Rules for rewriting and manipulating expressions involving surds
<b>Sequence</b>	<b>List of things (usually numbers) specified by some rule</b>
<b>Series</b>	<b>Sequence of numbers added together</b>
Simultaneous equations	Set of equations for several variables (usually 2 linear equations in 2 variables)
Single variable polynomial	Univariate polynomial
Singular matrix	Matrix with zero determinant; not invertible
Skew-symmetric matrix	Matrix that is the negative of its transpose
Solution	Value of a variable that satisfies an equation
<b>Subject</b>	<b>Quantity that has been solved for, written on the LHS of an equation in terms of other quantities</b>
<b>Substitute</b>	<b>Replace, usually a letter by a number</b>
Subtrahend	Quantity that is taken away
Summand	Something that is added
Summation	Add
Sum to infinity	Sum of an infinite series
Sum to n terms	Sum of a series up to n terms
Symmetric matrix	Matrix that is the same as its transpose
Synthetic division	Polynomial long division method in which

## Algebra

	the variables are suppressed
System of linear equations	Set of linear equations, usually 2 (or 3) equations in 2 (or 3) variables
<b>Term</b>	<b>Combination of letters, numbers or functions in an expression</b>
Transpose (equation)	Change the subject
Transpose (matrix)	Matrix obtained by swapping the rows and column of another matrix
Trinomial	Polynomial involving 3 terms
Unique solution	Only one answer (usually in reference to a system of equations)
Univariate	Involving only 1 variable
Univariate polynomial	Polynomial in one variable
<b>Unknown</b>	<b>Missing quantity</b>
Upper triangular form	Matrix in which all entries below the main diagonal are 0
<b>Variable</b>	<b>Symbol that stands for a quantity that changes</b>

## Geometry and Trigonometry

<b>1D</b>	<b>One-dimensional; in one direction</b>
<b>2D</b>	<b>Two-dimensional; in two non-collinear directions</b>
<b>3D</b>	<b>Three-dimensional; in three non-collinear directions</b>
<b>Actual distance</b>	<b>Real-life distance</b>
<b>Acute angle</b>	<b>Angle between <math>0^\circ</math> and <math>90^\circ</math> (not including these 2 values)</b>
<b>Acute triangle</b>	<b>Triangle with all angles acute</b>
Addition formulae	Compound angle formulae
<b>Adjacent</b>	<b>Next to</b>
<b>Align</b>	<b>Line up</b>
Alternate angles	When a transversal crosses 2 coplanar (and usually parallel) lines, the angles made on opposite sides of the transversal with the 2 lines
<b>Altitude</b>	<b>Height from bottom to top</b>
<b>Angle</b>	<b>Figure formed by two rays sharing a corner</b>
Angle bisector	Line that halves an angle
Angle fraction	Sector angle divided by $360^\circ$
<b>Angle of depression</b>	<b>Angle between the horizontal and the line of sight of an object from an observer (object below observer)</b>
<b>Angle of elevation</b>	<b>Angle between the horizontal and the line of sight of an object from an observer</b>

	<b>(object above observer)</b>
Annulus	2D region formed between 2 circles of different radii but the same centre
<b>Anti-clockwise</b>	<b>Opposite direction to which clock hands move</b>
Aperiodic tiling	Tiling that is not periodic
<b>Apex</b>	<b>Highest corner point in a shape</b>
<b>Arc</b>	<b>Part of a circumference</b>
Arc length	Length of arc
<b>Area</b>	<b>Amount of space in a 2D shape</b>
Area scale factor	Square of the length scale factor
Argand diagram	Plot of a complex number in the complex plane
Argument	Angle made by a complex number to the positive real axis
<b>Arm</b>	<b>Line together with another one that makes up an angle</b>
ASTC Diagram	Diagram used to calculate angles based on where sine, cosine and tangent are positive or negative
<b>Asymmetry</b>	<b>Not symmetrical</b>
<b>Axis</b>	<b>Line, usually inside a shape</b>
<b>Axis of symmetry</b>	<b>Line of symmetry</b>
<b>Base</b>	<b>Bottom side</b>
<b>Base angle</b>	<b>Angle at the base of a 2D or 3D figure</b>
<b>Bilateral symmetry</b>	<b>Symmetry involving a mirror image</b>

<b>Bisect</b>	<b>Cut in half</b>
<b>Bisector</b>	<b>Line that bisects</b>
<b>Boundary</b>	<b>Edge</b>
<b>Breadth</b>	<b>Shorter side of a rectangle</b>
<b>Cartesian coordinates</b>	<b>Coordinates in a Cartesian coordinate system</b>
<b>Cartesian coordinate system</b>	<b>Coordinate system in which a point is given by 2 or 3 perpendicular distances from an origin</b>
Cartesian form (complex number)	Complex number written by specifying its distances from the coordinate axes in a Cartesian coordinate system
Cartesian form (line)	Line equation written by solving for the parameter (in the parametric form) and equating the resulting 3 expressions
<b>Centre</b>	<b>Middle</b>
<b>Centre of symmetry</b>	<b>Point in a shape that doesn't move under a rotation</b>
Centroid	Point where the 3 medians of a triangle meet
Cevian	Line segment that joins a vertex of a triangle to some point on the opposite side
<b>Chord</b>	<b>Line segment joining 2 points on a curve</b>
<b>Circle</b>	<b>All points in a flat 2D space that are the same distance from a starting point (centre)</b>
Circular cone	Cone with a circle as base
<b>Circular prism</b>	<b>Cylinder</b>
Circumcentre	Point where the 3 perpendicular bisectors of a

	triangle meet
<b>Circumference</b>	<b>Perimeter of a circle</b>
<b>Clockwise</b>	<b>Direction in which clock hands move</b>
<b>Collinear</b>	<b>Points lying on the same straight line</b>
Column vector	Vector written as a column
Complementary angles	Angles that add up to $90^\circ$
<b>Complete turn</b>	<b>Full turn</b>
Complex loci	Loci described by complex numbers
Complex plane	Plane with real axis and imaginary axis used to represent complex numbers
Compound angle formulae	Formulae for $\sin(x \pm y)$ and $\cos(x \pm y)$
<b>Compound area</b>	<b>Area of a compound shape</b>
<b>Compound shape</b>	<b>Complicated shape made up of simpler shapes</b>
<b>Compound volume</b>	<b>Volume of a compound shape</b>
Concave	Not convex
Concave polygon	Polygon which is not convex
Concave polyhedron	Polyhedron which is not convex
<b>Concentric</b>	<b>Sharing the same centre</b>
<b>Concurrent</b>	<b>3 or more lines that meet at a single point</b>
<b>Cone</b>	<b>3D figure with a base, each point on the</b>

	<b>edge of which is connected to a common point by straight lines</b>
<b>Congruent</b>	<b>Two shapes that are exactly the same - 'same shape, same size'</b>
Convex	Shape where any straight line drawn between 2 points in the shape stays in the shape
Convex polygon	Polygon which is convex
Convex polyhedron	Polyhedron which is convex
<b>Coordinate</b>	<b>Number used to specify part of the location of a point</b>
<b>Coordinate axis</b>	<b>x-axis, y-axis or z-axis</b>
<b>Coordinate grid</b>	<b>Grid in a coordinate system</b>
<b>Coordinate system</b>	<b>Way of representing points using directed numbers</b>
<b>Coplanar</b>	<b>In the same plane</b>
<b>Corner</b>	<b>Where two edges meet</b>
Corresponding angles	When a transversal crosses 2 coplanar (and usually parallel) lines, the angles made on the same side by the transversal and the 2 lines
Cosine ratio	Adjacent divided by hypotenuse
Cosine rule	Trigonometric rule involving the cosine function used to find missing angles and sides in any triangle



Cross product	Vector product
Cross-section	Region formed when a plane intersects a 3D shape
Cross-sectional area	Area of cross-section
Cube	Cuboid with all 3 sides the same length
Cuboid	Right prism with rectangle as a base
Curve	Line that is not straight
Curve segment	Part of a curve
Curved surface area	Surface area of a curved part of a 3D shape
Cylinder	3D shape consisting of all points that are the same distance from an axis
Decagon	10-sided polygon
Diagonal	Line segment joining 2 non-adjacent vertices
Diameter	Straight line through a circle's centre with endpoints on the circle
Dilatation	Scaling
Dilatation matrix	Transformation matrix describing a dilatation
Dimension	Smallest number of coordinates needed to specify a shape or object
Distance formula	Formula for calculating the distance between 2 points
Divine ratio	Golden ratio
Dodecagon	12-sided polygon
Dodecahedron	Polyhedron with 12 faces

Domino	Polyomino with 2 squares
Dot product	Scalar product
Double angle formulae	Formulae for $\sin 2x$ and $\cos 2x$ written in terms of $\sin x$ and $\cos x$
Draw	Make an accurate picture, especially by using a ruler
Edge	Line segment joining 2 vertices in a 2D or 3D shape
Endpoint	Point at which a line segment or curve segment ends
Enlargement scale factor	Scale factor with a value bigger than 1
Equation of a circle ((0,0))	Equation of a circle with centre the origin: $x^2 + y^2 = r^2$
Equation of a circle ((a,b))	Equation of a circle with centre (a,b): $(x - a)^2 + (y - b)^2 = r^2$
Equiangular	All angles the same size
Equidistant	Having the same distance
Equilateral	All sides the same length
Equilateral triangle	Triangle with all sides the same length (equivalently, triangle with all angles the same = $60^\circ$ )
Euler's formula	Formula relating the vertices, faces and edges of a convex polyhedron: $v + f - e = 2$
Exact value table	Table of exact values of trigonometric functions

Exterior angle	Angle outside a polygon made by one side of the polygon and an extended line from an adjacent side
External angle	Exterior angle
Face	Flat side
Figure	1D, 2D or 3D shape
First quadrant	Quadrant described by $x > 0$ and $y > 0$
Fourth quadrant	Quadrant described by $x > 0$ and $y < 0$
Fractal	Shape, part of which is (approximately) the same as the whole
Fractal dimension	Dimension of a fractal (not necessarily a whole number)
Fractal geometry	Geometry of fractals
Full turn	Turning through an angle of $360^\circ$
General form (circle)	Equation of a circle in 2D written as $x^2 + y^2 + 2gx + 2fy + c = 0$
General form (line)	Equation of a line in 2D written as $Ax + By + C = 0$
Geometric transformation	Change of a shape due to rotation, reflection, or scaling
Geometry	Branch of maths dealing with points, lines, planes and shapes
Glide symmetry	Combination of a reflection in a line, then a translation (or vice versa)
Golden ratio	The ratio $(a + b)/a = a/b$

Golden section	Golden ratio
Great circle	Circle formed from the intersection of a sphere and a plane through the centre
Half-turn	Turning through an angle of $180^\circ$
Half-turn symmetry	Looking the same after a half-turn
Hemisphere	Half a sphere
Hexagon	6-sided polygon
Hexahedron	Polyhedron with 6 faces
Hypotenuse	Side of a triangle opposite the right angle
Image	Result of a geometric transformation
Imaginary axis	Vertical axis used to show the imaginary part of a complex number
Incentre	Point where the 3 angle bisectors of a triangle meet
Inscribed	Shape that fits inside another one with the sides tangent where they meet
Interior angle	Angle inside a polygon made by two adjacent sides
Internal angle	Interior angle
Intersect	Cross or meet
Irregular polygon	Polygon with not all sides the same length
Irregular polyhedron	Polyhedron that is not regular
Isosceles trapezium	Trapezium with equal base angles

