

## **GLOSSARY MATHEMATICS**

<i>Amortised Loan:</i>	<i>a loan for which the loan amount plus interest is paid off in a series regular(usually monthly) equal payments.</i>
<i>Amplitude</i>	<i>half the distance between the highest and lowest point of a wave, for example the graph of a periodic function like <math>\sin\theta</math></i>
<i>Angle of depression</i>	<i>the angle between the horizontal and the line of sight when looking down at an object.</i>
<i>Angle of elevation</i>	<i>the angle between the horizontal and the line of sight when looking up at an object.</i>
<i>Annuity</i>	<i>an investment in which we make monthly equal installments.</i>
<i>Arc</i>	<i>part of the circumference of the circle.</i>
<i>Arithmetic mean</i>	<i>the average of the values in a data set</i>
<i>Arithmetic sequence</i>	<i>a sequence in which the consecutive terms differ by a constant value</i>
<i>Asymptote</i>	<i>a straight line to which a curve draws ever closer without ever touching it.</i>
<i>Axiom</i>	<i>a self-evident truth that can serve as a principle from which logic deductions can be made.</i>
<i>Bar graph</i>	<i>a graph in which the values of the dependent variable are represented by the vertical height of the rectangles.</i>
<i>Biased sample</i>	<i>a sample that does not fairly represent the population as a whole.</i>
<i>Bivariate numerical data</i>	<i>data that consists of two numerical variables.</i>
<i>Box-and-whisker plot</i>	<i>a visual summary of a data set that shows the lowest and the highest values of the data set, as well as the lower quartile, the median and the upper quartile</i>
<i>Chord</i>	<i>a line that joins two points on the circumference of the circle.</i>
<i>Circumscribed circle</i>	<i>a circle that touches all vertices of a polygon</i>
<i>Common factor</i>	<i>a factor that appears in every term of the expression.</i>
<i>Concyclic</i>	<i>a number of points are concyclic if there is a circle that passes through all of them.</i>
<i>Congruent triangles</i>	<i>triangles that have exactly the same shape and size.</i>

<i>Conjecture</i>	<i>a generalization made using reasoning</i>
<i>Constant difference</i>	<i>a constant that is added to each term of an arithmetic sequence to form the next term.</i>
<i>Constant ratio</i>	<i>a constant that is multiplied by each term of a Geometric sequence to form the next term.</i>
<i>Constraints</i>	<i>practical limitations in a linear programming situation written as inequalities.</i>
<i>Continuous data</i>	<i>data that can have any value and is measured, not counted (within reasonable limits) in an interval, e.g. time.</i>
<i>Converging sequence</i>	<i>a sequence in which the value of successive terms approaches some finite value.</i>
<i>Correlation</i>	<i>a measure of how strongly two variables in a linear relationship are related.</i>
<i>Correlation coefficient</i>	<i>a number between -1 and 1 that we use to express the strength of correlation.</i>
<i>Counter example</i>	<i>an example that disproves a statement</i>
<i>Cyclic quadrilateral</i>	<i>a quadrilateral of which all four vertices lie on the circle</i>
<i>Dependent variable</i>	<i>a variable whose value depends on the value of the independent variable.</i>
<i>Derivative</i>	<i>instantaneous rate of change of a function; gradient of the tangent at a point on the graph of a function.</i>
<i>Discrete data</i>	<i>data that can have only certain values, usually integer quantities</i>
<i>Domain</i>	<i>all values of the independent variable (usually <math>x</math>) for which a relationship is defined.</i>
<i>Equi-angular polygon</i>	<i>a polygon of which all the internal angles are equal in size</i>
<i>Equi-angular triangles</i>	<i>triangles of which the corresponding angles are equal.</i>
<i>Equidistant</i>	<i>at an equal distance from.</i>
<i>Equi-lateral polygon</i>	<i>a polygon of which all the sides are equal in size</i>
<i>Event</i>	<i>a clearly defined set of outcomes</i>
<i>Experimental probability</i>	<i>the probability of an outcome in a particular experiment.</i>

<i>Feasible region</i>	<i>a polygon that contains all the possible solutions to a linear programming problem.</i>
<i>Frequency polygon</i>	<i>the that is formed by joining the midpoints of the top of each bar of a histogram.</i>
<i>Frequency table</i>	<i>a table that summarizes the frequencies of all the data values in a data set.</i>
<i>Function</i>	<i>a relationship between two variables (Usually <math>x</math> and <math>y</math>), such that for every value of <math>x</math> for which the function is defined, there is exactly one value of <math>y</math>.</i>
<i>Geometric sequence</i>	<i>a sequence in which there is always a constant ratio between two consecutive terms.</i>
<i>Histogram</i>	<i>a graph that uses rectangles (without gaps between them) whose areas show frequencies.</i>
<i>Horizontal transformation</i>	<i>a transformation that will change the period of a trigonometric graph</i>
<i>Hypotenuse</i>	<i>a side opposite the right angle in a right angled triangle.</i>
<i>Independent variable</i>	<i>a variable (usually <math>x</math>) whose value determines the value of the dependent variable(usually <math>y</math>).</i>
<i>Inscribed circle</i>	<i>a circle that touches all the sides of the polygon</i>
<i>Interquartile range</i>	<i>the difference between the upper and the lower quartile.</i>
<i>Limit</i>	<i>a value to which the series or a function tends to, without necessarily reaching it.</i>
<i>Line of best fit</i>	<i>a line that goes through, or very close to the majority of the points on a scatter plot.</i>
<i>Linear programming</i>	<i>a method used to find optimal (best) solution to a problem that can be expressed in terms of linear equations or inequalities.</i>
<i>Major arc</i>	<i>the larger of the two arcs that together make a complete circle</i>
<i>Maximum turning point</i>	<i>a point on a curve at which the gradient of the tangent to the curve changes from positive to negative</i>
<i>Measures of central tendencies</i>	<i>measures that tell us about the middle values of a data set</i>

*Measure of dispersion* measures that tells us about the spread of the numerical data set

*Median* the middle Value in an ordered data set

*Minimum turning point* a point on a curve at which the gradient of the tangent to the curve changes from negative to positive

*Minor arc* the smaller of the two arcs that together make a complete circle

*Mode* the value that appear most often in a data set

*Negative correlation* a relationship between two statistical variables in which if there is an increase in one variable, there is a decrease in the other variable

*Normal distribution* a distribution in which the median, mode and mean are equal

*Objective function* a function that describes an objective in a particular situation

*Ogive* the graph of cumulative frequencies

*Ordinary annuity* an annuity in which you make a monthly payment at the end of each month

*Outcome* the results of a trial

*Outlier* a value that is different from the other values in the data set

*Parabola* the graph of a quadratic function

*Percentiles* measures of dispersion that divide the data set into hundredths

*Point of inflection* a stationery point that is neither a maximum nor a minimum

*Positive correlation* a relationship between two statistical variables in which if there is an increase in one variable, there is an increase in the other variable

*Positively skewed distribution* a distribution in which the median is less than the mean

*Present value(of loan)* the initial loan amount