<b>Isosceles triangle</b>	<b>Triangle with 2 sides equal and the third side different (equivalently, two angles equal and the third angle different)</b>
Kepler-poinsot polyhedra	The 4 regular star polyhedra: small stellated dodecahedron, great stellated dodecahedron, great icosahedron and great dodecahedron
<b>Kite</b>	<b>Quadrilateral with 2 pairs of congruent adjacent sides and where the diagonals intersect at 90°</b>
<b>Length scale factor</b>	<b>Length of one side of a shape divided by the corresponding length in a similar one</b>
<b>Line</b>	<b>Infinitely extending 1D set of points</b>
<b>Line of sight</b>	<b>Line along which something is viewed</b>
<b>Line of symmetry</b>	<b>Line that divides a shape so that one part is the mirror image of the other</b>
<b>Line segment</b>	<b>Part of a line</b>
<b>Locus</b>	<b>Set of points in 1D, 2D or 3D space which satisfy some defined property</b>
<b>Magnitude</b>	<b>Size of a vector; its length</b>
<b>Major arc</b>	<b>Arc that is bigger than a semicircle</b>
<b>Map distance</b>	<b>Distance on a map</b>
<b>Median</b>	<b>Line segment joining a corner of a triangle to the midpoint of the opposite side</b>
<b>Meet</b>	<b>Cross or touch</b>
<b>Midpoint</b>	<b>Point at the middle of a line segment</b>
<b>Minor arc</b>	<b>Arc that is smaller than a semicircle</b>

<b>Mirror image</b>	<b>Image made in a mirror; reversed copy of a shape</b>
<b>Mirror symmetry</b>	<b>Bilateral symmetry</b>
<b>Modulus</b>	<b>Distance of a complex number from the origin</b>
<b>n-fold rotational symmetry</b>	<b>Property a shape has so that it that looks the same after a rotation of <math>(360 \div n)</math> degrees</b>
<b>Net</b>	<b>Opened out (2D) outline of a 3D shape with edges indicated</b>
<b>n-gon</b>	<b>Polygon with n sides</b>
<b>Non-collinear</b>	<b>Not collinear</b>
<b>Normal</b>	<b>Vector at right angles, usually to a line or plane</b>
<b>Oblique cone</b>	<b>Cone with its apex not aligned above the centre of the base</b>
<b>Obtuse angle</b>	<b>Angle between 90° and 180° (not including these 2 values)</b>
<b>Obtuse-angled triangle</b>	<b>Triangle with an obtuse angle</b>
<b>Octagon</b>	<b>8-sided polygon</b>
<b>Octahedron</b>	<b>Polyhedron with 8 faces</b>
<b>Opposite</b>	<b>On the other side, corner or edge of a shape</b>
<b>Order</b>	<b>Number of times a shape must be rotated about its centre to get it back to its original position</b>
<b>Origin</b>	<b>Point where the x-axis meets the y-axis</b>

	<b>(or, in 3D, where all 3 axes meet)</b>
Orthocentre	Point where the 3 altitudes of a triangle meet
Parallelogram	<b>Quadrilateral with 2 pairs of parallel sides; especially one where the interior angles are not 90° and adjacent sides are of unequal length</b>
Parallel (line and plane)	Line at right angles to the plane's normal
<b>Parallel (lines)</b>	<b>Lines that never meet</b>
Parametric form	Equation of a curve or surface, written in terms of x, y and z; for a line, x, y and z are each written in terms of the same parameter
Path	Route
Penrose tiling	Aperiodic tiling
<b>Pentagon</b>	<b>5-sided polygon</b>
Pentagram	Regular star polygon made from a regular pentagon
Pentomino	Polyomino with 5 squares
<b>Perimeter</b>	<b>Total distance once around the outside of a 2D shape</b>
Periodic tiling	Tiling that has a repeating unit
<b>Perpendicular</b>	<b>At right angles</b>
Perpendicular bisector	Line segment that bisects (and is at right angles to) a line
Pi	Ratio of the circumference of a circle to its diameter (same answer for all circles)
Plan	View of something from straight above,

	especially a room or building
<b>Plane</b>	<b>Flat, infinite 2D surface</b>
Platonic solid	Any of the 5 convex regular polyhedra: tetrahedron, cube, octahedron, dodecahedron and icosahedron
<b>Plot</b>	<b>Indicate a coordinate by placing a mark</b>
Point-slope form	Equation of a line in 2D written as $y - b = m(x - a)$
Polar form	Complex number written by specifying the modulus and argument
<b>Polygon</b>	<b>2D shape made by joining straight lines and where only 2 lines join at each point</b>
<b>Polyhedron</b>	<b>3D shape made by joining polygons and where only 2 polygons join at each edge</b>
<b>Polyomino</b>	<b>2D shape made by joining squares along edges</b>
Position vector	Vector describing the position of a point
Principal argument	Argument of a complex number in the interval $[0, 2\pi)$ or $(-\pi, \pi]$
<b>Prism</b>	<b>Polyhedron made by joining a polygonal base to the same shape by faces joining corresponding sides of each polygon</b>
<b>Pyramid</b>	<b>Polyhedron made by connecting a base polygon to a point (apex)</b>
<b>Pythagoras' theorem</b>	<b>Result that in a right-angled triangle, the square on the hypotenuse equals the sum of the squares on the other 2 sides</b>

Quadrant	One of four infinite regions of the plane formed by the coordinate axes in a Cartesian coordinate system
Quadrilateral	<b>4-sided polygon</b>
Quarter-turn	<b>Turning through an angle of <math>90^\circ</math></b>
Quarter-turn symmetry	<b>Looking the same after a quarter-turn</b>
Radius	<b>Straight line from a circle's centre to the perimeter</b>
Ratio	<b>Size of 2 or more quantities compared to each other; how many times a smaller object is contained in a bigger one</b>
Ray	<b>Line that extends infinitely in one direction but not the other</b>
Real axis	Horizontal axis used to show the real part of a complex number
Rectangle	<b>Quadrilateral with four right angles, two pairs of parallel sides (each pair of equal length) and where the diagonals bisect each other</b>
Rectangular coordinates	<b>Cartesian coordinates</b>
Reduction scale factor	<b>Scale factor with a value smaller than 1</b>
Re-entrant polygon	<b>Concave polygon</b>
Reflect	<b>Flip a point, line or shape over a line so</b>

	<b>that it has mirror symmetry</b>
<b>Reflection</b>	<b>Mirror image</b>
Reflection matrix	Transformation matrix describing a reflection
Reflex angle	<b>Angle between <math>180^\circ</math> and <math>360^\circ</math> (not including these 2 values)</b>
Region	<b>Part of 1D, 2D or 3D space</b>
Regular polygon	<b>Polygon that is equilateral and equiangular</b>
Regular polyhedron	<b>Any of the 9 polyhedra with all faces congruent regular polygons</b>
Regular solid	<b>Regular polyhedron</b>
Regular star polygon	Regular polygon that is not convex and is made by joining a vertex of a regular convex polygon to a non-adjacent vertex and continuing until the starting vertex is reached
Regular tiling	<b>Tiling made up of a single regular polygon</b>
Representative fraction	<b>Fraction representing the ratio of map distance to actual distance</b>
Resultant vector	Vector that results from adding or subtracting 2 or more vectors
Revolution	<b>Turning a full <math>360^\circ</math></b>
Rhombus	Equilateral quadrilateral with opposite angles equal and diagonals bisecting at $90^\circ$
Right angle	<b>Angle equal to <math>90^\circ</math></b>
Right-angled triangle	<b>Triangle with a right angle</b>

Right circular cone	Right cone with a circular base
Right cone	Cone with its apex aligned directly above the centre of the base
Right prism	Prism in which the base is at right angles to the joining faces
<b>Rotation</b>	<b>Turn about a point</b>
<b>Rotation angle</b>	<b>Angle of rotation</b>
Rotation matrix	Transformation matrix describing a rotation
<b>Rotational symmetry</b>	<b>Type of symmetry when an object looks identical after rotating it</b>
Row vector	Vector written as a row
Scalar multiple	Vector that is a constant number times another vector
Scalar product	Way of combining vectors to give a scalar
Scale drawing	Drawing of a real-life object with all sizes in proportion
<b>Scalene triangle</b>	<b>Triangle with all 3 sides of different lengths</b>
Second quadrant	Quadrant described by $x < 0$ and $y > 0$
Section formula	Formula for calculating the position vector of a point lying between two points
<b>Sector</b>	<b>Region of a circle between 2 radii and an arc lying between the radii</b>
<b>Sector angle</b>	<b>Angle formed by the 2 radii of a sector</b>

Sector area	Area of a circle's sector
<b>Segment</b>	<b>Region of a circle between a chord and an arc lying between the chord's endpoints</b>
Self-similar	Object that is exactly or very closely similar to a part of itself
<b>Semicircle</b>	<b>Half a circle</b>
<b>Shape</b>	<b>Object that takes up space</b>
<b>Similar</b>	<b>Two shapes one of which is a scaled version of the other - 'same shape, different size'</b>
Sine ratio	Opposite divided by hypotenuse
Sine rule	Trigonometric rule involving the sine function used to find missing angles and sides in any triangle
<b>Sketch</b>	<b>Make a rough, free-hand picture</b>
Skew lines	2 straight lines in 3D that neither meet nor are parallel
Slant height	Distance between a cone's apex and its base, measured along the cone's surface
Slope-intercept form	Equation of a line in 2D written as $y = mx + c$
SOH-CAH-TOA	Mnemonic for remembering trigonometric ratios
<b>Solid</b>	<b>3D shape</b>
Solid angle	Angle formed in 3D
Solid of revolution	Solid formed by rotating a curve about the x-axis or y-axis
Space diagonal	Diagonal of a cuboid from

	one corner to the furthest corner
<b>Square</b>	<b>Regular quadrilateral with 2 diagonals and 4 lines of symmetry</b>
<b>Square-based prism</b>	<b>Cuboid</b>
Star polygon	Polygon that is not convex
Star polyhedron	Polyhedron that is not convex (in a repetitive way) and has a star-like appearance
<b>Straight angle</b>	<b>Angle of exactly <math>180^\circ</math></b>
Subtend	Opposite to and enclosing (normally an angle)
Supplementary angles	Angles that add up to $180^\circ$
<b>Surface area</b>	<b>Total area of the outside of a 3D shape</b>
Symmetric form	Equation of a straight line written by solving for the parameter
<b>Symmetry</b>	<b>When an object looks the same after changing it in some way (e.g. reflection)</b>
Tangent line	Straight line that touches a line or curve exactly once
Tangent ratio	Opposite divided by adjacent
Tessellation	Tiling
Tetromino	Polyomino with 4 squares
Third quadrant	Quadrant described by $x < 0$ and $y < 0$
Three-quarter turn	Turning through an angle of $270^\circ$
<b>Tiling</b>	<b>Fitting together of shapes in a 2D space with no overlaps or gaps</b>

<b>Transformation</b>	<b>Geometric transformation</b>
Transformation matrix	Matrix describing a geometric transformation
<b>Translation</b>	<b>Shift a region</b>
Transversal	Straight line that crosses 2 coplanar lines
Trapezium	Quadrilateral with one pair of parallel sides
Trapezoid	Trapezium
<b>Triangle</b>	<b>3-sided polygon</b>
Triangular prism	Prism with a triangle as base
Trigonometric expansion	Compound angle formulae
Trigonometric identity	Equation linking trigonometric functions that is true for all values
Trigonometric ratio	Ratio involving trigonometric functions, in particular sine, cosine and tangent
Trigonometry	Study of sides and angles in triangles
Tromino	Polyomino with 3 squares
Unit vector	Vector that has magnitude equal to 1
V - kite	Kite with one of its interior angles being reflex
Vector	Directed line segment, described either by magnitude and direction or as a set of n numbers
Vector form	Writing a line or plane equation using vectors
Vector product	Way of combining vectors to give another vector
Vector sum	Result of adding vectors

## Geometry and Trigonometry

Vector component(s)	Coordinate number(s) of a vector
<b>Vertex</b>	<b>Corner</b>
Vertically opposite angles	Non-adjacent angles made when 2 straight lines cross
Volume	Amount of space in a 3D shape
Volume scale factor	Cube of the length scale factor
<b>Width</b>	<b>Distance from side to side; shorter distance</b>
<b>x-axis</b>	<b>The line <math>y = 0</math>, <math>z = 0</math></b>
<b>x-coordinate</b>	<b>First coordinate in the Cartesian coordinate system</b>
<b>y-axis</b>	<b>The line <math>x = 0</math>, <math>z = 0</math></b>
<b>y-coordinate</b>	<b>Second coordinate in the Cartesian coordinate system</b>
<b>z-axis</b>	<b>The line <math>x = 0</math>, <math>y = 0</math></b>
<b>z-coordinate</b>	<b>Third coordinate in the Cartesian coordinate system</b>
Zero vector	Vector which has all components equal to 0

## Functions and Graphs

<b>1-1 correspondence</b>	<b>When each element in one collection is matched to exactly one element in another collection and vice versa</b>
Abscissa	x-coordinate in Cartesian coordinates
Amplitude	Half of (Maximum value - minimum value) for the graphs of sine or cosine
<b>Annotate</b>	<b>Label a graph, especially turning points and intercepts with axes</b>
<b>Approach(es)</b>	<b>Heading towards</b>
Arccosine	Inverse cosine function
Arcsine	Inverse sine function
Arctangent	Inverse tangent function
Asymptote	(Straight) line that a function approaches as the values of one variable approach a certain value
Asymptotic	Function that has an asymptote
<b>Behaviour</b>	<b>Description of a function</b>
Bounded above	Function all of whose y-values are not bigger than some real number
Bounded below	Function all of whose y-values are not smaller than some real number
Bounded function	Function that is bounded above and bounded below
Closed interval	Interval of the form $[p, q]$ which represents all values in between (and including) $p$ and $q$
Codomain	The set $B$ in $f : A \rightarrow B$



## Functions and Graphs

Cofunctions	Functions $f$ and $g$ which satisfy $f(P) = g(Q)$ for complementary angles $P$ and $Q$ (e.g. sine and cosine)
Composition of functions	Work out the value of one function taking as its input the output of another function
Concave function	Function that lies above or on a straight line segment joining any 2 points in a given interval
Constant function	Function with equation $f(x) = \text{constant}$ ; function with zero gradient or derivative at each point
Convex function	Function that lies below or on a straight line segment joining any 2 points in a given interval
Cosecant	Reciprocal of the sine function
Cosine function	Function obtained by associating to an angle (between the positive $x$ -axis and the line joining a point to the origin) the value adjacent divided by hypotenuse of the resulting right-angled triangle
Cosine graph	Graph of the cosine function
Cotangent	Reciprocal of the tangent function
Cubic function	Function of the form $f(x) = ax^3 + bx^2 + cx + d$
Curvature	How much an object is from being flat
Decreasing function	Function which has a negative derivative over an interval
Dependent variable	Variable that is the output of a function
<b>Domain</b>	<b>The set <math>A</math> in <math>f : A \rightarrow B</math></b>

## Functions and Graphs

Endpoint	Point at the end of an interval
Exponential function (to base $a$ )	The function $f(x) = a^x$ ( $a > 0$ )
Exponential graph	Graph of an exponential function, which always passes through the point $(0,1)$
Function (formal)	Subset $f$ of the Cartesian product of two sets $A$ and $B$ such that each value in $A$ is matched to exactly one value in $B$ ; written $f : A \rightarrow B$
<b>Function (informal)</b>	<b>Rule or description <math>f</math> which matches each value in a collection to exactly one value in another collection</b>
<b>Function machine</b>	<b>Diagrammatic way of showing a function with arrows and boxes</b>
<b>Gradient</b>	<b>How steep a function is at a point</b>
<b>Graph</b>	<b>Plot of the <math>x</math> and <math>y</math> values of a function</b>
<b>Graph paper</b>	<b>Paper (normally with evenly sized squares) used to plot graphs</b>
Horizontal asymptote	Asymptote parallel to the $x$ -axis, having equation $y = \text{constant}$
Horizontal translation	Shifting the graph of a function horizontally
Identity function	The function $f(x) = x$
Image	Element $y$ in $f(x) = y$
Implicit function	Function in which the dependent variable (usually $y$ ) is not written explicitly in

## Functions and Graphs

	terms of the independent variable(s) (usually just $x$ )
Improper rational function	Rational function with the numerator degree greater than or equal to the denominator degree
Increasing function	Function which has a positive derivative over an interval
<b>Independent variable</b>	<b>Variable that is an input of a function</b>
<b>Input</b>	<b>Values going into a function</b>
<b>Interval</b>	<b>Fixed set of continuous values (<math>x</math> or <math>y</math>)</b>
Inverse cosine	Inverse of the cosine function, with domain $[-1, 1]$ and range $[0, \pi]$
Inverse function	Function (usually written $f^{-1}$ and not to be confused with the reciprocal of $f$ ) which, when composed with $f$ (either way), gives the identity function
Inverse sine	Inverse of the sine function, with domain $[-1, 1]$ and range $[-\frac{1}{2}\pi, \frac{1}{2}\pi]$
Inverse tangent	Inverse of the tangent function, with domain $(-\infty, \infty)$ and range $(-\frac{1}{2}\pi, \frac{1}{2}\pi)$
Inverse trigonometric function	Inverse of a trigonometric function, especially the inverse sine, inverse cosine or inverse tangent
Large positive $x$	As $x$ goes to infinity
Large negative	As $x$ goes to minus infinity

## Functions and Graphs

$x$	
Linear function	Function of the form $f(x) = a x + b$
Logarithmic function (to base $a$ )	The function $f(x) = \log_a x$ , the inverse of the exponential function to base $a$
<b>Mapping</b>	<b>Function</b>
Maximum value	Biggest $y$ -value
Minimum value	Smallest $y$ -value
Modulus function	Function which takes any number and sends its absolute value
Not defined	Cannot work out a $y$ -value
Oblique asymptote	Asymptote that is not horizontal or vertical; usually a straight line with positive or negative gradient
Open interval	Interval of the form $(p, q)$ , which represents all values in between (but not including) $p$ and $q$
<b>Operator</b>	<b>Function</b>
Ordered pair	Pair of values, in which one is declared to be the first and the other the second
<b>Ordinate</b>	<b><math>y</math>-coordinate in Cartesian coordinates</b>
<b>Origin</b>	<b>Point with coordinates <math>(0,0)</math></b>
<b>Output</b>	<b>Values coming out of a function</b>
Parabola	Graph of a quadratic function
Parametric function	Function written using one or more parameters
Period	How often a periodic function repeats

## Functions and Graphs

Periodic function	Function which, on part of its domain, repeats
Phase angle	Angle by which the graph of a trigonometric function (especially sine or cosine) is shifted from its normal zero position
Piecewise function	Function written as separate functions over separate (and smaller) domains
Plot	Show coordinates by dots or crosses and then sketch or draw the graph through them
Polynomial function	Function of the form $f(x) = a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0$
Pre-image	Element $x$ in $f(x) = y$
Proper rational function	Rational function with the numerator degree less than the denominator degree
Quadratic function	Function of the form $f(x) = a x^2 + b x + c$
Range	Subset $f(A)$ of $B$ in $f : A \rightarrow B$
Rational function	Function that is one polynomial divided by another
Reciprocal function	Function given by $f(x) = a/x$
Reciprocal of a function	1 divided by the function
Reciprocal trigonometric functions	Secant, cosecant and cotangent functions
Reflection in	Reflecting a point, line or

## Functions and Graphs

<b>x-axis</b>	<b>2D shape in the x-axis</b>
<b>Reflection in y-axis</b>	<b>Reflecting a point, line or 2D shape in the y-axis</b>
Root	Solution of $f(x) = 0$
Secant	Reciprocal of the cosine function
Sine function	Function obtained by associating to an angle (between the positive x-axis and the line joining a point to the origin) the value opposite divided by hypotenuse of the resulting right-angled triangle
Sine graph	Graph of the sine function
Singular	Function that has a singularity
Singularity	Where a function is undefined; cannot work out a y-value as the x-value is not in the domain
Slope	Gradient
Small negative $x$	As $x$ goes to 0 through negative values
Small positive $x$	As $x$ goes to 0 through positive values
Table of values	Table showing pairs of dependent and independent variables; used to plot the graph of a function
Tangent function	Function obtained by associating to an angle (between the positive x-axis and the line joining a point to the origin) the value opposite divided by adjacent of the resulting right-angled triangle

## Functions and Graphs

Unbounded function	Function that is not bounded
Vertical asymptote	Asymptote parallel to the y-axis, having equation $x = \text{constant}$
Vertical translation	Shifting the graph of a function vertically
Wave function	Function which represents a periodic phenomenon, especially one of the form $a \sin(bx + c) + d$ or $a \cos(bx + c) + d$
x-intercept	Where the graph crosses the x-axis
x-scaling	Stretching or squashing a graph horizontally
x-value	<b>Input of a function</b>
y-intercept	Where the graph crosses the y-axis
y-scaling	Stretching or squashing a graph vertically
y-value	<b>Output of a function</b>
Zero(s)	Root(s)

## Money and Finance

<b>ABM</b>	<b>Automated Bank Machine - an ATM</b>
<b>Account</b>	<b>Record of transactions</b>
<b>Accounting equation</b>	<b>Assets = Liabilities + Equity</b>
<b>Account number</b>	<b>Number of a bank account</b>
Amortisation	Present value of an annuity
<b>Amount</b>	<b>How much</b>
Annuity	Equal and regular payments
<b>Appreciation</b>	<b>Increase in value</b>
<b>APR</b>	<b>Annual Percentage Rate - interest rate when borrowing money</b>
ARM	Adjustable Rate Mortgage - mortgage which has a changing interest rate
<b>Asset</b>	<b>Something owned that can be exchanged for money</b>
<b>ATM</b>	<b>Automated Teller Machine - machine used for cash transactions</b>
<b>Balance</b>	<b>Amount of money in an account</b>
<b>Bank</b>	<b>Organisation that deals with transactions</b>
<b>Bank account</b>	<b>Account in a bank</b>
<b>Banknote</b>	<b>Paper cash</b>
<b>Bankrupt</b>	<b>Insolvent entity</b>
<b>Basic pay</b>	<b>Normal pay, not including overtime</b>
<b>Basic rate</b>	<b>How much basic pay is earned over time, for example, £ 12 per hour</b>

<b>Bearer</b>	<b>Entity who holds something, for example, the bearer of a cheque</b>
<b>Benefit</b>	<b>Something gained</b>
<b>Bill</b>	<b>Something that is paid by a person using services, for example, a gas bill</b>
<b>Bond</b>	<b>Contract in which borrowed money is repayed with interest</b>
<b>Bonus</b>	<b>Extra pay given by an employer</b>
<b>Borrow</b>	<b>Take but then give back, usually with interest</b>
<b>Borrower</b>	<b>Entity who borrows; a debtor</b>
<b>Bounce</b>	<b>Cheque that cannot be paid due to insufficient funds</b>
<b>Building society</b>	<b>Place where financial services are given, especially mortgages</b>
<b>Bureau de change</b>	<b>Business where money is changed from one currency to another</b>
<b>Buy</b>	<b>Get something for money</b>
<b>Capital</b>	<b>Factors of production that are not significantly diminished after producing goods or services</b>
<b>Cash dispenser</b>	<b>ATM</b>
<b>Cash flow</b>	<b>Movement of cash</b>
<b>Cashier</b>	<b>Person who handles transactions for a company</b>
<b>Cash machine</b>	<b>ATM</b>
<b>Cent</b>	<b>Currency that is a hundredth</b>

	<b>of some basic amount</b>
<b>Charge</b>	<b>Sell</b>
<b>Cheque</b>	<b>Paper that orders a payment of money</b>
<b>Cheque book</b>	<b>Book with cheques in it</b>
<b>Coin</b>	<b>Metal currency, usually a flat cylindrical shape</b>
<b>Collateral</b>	<b>Assets pledged as security for a loan</b>
<b>Commission</b>	<b>Payment as a percentage of goods sold</b>
<b>Commodities</b>	<b>Goods that can be processed and resold</b>
<b>Compound interest</b>	<b>Interest paid on the capital as well as the interest left on the deposit</b>
<b>Contract</b>	<b>Legal agreement</b>
<b>Counterfeit</b>	<b>Produced illegally</b>
<b>Coupon</b>	<b>Interest in a bond</b>
<b>Credit</b>	<b>Balance in an account</b>
<b>Credit card</b>	<b>Card used to borrow money or buy goods</b>
<b>Credit crunch</b>	<b>Situation in which it is very difficult to get capital</b>
<b>Creditor</b>	<b>Entity that has provided credit and owed money</b>
<b>Currency</b>	<b>Money</b>
<b>Currency exchange</b>	<b>Bureau de change</b>
<b>Current account</b>	<b>Account</b>
<b>Debenture</b>	<b>Document that pays for a loan</b>
<b>Debit</b>	<b>Expense or money paid out of an account</b>

Debit card	Card used to withdraw money or put money into an account
Debt	Something that is owed, usually assets
Debtor	Entity that is in debt
Decimal currency	Currency in which the main unit is divided into 100 equal parts
Deductions	Money taken off
Denomination	Description of a currency, for example, pounds, pence, euros, cents
Deposit	Put money into an account
Depositor	Entity that makes a deposit
Depreciation	Decrease in value
Direct debit	Instruction by an account holder to their bank to collect money from another account
Discount	Reduction in price
Dole	Jobseekers' allowance
Dole queue	Queue in which one stands to get dole
Donee	Receiver of a gift
Donor	Issuer of a gift
Double time	Getting paid at twice the basic rate
Down payment	Partial payment made when buying an item
Draw	Take money out; use a cheque for paying
Earnings	Money gained by wages, interest etc.
Economics	Study of how goods and services are produced, managed etc.

Economic system	Resources, people, organisations etc. that take part in the production, sale etc. of goods
Economy	Economic system
Embezzlement	Unlawfully transferring money, for example, by stealing
Entity	Person, organisation, institution, etc.
Equity	Assets minus liabilities
Euro	Unit of currency used in many European countries: 100 cents = 1 euro
Exchange rate	Value of one currency compared to another
Expenditure	Amount spent
Expense	Something paid for
Export	Trading something out of a country
Extortion	Illegally getting money by force
Factors of production	Resources used to produce goods and services; capital
Finance	Study of managing funds
Financial institution	Place, such as a bank, which deals with financial services
Financial plan	Plan for spending and saving
Financial service	Services provided by banks, building societies etc.
Fixed interest rate	Interest rate that does not change
Foreign exchange rate	Exchange rate

<b>Fraud</b>	<b>Personal gain by deceiving someone</b>
<b>Freightage</b>	Amount charged when transporting a large amount of goods; sometimes just the goods transported
<b>Fund</b>	<b>Money used for something or someone</b>
<b>FX rate</b>	<b>Exchange rate</b>
<b>Gain</b>	<b>Get more</b>
<b>Gambling</b>	Risking goods with the aim of making more goods (usually money)
<b>GDP</b>	Gross Domestic Product, the amount of goods etc. produced in a country in one year
<b>Gift</b>	Something that is given or received without buying or selling
<b>Gift card</b>	Card given as a gift and used to buy things
<b>Goods</b>	<b>Items bought or sold</b>
<b>Gross pay</b>	<b>Income before deductions</b>
<b>Holder</b>	<b>Someone who owns money, land etc.</b>
<b>HP</b>	Method of paying for goods with a deposit + regular instalments
<b>IBAN</b>	<b>International Bank Account Number</b>
<b>Identity theft</b>	Pretending to be someone else to steal their money or other property
<b>Import</b>	<b>Trading something into a country</b>
<b>Income</b>	<b>Earnings</b>
<b>Income tax</b>	<b>Tax charged on income/wealth</b>
<b>Inflation</b>	<b>Price increase of goods in an economy</b>

<b>Insolvent</b>	<b>Not able to pay debts</b>
<b>Instalment</b>	<b>Regular payment</b>
<b>Instruction</b>	<b>Statement telling someone what to do, e.g. pay money to this person</b>
<b>Insurance</b>	<b>Contract agreeing to compensate someone for loss or damage to property or other things</b>
<b>Insurance company</b>	<b>Company that gives insurance</b>
<b>Insurance policy</b>	<b>Contract in an insurance</b>
<b>Insurance premium</b>	<b>Payment made by an insured person</b>
<b>Insurance rate</b>	<b>Amount used to decide how much to charge</b>
<b>Insurer</b>	<b>Insurance company</b>
<b>Interest</b>	<b>Charge on borrowing money</b>
<b>In the black</b>	<b>Making a profit</b>
<b>In the red</b>	<b>In debt</b>
<b>Invest</b>	<b>Make an investment</b>
<b>Investment</b>	<b>Property gained to make income</b>
<b>Investor</b>	<b>Entity that makes an investment</b>
<b>Invoice</b>	<b>Bill describing goods bought</b>
<b>Islamic banking</b>	<b>Banking in accordance with Islamic law; specifically, banking without interest</b>
<b>Item</b>	<b>Thing</b>
<b>Jobseekers' allowance</b>	<b>Money paid by the government to unemployed people looking for work</b>

<b>Legal tender</b>	<b>Currency that is legally usable</b>
<b>Legatee</b>	<b>Person who gets money etc. from someone who has died</b>
<b>Legator</b>	<b>Person who leaves money etc. to someone</b>
<b>Lend</b>	<b>Give (loan) but expect to be returned, usually with interest</b>
<b>Lender</b>	<b>Someone who lends</b>
<b>Liability</b>	<b>Amount owed</b>
<b>Lien</b>	<b>Right to claim assets if a debt is not paid</b>
<b>Liquidation</b>	<b>Get rid of all assets and go out of business</b>
<b>Litigant</b>	<b>Person taking out a complaint or claim</b>
<b>Litigate</b>	<b>Take a complaint or claim against someone to court</b>
<b>Litigator</b>	<b>Person employed to litigate</b>
<b>Loan</b>	<b>Money given by a lender to a borrower</b>
<b>Loss</b>	<b>Lose money by selling an item for less than its bought price</b>
<b>Mail order</b>	<b>Way of buying and selling from home</b>
<b>Maker</b>	<b>Person who writes a cheque</b>
<b>Market</b>	<b>Actual or theoretical place where buyers and sellers trade</b>
<b>Maturity</b>	<b>Final date at which borrowed money with interest is to be repayed</b>
<b>Microfinance</b>	<b>Finance catering for those in poor households</b>
<b>Minimum wage</b>	<b>Lowest legal wage</b>
<b>Mint</b>	<b>Place where coins are made</b>

<b>Money</b>	<b>Valuable items (e.g. gold, silver) allowed by law to be exchanged for other items</b>
<b>Money exchange</b>	<b>Bureau de change</b>
<b>Money laundering</b>	<b>Making legal money that is obtained through illegal means</b>
<b>Moneylender</b>	<b>Entity offering personal loans at high interest rates</b>
<b>Monthly payment</b>	<b>Payment made every month</b>
<b>Mortgage</b>	<b>Loan to</b>
<b>Mortgagee</b>	<b>Lender in a mortgage</b>
<b>Mortgagor</b>	<b>Borrower in a mortgage</b>
<b>Net pay</b>	<b>Gross pay minus deductions</b>
<b>Non-decimal currency</b>	<b>Currency not based on the decimal system, e.g., in Mauritania, 1 ouguiya = 5 khoums</b>
<b>Normal working hours</b>	<b>Hours worked by agreement or contract</b>
<b>Overdraft</b>	<b>When amount withdrawn exceeds balance</b>
<b>Overdrawn</b>	<b>Being in an overdraft</b>
<b>Overtime</b>	<b>Time that is worked beyond normal working hours</b>
<b>Owe</b>	<b>Obligated to give something back</b>
<b>Pay</b>	<b>Give money to receive goods</b>
<b>Pay as you go</b>	<b>Payments for goods or services as they are used, especially for mobile phones</b>
<b>Payee</b>	<b>Person(s) receiving a payment</b>



<b>Payer</b>	<b>Person(s) making a payment</b>
<b>pcm</b>	<b>Per calendar month</b>
<b>Pence</b>	<b>UK unit of money</b>
<b>Pension</b>	<b>Money an employee gets after retiring</b>
<b>Piece rate</b>	<b>Piece work rate</b>
<b>Piece work</b>	<b>Getting paid for each bit of work done or item produced</b>
<b>Pocket-money</b>	<b>Allowance given, usually to children</b>
<b>Polymer banknote</b>	<b>Banknote made of plastic, used to help stop counterfeiting</b>
<b>Pound</b>	<b>Currency used in many countries; in the UK, 1 pound = 100 pence</b>
<b>Profit</b>	<b>Make money by selling an item for more than its bought price</b>
<b>Property</b>	<b>Something owned by someone</b>
<b>Quarter</b>	<b>3 months</b>
<b>Receipt</b>	<b>Paper showing that money has been exchanged for goods</b>
<b>Recession</b>	<b>Slowdown in the economy, especially the declining of GDP for at least 2 quarters</b>
<b>Regular payments</b>	<b>Payments made at an equal interval of time</b>
<b>Rent</b>	<b>Payment for use of property</b>
<b>Revenue</b>	<b>Money received</b>
<b>Salary</b>	<b>Weekly or monthly wage</b>
<b>Savings</b>	<b>Income not spent</b>
<b>Service</b>	<b>Non-monetary skills and resources</b>

<b>Simple interest</b>	<b>Interest calculated only on the capital</b>
<b>Solvent</b>	<b>Not insolvent</b>
<b>Sort code</b>	<b>Bank code used to transfer money</b>
<b>Speculation</b>	<b>Risky investment, to make quick gains</b>
<b>Speculator</b>	<b>Someone involved in speculation</b>
<b>Spend</b>	<b>Buy goods</b>
<b>Standing order</b>	<b>Order for a bank to pay a fixed, regular amount from one account to another</b>
<b>Statement</b>	<b>List showing amount of money paid, received, etc. and their total</b>
<b>Stock</b>	<b>Original capital of a business</b>
<b>Sue</b>	<b>Take legal action against</b>
<b>Superannuation</b>	<b>Pension given after retiring from employment</b>
<b>Take-home pay</b>	<b>Net pay</b>
<b>Talking ATM</b>	<b>ATM that provides audible instructions</b>
<b>Tariff</b>	<b>Tax on imports and exports</b>
<b>Tax</b>	<b>Financial charge forced on a population by a government</b>
<b>Tax avoidance</b>	<b>Legally reducing the amount of tax to pay</b>
<b>Tax evasion</b>	<b>Not paying tax by using illegal means</b>
<b>Taxpayer</b>	<b>Payer of tax</b>
<b>Time and a half</b>	<b>Getting paid at one and a half times the basic rate</b>
<b>Time and a quarter</b>	<b>Getting paid at one and a quarter times the basic rate</b>
<b>Trade</b>	<b>Voluntary exchange of goods or services</b>

### *Money and Finance*

<b>Trade union</b>	<b>Organisation that promotes the rights of workers</b>
<b>Transaction</b>	<b>Exchange of money or goods</b>
<b>Union</b>	<b>Trade union</b>
Union dues	Payment for being a union member
Union member	Person in a union
<b>Unit</b>	<b>Amount of electricity</b>
<b>Usury</b>	<b>Charging interest on loans, especially extremely high charges</b>
Vacillate	Prices or rates that constantly change by small amounts
<b>VAT</b>	<b>Value Added Tax - tax charged on items</b>
<b>VAT man</b>	<b>Government department that collects VAT</b>
Voluntary bankruptcy	When someone asks to be made bankrupt
<b>Wage</b>	<b>Money paid by calculating on an hourly, daily, weekly or piece work basis</b>
<b>Withdraw</b>	<b>Take money out</b>
<b>Withdrawal</b>	<b>Withdraw</b>

### *Statistics and Probability*

<b>5-bar gate</b>	<b>Symbol used to denote 5 tally marks</b>
5-figure summary	List consisting of the lowest number, first quartile, second quartile, third quartile and highest number in a data set
<b>Arithmetic mean</b>	<b>Adding up all numbers and dividing by how many there are</b>
<b>Average</b>	<b>'Middle' value of a data set</b>
Back-to-back stem-and-leaf diagram	2 stem-and-leaf diagrams sharing a common stem with one set of leaves to the right of the stem, the other set to the left
<b>Bar chart</b>	<b>Statistical diagram of bars (with spaces between them) showing frequency against data</b>
<b>Bar graph</b>	<b>Bar chart</b>
Biased sample	Sample not representative of the population
Bin	Class interval in a histogram
Box-and-whisker plot	Box plot
Box plot	Statistical diagram showing a 5-figure summary
Central tendency	Way in which quantitative data tend to cluster about some value
<b>Certainty</b>	<b>Event with probability equal to 1</b>
<b>Chance</b>	<b>Something that cannot usually or practically be predicted - 'luck'</b>
<b>Class</b>	<b>Adjacent data ordered into a small collection</b>
Class interval	Range of a class
Conditional	Probability of one event, given the probability

<b>probability</b>	<b>of another</b>
<b>Continuous data</b>	<b>Data that are viewed as smoothly varying; for example, temperature or height</b>
Continuous random variable	Variable representing continuous data
<b>Correlation</b>	<b>Link between (usually) 2 variables</b>
Cumulative frequency	Running total of frequencies
Cumulative frequency graph	Plot of cumulative frequency against the variable in question
Cumulative frequency table	Frequency table with a column for calculating cumulative frequencies
<b>Data</b>	<b>Things, usually numbers</b>
<b>Data point</b>	<b>Datum</b>
<b>Data set</b>	<b>List of things, usually numbers</b>
<b>Datum</b>	<b>Member of a data set</b>
<b>Decimal probability</b>	<b>Probability written as a decimal</b>
Deviation (from the mean)	Difference between the value of a data point and the mean, usually ignoring the sign
Dice	More than one die
Die	Polyhedral object used in statistical trials

<b>Discrete data</b>	<b>Data that are viewed as not smoothly varying; for example, shoe size or ice-cream flavours</b>
Discrete random variable	Variable representing discrete data
<b>Dispersion</b>	<b>Way in which data are spread out</b>
Dot chart	Dotplot
Dotplot	Statistical diagram with vertical dots
<b>Event</b>	<b>Collection of outcomes from an experiment; subset of the sample space</b>
<b>Expectation</b>	<b>The long-term average, <math>E(X) = \sum X P(X)</math></b>
<b>Expected value</b>	<b>Expectation</b>
<b>Experiment</b>	<b>Process of collecting data, for example, flipping a coin to give a head</b>
<b>Extrapolate</b>	<b>Predicting new data points outside the range of known data points</b>
First quartile	Lower quartile ( $Q_1$ )
<b>Fractional probability</b>	<b>Probability written as a fraction</b>
<b>Frequency</b>	<b>How often an event occurs during an experiment</b>
Frequency density	Height of a bar in a histogram
Frequency	Polygon formed by joining the midpoints of the

<b>polygon</b>	<b>tops of the bars in a histogram</b>
<b>Frequency table</b>	<b>Table listing frequencies of members in a data set</b>
<b>Grouped data</b>	<b>Data arranged into groups</b>
<b>Highest value</b>	<b>Biggest number in a data set</b>
<b>Histogram</b>	<b>Statistical diagram of vertical bars (without spaces between them) showing frequency against class interval</b>
<b>Impossibility</b>	<b>Event with probability equal to 0</b>
<b>Independent events</b>	<b>Events that do not depend on each other</b>
<b>Interpolate</b>	<b>Predicting new data points within the range of known data points</b>
<b>Interquartile range</b>	<b>Third quartile minus first quartile</b>
<b>Joint probability</b>	<b>Probability of (usually 2) events happening together</b>
<b>Key</b>	<b>Guide in a statistical diagram</b>
<b>Label</b>	<b>Naming a part of a statistical diagram</b>
<b>Leaf</b>	<b>Row in a stem-and-leaf diagram</b>
<b>Likelihood</b>	<b>How likely something is; the 'chances'</b>
<b>Likely</b>	<b>How much or often we expect something to happen</b>
<b>Line Graph</b>	<b>Statistical diagram obtained by joining points with a straight line from the first point</b>

<b>Line of best fit</b>	<b>Straight line drawn through a set of points so that roughly an equal number of points are on either side of the line</b>
<b>Loaded die</b>	<b>Die that has been deliberately changed so that one face appears more often than others</b>
<b>Lower quartile</b>	<b>Median of the first half of a data set</b>
<b>Lowest value</b>	<b>Smallest number in a data set</b>
<b>Mean</b>	<b>Arithmetic mean</b>
<b>Measures of central tendency</b>	<b>Quantifying central tendency, especially using the median, mode or mean</b>
<b>Measures of spread</b>	<b>Quantifying spread, especially using the range or standard deviation</b>
<b>Median</b>	<b>Middle value in a list of numbers, after being arranged in ascending order</b>
<b>Mode</b>	<b>Most common thing in a data set</b>
<b>Mutually exclusive events</b>	<b>Independent events</b>
<b>Negative correlation</b>	<b>When one variable is generally decreasing as another increases</b>
<b>No correlation</b>	<b>Neither a positive nor negative correlation</b>
<b>Ogive</b>	<b>Cumulative frequency graph</b>
<b>Outcome</b>	<b>Result of an experiment</b>
<b>Outlier</b>	<b>Datum that is numerically very far</b>

	<b>from all other data points</b>
<b>Percentage probability</b>	<b>Probability written as a percentage</b>
<b>Pictograph</b>	<b>Statistical diagram showing data using pictures and their parts</b>
<b>Pie chart</b>	<b>Statistical diagram showing data in a circle using percentages and or degrees</b>
<b>Pie graph</b>	<b>Pie chart</b>
<b>Point</b>	<b>Data point</b>
<b>Population</b>	<b>Entire collection of things from which data is collected</b>
<b>Positive correlation</b>	<b>When one variable is generally increasing as another increases</b>
<b>Probability</b>	<b>Measure of likelihood</b>
<b>Probability scale</b>	<b>Line with a (usually decimal) scale from 0 to 1 used to indicate probability</b>
<b>Probable</b>	<b>Likely</b>
<b>Qualitative</b>	<b>To not do with numbers</b>
<b>Quantitative</b>	<b>To do with numbers</b>
<b>Quantity</b>	<b>Amount</b>
<b>Quartile</b>	<b>Any of the 3 values <math>Q_1</math>, <math>Q_2</math> or <math>Q_3</math> that divides an ordered data set into 4 equal parts</b>
<b>Random variable</b>	<b>Variable in statistics</b>
<b>Range</b>	<b>Biggest number minus smallest number</b>
<b>Sample</b>	<b>Subset of a population</b>
<b>Sample space</b>	<b>All possible outcomes from an experiment</b>

<b>Scatter chart</b>	<b>Scattergraph</b>
<b>Scatter diagram</b>	<b>Scattergraph</b>
<b>Scattergraph</b>	<b>Statistical diagram of coordinates with one variable along the x-axis and the other along the y-axis</b>
<b>Scatterplot</b>	<b>Scattergraph</b>
<b>Second quartile</b>	<b>Median (<math>Q_2</math>)</b>
<b>Semi-interquartile range</b>	<b>Half the interquartile range</b>
<b>Skewed data</b>	<b>Data that is more bunched up at one place than any other</b>
<b>Spread</b>	<b>Statistical dispersion</b>
<b>Standard deviation</b>	<b>Square root of the variance</b>
<b>Statistic</b>	<b>Something calculated from a data sample</b>
<b>Statistical diagram</b>	<b>Diagram showing data collection</b>
<b>Statistical dispersion</b>	<b>Spread of data, especially standard deviation, range or interquartile range</b>
<b>Statistical inference</b>	<b>Making conclusions about the population based on information about a sample from this population</b>
<b>Statistics</b>	<b>Study and interpretation of how data is distributed, especially in real-life situations</b>

## Statistics and Probability

Stem	Vertical list of numbers in a stemplot
Stem-and-leaf diagram	Statistical diagram consisting of two columns, one containing the stems, the other the leaves
Stem-and-leaf plot	Stem-and-leaf diagram
Stemplot	Stem-and-leaf diagram
Survey	Collection of data, usually obtained from the general public
Tally	Count
Tally mark	Small vertical line used to keep count
Tally table	Table with tally marks
Third quartile	Upper quartile ( $Q_3$ )
Title	Heading used in statistical diagrams
Tree diagram	Diagram with branched lines showing possibilities for different events
Trend	Pattern or important information obtained by analysing data
Trial	Experiment
Unbiased sample	Sample representative of the population
Uncertainty	Not certain
Upper quartile	Median of the second half of a data set
Variance	Mean of the squares of the deviations

## Calculus

1 <sup>st</sup> order ODE	1 <sup>st</sup> order DE that involves a function of only 1 variable
2 <sup>nd</sup> derivative	Derivative of the 1 <sup>st</sup> derivative
2 <sup>nd</sup> derivative test	Criterion for deciding whether a function has a maximum or minimum using the 2 <sup>nd</sup> derivative
2 <sup>nd</sup> order ODE	2 <sup>nd</sup> order DE that involves a function of only 1 variable
Absolute convergence	Convergence of the series consisting of the modulus of each term of a given series
Anti-derivative	Function $F$ in $F' = f$
Anti-differentiation	Integration
Antilogarithm	Number $x$ in $\log x = y$
Arbitrary constant	Constant of integration
Arithmetic series	Series formed from an arithmetic sequence
Auxiliary equation	Quadratic equation obtained by replacing $y''$ by $m^2$ , $y'$ by $m$ and $y$ by 1 in $Ay'' + By' + Cy = 0$
Binary logarithm	Base 2 logarithm
Binomial series	Maclaurin series for $(1 + x)^a$
Calculus	Differentiation and integration

Chain rule	Rule for differentiating a composition of functions
Common logarithm	Base 10 logarithm
Complementary function	General solution of a homogeneous linear differential equation
Conditional convergence	Convergence of a given series, but non-convergence of the series obtained by taking the modulus of each term of the original series
Constant of integration	Quantity added on when a function is integrated
Converge	Approach a limiting value
Convergent sequence	Sequence that converges (has a limit)
Convergent series	Series that converges (has a limit)
Critical point	Point where either a stationary point is found or the derivative does not exist
Critical value	y-value at a critical point
d'Alembert's Ratio Test	Test for deciding whether or not a series converges
Definite integral	Integral with limits
Derivative	Derived function
Derived function	Function that gives the gradient of the tangent line to a function's graph

Differentiable	Function that can be differentiated
Differential	Infinitesimal quantity $dx$
<b>Differential Calculus</b>	<b>Study of rates of change</b>
<b>Differential Equation (DE)</b>	<b>Equation involving derivatives (and possibly powers thereof) of an unknown function of one or several variables</b>
Differential equation with constant coefficients	Linear differential equation in which all coefficients of the unknown function and its derivatives are constant functions
Differentiate	Find the derivative
Differentiate from first principles	Differentiate a function using the limit formula
Differentiation	Process of working out the derived function
Diverge	Opposite of converge; having no limiting value
Divergence	Diverge
Divergent sequence	Sequence that diverges (has no limit)
Divergent series	Series that diverges (has no limit)
$e$	Base of the natural logarithm
Endpoint extrema	Maxima and minima at endpoints
Endpoint maximum	Endpoint at which a function has a maximum value

Endpoint minimum	Endpoint at which a function has a minimum value
Euler notation	The 'big D' notation for derivatives : $Df = f'$
Euler's formula	$e^{ix} = \cos x + i \sin x$
Extrema	Maxima and minima
Extreme value	Maximum or minimum value
Falling point of inflexion	Point (of inflexion) where the derivative is negative either side of the point
First derivative test	Test using the first derivative for deciding the nature of a stationary point
First-order linear ODE	Differential equation of the form $ay' + by = f$ where $a$ , $b$ and $f$ are functions of $x$ only
Fundamental theorem of calculus	Result that if $F$ is an antiderivative of $f$ ( $F' = f$ ), then $\int_a^b f = F(b) - F(a)$
General antiderivative	Function $F + C$ where $F' = f$ and $C$ is an arbitrary constant
General solution	Solution of a differential equation with the arbitrary constant(s) unevaluated
Geometric series	Series formed from a geometric sequence
Global extrema	Extrema over the whole of a function's domain
Global maximum	Maximum on the domain of a function
Global minimum	Minimum on the domain of a function
Higher order	Derivative bigger than 1 <sup>st</sup> order

derivative	
Homogeneous differential equation	Differential equation that is identically satisfied by the zero function
Homogeneous linear differential equation	Linear differential equation of the form $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y^{(1)} + a_0 y = 0$ where the $a_i$ are functions of the independent variable
Implicit differentiation	Differentiating an implicit function
Indefinite integral	Integral without limits
<b>Infinite series</b>	<b>Series with infinitely many terms</b>
Inhomogeneous differential equation	Differential equation that is not homogeneous
Inhomogeneous linear differential equation	Linear differential equation of the form $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y^{(1)} + a_0 y = f$ where the $a_i$ and $f$ are functions of the independent variable(s) and $f$ is not the zero function
Initial conditions	Given values of the dependent and independent variables used to evaluate the arbitrary constant in the solution of a differential equation
Integrable	Has a primitive
Integral	Antiderivative



<b>Integral Calculus</b>	<b>Study of antiderivatives, in particular their interpretation as areas and volumes</b>
Integrand	Function to be integrated
Integrate	Find an integral
Integrating factor	Function that is the multiplicand of each term in a DE
Integrating factor DE	DE that uses an integrating factor to solve it
Integration	Process of working out an integral
Integration by parts	Technique for integrating a product of functions
Integration by substitution	Integration technique involving replacing part of the integrand by a new variable
Lagrange notation	The 'f dash' notation for derivatives
Left-hand derivative	Derivative just to the left of a given point
Leibniz notation	The 'dy by dx' notation for derivatives
Limit	Value a function approaches
Limit formula	Definition of the derivative: $f'(x) = \lim [f(x+h) - f(x)]/h$
Limits of integration	The quantities a and b in the notation $\int_a^b$
Linear differential equation	Differential equation of the form $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y^{(1)} + a_0 y = f$ where the $a_i$ and $f$ are functions

	of the independent variable(s)
Local extrema	Local maxima and local minima
Local maximum point	Stationary point through which the derivative changes from positive to negative
Local minimum point	Stationary point through which the derivative changes from negative to positive
Logarithmic differentiation	Differentiation technique where natural logarithms are taken before differentiating
Lower limit	Bottom limit in a definite integral symbol ( $a$ in $\int_a^b$ )
Maclaurin expansion	Maclaurin series
Maclaurin series	Power series for any differentiable function
Maxima	Maximum points
Maximum value	y-coordinate of a maximum point
Minima	Minimum points
Minimum value	y-coordinate of a minimum point
Natural logarithm	Base e logarithm
Nature of stationary point	Maximum, minimum or point of inflexion
Nature table	Table used to find the nature of stationary points
Newton quotient	The expression $[f(x+h) - f(x)]/h$ in the definition of the derivative

Non-homogeneous DE	Inhomogeneous differential equation
Nonlinear differential equation	Differential equation that is not linear
Non-stationary point of inflexion	Point of inflexion for which the first derivative is non-zero
Not differentiable	Does not have a derived function
Not integrable	Does not have a primitive
$n^{\text{th}}$ derivative	Result of differentiating a function $n$ times
Optimization	Using differentiation to find the maximum or minimum values of a function
Order (DE)	Highest derivative in a differential equation
Ordinary Differential Equation (ODE)	Differential equation in which the unknown function (the dependent variable) is a function of only one independent variable
Parametric differentiation	Differentiation involving (usually) 2 functions of the same variable
Partial Differential Equation (PDE)	Differential equation in which the unknown function (the dependent variable) is a function of at least 2 independent variables
Particular	Solution of a non-homogeneous DE that takes a

integral	similar form to the RHS of the DE
Particular solution	Solution of a differential equation in which the arbitrary constant is evaluated using initial conditions
Point of inflexion	Point on a curve at which the second derivative changes sign
Power series	Infinite series with polynomial terms
Primitive	Indefinite integral
Product rule	Rule for differentiating functions that are multiplied
Quotient rule	Rule for differentiating functions that are divided
Rate of change	How one variable changes compared to another; the derivative
Ratio Test	D'Alembert's Ratio Test
Right-hand derivative	Derivative just to the right of a given point
Rising point of inflexion	Point (of inflexion) where the derivative is positive either side of the point
Saddle point	Stationary point that is not an extremum
Second derivative test	Test using the second derivative for deciding the nature of a stationary point
Second-order linear ODE with constant coefficients	DE of the form $Ay'' + By' + Cy = f$ where $A$ , $B$ and $C$ are constant real numbers and $f$ is a function of $x$ only

## Calculus

Separable DE	Nonlinear DE that can be written as $M y' = N$ where $M$ is a function of $y$ only and $N$ is a function of $x$ only
Stationary	When a function has zero derivative
Stationary point	Point where the derivative of a function is 0
Stationary point of inflexion	Point of inflexion for which the first derivative equals zero
Stationary value	$y$ -coordinate of a stationary point
Turning point	Stationary point
Upper limit	Top limit in a definite integral symbol ( $b$ in $\int_a^b$ )

## Mensuration and Units

<b>12-hour time</b>	<b>Time written using am or pm with the hours between 1 and 12</b>
<b>24-hour time</b>	<b>Time written without am or pm with the hours between 0 and 23</b>
<b>Absolute zero</b>	<b>Lowest possible temperature: 0 K = -273.15 C (approx.)</b>
<b>Acre</b>	<b>Area unit: 1 acre = 4 840 square yards</b>
<b>am</b>	<b>Any time between 12 midnight and 11.59 (1 minute before noon) - <i>ante meridiem</i></b>
<b>Analogue</b>	<b>Clock readout using hands and written numbers</b>
<b>Angle</b>	<b>Arc length divided by radius</b>
<b>Annual</b>	<b>Every year</b>
<b>Apparent solar day</b>	<b>Time between 2 successive returns of the Sun to the same meridian</b>
<b>Apparent solar time</b>	<b>True solar time</b>
<b>April</b>	<b>4<sup>th</sup> month of the year having 30 days</b>
<b>Arc length</b>	<b>Length of an arc</b>
<b>Arcminute</b>	<b>Angle unit: 60' = 1°</b>
<b>Arcsecond</b>	<b>Angle unit: 60" = 1'</b>
<b>Area</b>	<b>Amount of space in a 2D shape</b>
<b>Atomic clock</b>	<b>Precision clock for measuring time</b>
<b>August</b>	<b>8<sup>th</sup> month of the year having 31 days</b>
<b>Back bearing</b>	<b>Bearing from B to A</b>
<b>Balancing scales</b>	<b>Device for comparing weights</b>
<b>Base unit</b>	<b>Unit from which other units are found</b>

*Mensuration and Units*

<b>Bearing</b>	<b>Angle measured clockwise from a North line at a point A to another point B, written using 3 digits</b>
<b>BST</b>	<b>British Summer Time</b>
<b>Cable</b>	<b>Length unit: 10 cables = 1 Nm</b>
<b>Capacity</b>	<b>Ability to hold a fluid</b>
<b>Cardinal directions/points</b>	<b>The directions north, south, east and west</b>
<b>Carroll diagram</b>	<b>Diagram showing groupings of things into 'yes/no'</b>
<b>Celestial sphere</b>	<b>Imaginary sphere with random radius, but concentric with the Earth and rotating on the same axis</b>
<b>Celsius</b>	<b>Temperature unit</b>
<b>Centennial</b>	<b>Every 100 years</b>
<b>Centilitre</b>	<b>Volume unit: 100 cl = 1 l</b>
<b>Centimetre</b>	<b>Length unit: 100 cm = 1 m</b>
<b>Chain</b>	<b>Length unit: 1 chain = 22 yards</b>
<b>Clepsydra</b>	<b>Water clock</b>
<b>Clock</b>	<b>Device for measuring time</b>
<b>Compass</b>	<b>Device for indicating direction (bearing)</b>
<b>Conversion</b>	<b>Changing units</b>
<b>Conversion graph</b>	<b>Graph used to convert units</b>
<b>Coordinated Universal Time (UTC)</b>	<b>Time standard which the world uses to reckon time and set clocks</b>

*Mensuration and Units*

<b>Cosmic year</b>	<b>Galactic year</b>
<b>Counting frame</b>	<b>Abacus</b>
<b>Cubic centimetre</b>	<b>Volume unit: 1 000 cm<sup>3</sup> = 1 L</b>
<b>Cubic metre</b>	<b>Volume unit: 1 m<sup>3</sup> = 1 000 L</b>
<b>Daily</b>	<b>Happening every day</b>
<b>Day</b>	<b>Time unit: 1 day = 24 hours</b>
<b>Daylight saving time</b>	<b>Putting the clocks forward in summer</b>
<b>December</b>	<b>12<sup>th</sup> month of the year having 31 days</b>
<b>Degree (Angle)</b>	<b>Angle unit: 360° = a full circle angle</b>
<b>Degree (Temperature)</b>	<b>Unit of temperature</b>
<b>Depth</b>	<b>Distance below something (usually water level)</b>
<b>Derived unit</b>	<b>Unit obtained from a base unit</b>
<b>Digital</b>	<b>Clock readout using lit up numbers</b>
<b>Dozen</b>	<b>Twelve</b>
<b>East</b>	<b>Direction with bearing 090°</b>
<b>Electronic balance</b>	<b>Device for measuring weight</b>
<b>Equinox</b>	<b>Moment when the Sun is directly overhead</b>
<b>Estimate</b>	<b>Roughly give an answer to</b>
<b>Fahrenheit</b>	<b>Temperature unit related to Celsius by the formula, F = (9/5) C + 32</b>
<b>Fathom</b>	<b>Length unit: 1 fathom = 2 yards</b>
<b>February</b>	<b>2<sup>nd</sup> month of the year having 28 or 29</b>

*Mensuration and Units*

	<b>days</b>
<b>Fluid ounce</b>	<b>Volume unit: 20 fl. oz = 1 pint</b>
<b>Foot</b>	<b>Length unit: 1 ft = 12 inches</b>
<b>Foot-pound-second units</b>	<b>Imperial units</b>
<b>Fortnight</b>	<b>Time unit: 1 fortnight = 2 weeks</b>
<b>Friday</b>	<b>5<sup>th</sup> day of the week</b>
<b>Furlong</b>	<b>Length unit: 1 furlong = 220 yards</b>
<b>Galactic year</b>	<b>Time taken for the Solar system to go once around the Milky Way galaxy</b>
<b>Gallon (imperial)</b>	<b>Volume unit: 1 gallon = 4.54609 L</b>
<b>Gallon (US liquid)</b>	<b>Volume unit: 1 US gallon = 3.785 411 784 L</b>
<b>Gill</b>	<b>Volume unit: 1 gill = 5 fl. oz</b>
<b>GMT</b>	<b>Greenwich Mean Time</b>
<b>Gram</b>	<b>Mass unit: 1 000 g = 1 kg</b>
<b>Gregorian calendar</b>	<b>Calendar in official use, based on the Julian calendar, but having an average year length of 365.2425 days</b>
<b>Half past</b>	<b>30 minutes past the hour</b>
<b>Hectare</b>	<b>Area unit: 1 ha = 10 000 sq. m</b>
<b>Height</b>	<b>Length measured vertically upwards</b>
<b>Horology</b>	<b>Study of timekeeping</b>
<b>Hour</b>	<b>Time unit: 1 hour = 60 minutes</b>
<b>Hourly</b>	<b>Happening every hour</b>
<b>Imperial units</b>	<b>System of units that uses the 3 base units of foot, pound and second</b>

*Mensuration and Units*

<b>Inch</b>	<b>Length unit: 1 inch = 2.54 cm</b>
<b>International Date Line</b>	<b>Imaginary north-south line in the Pacific ocean, travelling across which changes the date</b>
<b>International Prototype Kilogram</b>	<b>Right circular cylinder made of an alloy of 90% platinum and 10 % iridium (by mass) of diameter 39.17 mm</b>
<b>January</b>	<b>1<sup>st</sup> month of the year having 31 days</b>
<b>Julian calendar</b>	<b>Calendar with 365 days divided into 12 months, with a leap day added to February every 4 years, the average year having 365.25 days</b>
<b>July</b>	<b>7<sup>th</sup> month of the year having 31 days</b>
<b>June</b>	<b>6<sup>th</sup> month of the year having 30 days</b>
<b>Kelvin</b>	<b>Basic unit of temperature</b>
<b>Kilogram</b>	<b>SI base unit of mass - mass of the International Prototype Kilogram</b>
<b>Kilometre</b>	<b>Length unit: 1 km = 1 000 m</b>
<b>Kilometres per hour (kph)</b>	<b>Speed unit found in a speedometer - 1 kph means going 1 kilometre every hour</b>
<b>Latitude</b>	<b>Angle measured north or south from the equator</b>
<b>League</b>	<b>Length unit: 1 league = 3 miles</b>
<b>Leap second</b>	<b>Adjustment to UTC</b>
<b>Leap year</b>	<b>Year with 366 days</b>
<b>Length</b>	<b>Distance between 2 points</b>

*Mensuration and Units*

<b>Light year</b>	Distance that light travels in a year, approximately 10 trillion kilometres
<b>Litre</b>	Unit of volume: 1 l = 1 000 cm <sup>3</sup>
<b>Longitude</b>	Angle measured east or west from the prime meridian
<b>March</b>	3 <sup>rd</sup> month of the year having 31 days
<b>Mass</b>	Amount of substance - how much stuff there is in an object
<b>May</b>	5 <sup>th</sup> month of the year having 31 days
<b>Mean solar time</b>	Time based on Earth's rotation compared to distant astronomical objects
<b>Mensuration</b>	<b>Measurement</b>
<b>Meridian</b>	Imaginary curved line from the North pole to the South pole, at right angles to the horizon
<b>Metre</b>	SI base unit of length - distance travelled by light in vacuum in 1/299 792 458 s
<b>Metres per second (m/s)</b>	Speed unit - 1 m/s means going 1 metre every second
<b>Metre stick</b>	Measuring device of length 1 metre
<b>Metric system</b>	Decimal system of measurement
<b>Midday</b>	Noon
<b>Midnight</b>	Beginning or end of each day
<b>Mile</b>	Length unit: 1 mile = 1 760 yards (= 1 609.344 m)
<b>Miles per hour (mph)</b>	Speed unit found in a speedometer - 1 mph means going 1 mile every hour

*Mensuration and Units*

<b>Millennial</b>	Every 1 000 years
<b>Milligram</b>	Mass unit: 1 000 mg = 1 g
<b>Millilitre</b>	Volume unit: 1 000 ml = 1 l
<b>Millimetre</b>	Length unit: 10 mm = 1 cm
<b>Minute (Angle)</b>	Arcminute
<b>Minute of arc</b>	Arcminute
<b>Minute (Time)</b>	Time unit: 1 min. = 60 s
<b>Monday</b>	1 <sup>st</sup> day of the week
<b>Month</b>	Time unit related to the Moon
<b>Monthly</b>	Happening every month
<b>Nautical mile</b>	Length unit: 1 Nm = 1 852 m
<b>Newton</b>	Basic unit of force - weight is a force
<b>Noon</b>	12 o'clock in the daytime
<b>North</b>	Direction with bearing 000°
<b>Northeast</b>	Direction with bearing 045°
<b>Northwest</b>	Direction with bearing 315°
<b>November</b>	11 <sup>th</sup> month of the year having 30 days
<b>October</b>	10 <sup>th</sup> month of the year having 31 days
<b>Ounce</b>	Mass unit: 16 oz = 1 lb (1 oz = 0.028 349 523 125 kg)
<b>Parallel</b>	Imaginary line running from east to west connecting all places with the same latitude
<b>Pint</b>	Volume unit: 8 pints = 1 gallon
<b>pm</b>	Any time between 12 noon and 11.59 (1 minute before midnight) - <i>post meridiem</i>

*Mensuration and Units*

<b>Pound</b>	<b>Mass unit: 1 lb = 0.453 592 37 kg</b>
<b>ppm</b>	<b>Parts per million</b>
Prime meridian	Meridian with longitude 0°
Quart	Volume unit: 1 quart = $\frac{1}{4}$ of an imperial gallon
<b>Quarter past</b>	<b>15 minutes past the hour</b>
<b>Quarter to</b>	<b>15 minutes to the hour</b>
Radian	Angle unit: $\pi$ rad = 180°
<b>Reading</b>	<b>Mark or number on a measuring instrument</b>
<b>Ready reckoner</b>	<b>Table, normally with 2 columns, that gives conversions</b>
<b>Ruler</b>	<b>Device used to measure length</b>
Sand timer	Device used to measure time using sand
<b>Saturday</b>	<b>6<sup>th</sup> day of the week</b>
<b>Scale</b>	<b>Equally spaced marks on a measuring device</b>
<b>Second (Angle)</b>	<b>Arcsecond</b>
<b>Second of arc</b>	<b>Arcsecond</b>
<b>Second (Time)</b>	<b>SI unit of time, equal to the time needed for a particular type of caesium atom to make 9 192 631 770 oscillations</b>
<b>September</b>	<b>9<sup>th</sup> month of the year having 30 days</b>
Sidereal	To do with the stars or constellations
Sidereal day	Period of time based on sidereal time and equal to approximately 23 hours 56 minutes and 4.091 seconds
Sidereal month	Time taken by the Moon to return to the

*Mensuration and Units*

	same point in the sky, approximately 27 days, 7 hours and 43 minutes
Sidereal time	Time based on the Earth's rotation relative to the background of fixed stars
<b>SI system</b>	<b>The International System of Units</b>
<b>Solar calendar</b>	<b>Calendar in which dates show the position of the Earth around the Sun</b>
Solar day	Time between 2 successive returns of the Sun to the local meridian
<b>Solar noon</b>	<b>Moment when the Sun is at its highest point in the sky</b>
Solar time	Time measured by the Sun's motion
Solstice	Moment when Sun's apparent position is at its northernmost and southernmost extremes
<b>South</b>	<b>Direction with bearing 180°</b>
<b>Southeast</b>	<b>Direction with bearing 135°</b>
<b>Southwest</b>	<b>Direction with bearing 225°</b>
Speed of light	Basic unit of speed equal to exactly 299 792 458 m/s (in vacuum)
<b>Speedometer</b>	<b>Device for measuring speed</b>
<b>Square centimetre</b>	<b>Area unit: 10 000 cm<sup>2</sup> = 1 m<sup>2</sup></b>
<b>Square kilometre</b>	<b>Area unit, equal to the amount of space in a square of side length 1 km</b>
<b>Square metre</b>	<b>Area unit: 1 000 000 m<sup>2</sup> = 1 km<sup>2</sup></b>
<b>Square millimetre</b>	<b>Area unit: 100 mm<sup>2</sup> = 1 cm<sup>2</sup></b>

*Mensuration and Units*

<b>Steradian</b>	<b>Unit of solid angle</b>
<b>Stone</b>	<b>Mass unit: 1 st = 14 lb</b>
<b>Stopwatch</b>	<b>Device for measuring time accurately</b>
<b>Sunday</b>	<b>7<sup>th</sup> day of the week</b>
<b>Sundial</b>	<b>Clock measuring time by the Sun's position</b>
<b>Synodic day</b>	<b>Time it takes for a planet to rotate once about the object it is orbiting; for Earth around Sun, this is 24 hours (solar day)</b>
<b>System of measurement</b>	<b>Collection of units to describe things that can be measured</b>
<b>System of units</b>	<b>System of measurement</b>
<b>Tachograph</b>	<b>Device for recording speed over a period of time</b>
<b>Tape measure</b>	<b>Device that can measure lengths, including those that are not straight</b>
<b>Temperature</b>	<b>Measure of hotness or coldness</b>
<b>Ten past</b>	<b>10 minutes past the hour</b>
<b>Ten to</b>	<b>10 minutes to the hour</b>
<b>Thermometer</b>	<b>Device for measuring temperature</b>
<b>Thursday</b>	<b>4<sup>th</sup> day of the week</b>
<b>Time</b>	<b>Measure of duration - how long something lasts</b>
<b>Time zone</b>	<b>Region on Earth bounded by 2 lines of longitude separated by 15°</b>
<b>Tonne</b>	<b>Mass unit: 1 t = 1 000 kg</b>
<b>True solar time</b>	<b>Time based on the solar day</b>
<b>Trundle wheel</b>	<b>Wheel attached to a stick,</b>

*Mensuration and Units*

	<b>used for measuring length</b>
<b>Tuesday</b>	<b>2<sup>nd</sup> day of the week</b>
<b>Unit</b>	<b>Size of a physical quantity</b>
<b>Universal Time</b>	<b>GMT</b>
<b>Volume</b>	<b>How much space there is in a 3D shape</b>
<b>Watch</b>	<b>Device for measuring time</b>
<b>Water clock</b>	<b>Clock using water to measure time</b>
<b>Wednesday</b>	<b>3<sup>rd</sup> day of the week</b>
<b>Week</b>	<b>Time unit: 1 week = 7 days</b>
<b>Weekend</b>	<b>Saturday and Sunday</b>
<b>Weekly</b>	<b>Happening every week</b>
<b>Weight</b>	<b>How heavy something is</b>
<b>West</b>	<b>Direction with bearing 270°</b>
<b>Workweek</b>	<b>The 5 days from Monday to Friday</b>
<b>Yard</b>	<b>Length unit: 1 yard = 0.9144 m</b>
<b>Year</b>	<b>Time unit: 1 year = 12 months</b>
<b>Yearly</b>	<b>Happening every year</b>
<b>Zulu time</b>	<b>GMT</b>



Aleph-null	Cardinality of the set of all natural numbers
Aleph-one	Infinite cardinal after aleph-null
<b>Algebraically</b>	<b>Using algebra</b>
<b>Algorithm</b>	<b>Ordered collection of instructions to do something</b>
Analytically	Using calculus
<b>Answer</b>	<b>End result of a calculation</b>
<b>Antecedent</b>	<b>Statement P in 'If P, then Q'</b>
Approximate	Get an answer or reading close to the actual one
Argument	Attempt to convince someone of the truth of something
<b>Arithmetically</b>	<b>Using arithmetic</b>
<b>As a result of</b>	<b>Consequence of</b>
<b>Axiom</b>	<b>Statements assumed to be true, used at the start of a logical argument</b>
<b>Bad form</b>	<b>Working or notation that is not acceptable</b>
<b>Barber's paradox</b>	<b>Version of Russell's paradox involving a barber who only shaves those people who don't shave themselves; does the barber shave himself ?</b>
Base case	First part of proof technique in mathematical induction
<b>Belongs to</b>	<b>Contained in (a set)</b>
Biconditional	Two-way conditional: A implies B and B implies A
<b>Calculate</b>	<b>Work out, not necessarily</b>

	<b>with a calculator</b>
<b>Calculation</b>	<b>Any type of mathematical procedure, especially adding, subtracting, multiplying or dividing</b>
Cardinal	Quantity used to measure cardinality
<b>Cardinality</b>	<b>Size of a set</b>
Cardinality of the continuum	Cardinality of the set of all real numbers
<b>Case</b>	<b>Part of something</b>
<b>Complement</b>	<b>For a set A, and universal set U, the set consisting of everything in U that's not in A</b>
<b>Conclusion</b>	<b>Statement reached at the end of a logical argument; the 'then...' part of a conditional</b>
<b>Conditional</b>	<b>Statement of the form, 'If..., then...' (A implies B)</b>
<b>Conjecture</b>	<b>Suggest a statement believed to be true, but is not proven to be true or false</b>
<b>Consequence</b>	<b>Follows from</b>
<b>Consequent</b>	<b>Statement Q in 'If P, then Q'</b>
<b>Consequently</b>	<b>Result of</b>
<b>Consistency</b>	<b>Does not have contradictions</b>
Continuum	Set of all real numbers
Continuum hypothesis	Hypothesis that the power set of aleph-null equals aleph-one
<b>Contradiction</b>	<b>When a statement does not fit logically with another one</b>

<b>Contrapositive</b>	<b>Statement obtained by switching the hypothesis and conclusion of a conditional negating both: not B implies not A</b>
<b>Converse</b>	<b>Switching the hypothesis and conclusion of a conditional: B implies A</b>
<b>Countable</b>	<b>Set which is either finite or has the same number of elements as the set of all natural numbers</b>
<b>Countably infinite</b>	<b>Having the same number of elements as the set of all natural numbers</b>
<b>Counterexample</b>	<b>Specific example which makes a statement false</b>
<b>Decrement</b>	<b>Decrease; to go down</b>
<b>Deduce</b>	<b>Figure out logically</b>
<b>Deduction</b>	<b>Deduce</b>
<b>Deductive reasoning</b>	<b>Making conclusions from definitions and axioms</b>
<b>Define</b>	<b>Give a definition</b>
<b>Definition</b>	<b>Something that is given a meaning to, either in words or by an equation</b>
<b>Demonstrate</b>	<b>Show</b>
<b>Determine</b>	<b>Work out</b>
<b>Direct proof</b>	<b>Proof technique used to prove a statement by starting with axioms and employing <i>modus ponens</i></b>
<b>Disjoint sets</b>	<b>Sets which have no common elements</b>

<b>Disprove</b>	<b>Prove a statement false by giving a counterexample</b>
<b>Empty set</b>	<b>Set with no elements</b>
<b>Equal to</b>	<b>Same</b>
<b>Error</b>	<b>Mistake</b>
<b>Estimate</b>	<b>Educated guess; reasoned judgement</b>
<b>Evaluate</b>	<b>Work out</b>
<b>Expression</b>	<b>Combination of numbers and variables combined using brackets, adding, subtracting, multiplying, dividing, taking powers, taking roots, logarithms, etc., but not containing equality or inequality symbols</b>
<b>Extrapolate</b>	<b>Extending a method to new situations</b>
<b>Fact</b>	<b>Something that is thought to be true</b>
<b>False</b>	<b>Not true</b>
<b>Fields Medal</b>	<b>Prize given to mathematicians every 4 years</b>
<b>Figure out</b>	<b>Work out</b>
<b>Final answer</b>	<b>Answer</b>
<b>For all</b>	<b>For every value</b>
<b>Form</b>	<b>How something looks</b>
<b>General case</b>	<b>Case not involving a specific instance of something</b>
<b>Geometrically</b>	<b>Using geometry</b>
<b>Graphically</b>	<b>Using graphs</b>
<b>Guess</b>	<b>Give an answer without working or much thinking</b>

<b>Hence</b>	<b>For this reason</b>
Hilbert's Hotel	Theoretical hotel with infinitely many rooms
<b>Hypothesis</b>	<b>Statement at the beginning of a logical argument; the 'If...' part of a conditional</b>
<b>If</b>	<b>When A implies B, B is true if A is true</b>
<b>If and only if (iff)</b>	<b>Biconditional</b>
<b>Illogical</b>	<b>Not logical</b>
<b>Illogical argument</b>	<b>Argument that is not logical</b>
<b>Implicand</b>	<b>Statement B in 'A implies B'</b>
<b>Implicant</b>	<b>Statement A in 'A implies B'</b>
<b>Implication</b>	<b>Conditional</b>
<b>Implies</b>	<b>Imply</b>
<b>Imply</b>	<b>Usually means, 'to follow from'</b>
<b>Increment</b>	<b>Increase; to go up</b>
<b>Indirect proof</b>	<b>Proof by contradiction</b>
<b>Inductive reasoning</b>	<b>Making generalisations from specific examples</b>
<b>Inductive step</b>	<b>Second part of proof technique in mathematical induction</b>
<b>Insoluble</b>	<b>Cannot be solved</b>
<b>Intersection</b>	<b>Set composed of the collection of all common elements in a number of sets</b>
<b>Inverse</b>	<b>Statement obtained by negating the hypothesis and conclusion of a conditional (not A implies not B)</b>

<b>It follows</b>	<b>Makes logical sense from a previous idea</b>
<b>Law of the excluded middle</b>	<b>Idea that either a statement or its negation is true, with no other possibility</b>
<b>Lemma</b>	<b>Proven statement that is used as a stepping-stone to a larger result</b>
<b>LHS</b>	<b>Left Hand Side</b>
<b>Liar paradox</b>	<b>'This sentence is false'</b>
<b>Logic</b>	<b>Study of reasoning; how to think using rules</b>
<b>Logical argument</b>	<b>Chain of reasoning using logic</b>
<b>Logically</b>	<b>Using logic</b>
<b>Mathematical induction</b>	<b>Proof technique for statements involving natural numbers involving verification of the first case and then verifying the truth of the next case assuming the previous case</b>
<b>Mathematically</b>	<b>Using mathematics</b>
<b>Mathematician</b>	<b>Professional who studies mathematics</b>
<b>Mathematics</b>	<b>Study of logical relations between things, often involving numbers, functions, patterns, hypotheses, conjectures, generalisations and proofs</b>
<b>Meaningless</b>	<b>Does not make logical sense</b>
<b>Member</b>	<b>Something that belongs to a set</b>
<b>Mental</b>	<b>Calculation done purely within the brain; no</b>

calculation	working out by pencil, calculator etc.
Method	Technique
Millenium Prize Problems	One of 7 unsolved problems in mathematics, whose proof or disproof wins 1 million US dollars
<i>Modus ponens</i>	The rule: If P implies Q, and P is true, then Q is true
<i>Modus tollens</i>	The rule: If P implies Q, and Q is not true, then P is not true
Necessary	Statement B in 'A implies B'
Necessary and sufficient	If and only if
Not equal to	Not the same
Null set	Empty set
Numeracy	Simple number work; arithmetic
Only if	In 'A implies B', A is true only if B is true
Otherwise	Using another method or technique
Paradox	Something leading to a contradiction
Pattern	Something that repeats, is ordered or follows some specific rule
Power set	Set of all subsets of a given set
Problem	Question or something that is to be proven or disproven
Proof	Convincing chain of reasoning to show that a mathematical statement is true
Proof by cases	Proof by exhaustion

Proof by contradiction	Proof technique used to prove a statement by showing that if the statement is assumed false, this contradicts one of the assumptions
Proof by exhaustion	Proof by considering a finite number of cases
Proof by induction	Proof technique used to prove a statement involving the natural number variable n
Property	Feature of something
Proposition	Statement
Prove	Give a proof
Q.E.D.	<i>Quod Erat Demonstrandum</i> - that which was to be demonstrated (shown); used at the end of a proof
Question	Statement that demands an answer
<i>Reductio ad absurdum</i>	Proof by contradiction
Result of	Being true because of previous information and logic
Revision	Looking back over work and understanding it
RHS	Right Hand Side
Roughly	Approximately
Rule	Way of doing something
Russell's paradox	If S is the set of all sets that are not members of themselves, then does S belong to S ?

<b>Satisfy</b>	<b>Works in an equation or statement</b>
<b>Self-referential</b>	<b>Statement that refers to itself, often resulting in a paradox</b>
<b>Sentence</b>	<b>Symbols (normally words) written in a certain order that make sense</b>
<b>Set</b>	<b>Collection of distinct objects</b>
<b>Show</b>	<b>Prove</b>
<b>Simplest form</b>	<b>Expression with the smallest numbers and fewest symbols</b>
<b>Simplify</b>	<b>Write with fewer symbols and smaller numbers</b>
<b>Solution</b>	<b>Answer with working</b>
<b>Solve</b>	<b>Get a solution</b>
<b>Special case</b>	<b>Case involving a specific instance of something</b>
<b>State</b>	<b>Say or write an answer without showing working</b>
<b>Statement</b>	<b>Sentence which is either true or false</b>
<b>Statistically</b>	<b>Using statistics</b>
<b>Sufficient</b>	<b>Statement A in 'A implies B'</b>
<b>Symbol</b>	<b>Mark(s) which represent something</b>
<b>Technique</b>	<b>Way of doing something</b>
<b>Theorem</b>	<b>Proposition to be proved using hypotheses and axioms</b>
<b>There exists</b>	<b>There is</b>
<b>Therefore</b>	<b>Consequently</b>
<b>Thus</b>	<b>Therefore</b>

<b>Transfinite cardinal</b>	<b>Cardinal used to measure sizes of infinite sets</b>
<b>True</b>	<b>Factually correct, based on current knowledge</b>
<b>Truth value</b>	<b>True or false</b>
<b>Undefined</b>	<b>Meaningless</b>
<b>Understand</b>	<b>Make sense of</b>
<b>Union</b>	<b>Set composed of the collection of all elements in a number of sets</b>
<b>Universal set</b>	<b>Set consisting of everything under discussion</b>
<b>Unsolved problem</b>	<b>Problem that has been neither proven nor disproven</b>
<b>Vacuously true</b>	<b>Automatically true</b>
<b>Venn diagram</b>	<b>Diagram showing all possible logical relations between a fixed number of sets</b>
<b>WLOG</b>	<b>Without Loss of Generality; considering a specific class of cases which is essentially representative of the general situation</b>
<b>Working(s)</b>	<b>Intermediate step(s) in a calculation before the answer</b>
<b>Work out</b>	<b>Get an answer to</b>
<b>Write down</b>	<b>Write an answer without showing working</b>
<b>Zeno's paradoxes</b>	<b>Paradoxes envisaged by Zeno that attempt to show that motion is an illusion</b>

## Epilogue

This vocabulary book is meant to represent a step towards addressing the numeracy and literacy issues surrounding mathematics' place in the Curriculum for Excellence.

Hopefully, by discussing concepts not found in traditional course syllabi, ample opportunities for enriching the learning experience will make themselves manifest.

M. Patel (June 2011)

*An educational system isn't worth a great deal if it teaches young people how to make a living but doesn't teach them how to make a life*

*(Unknown)*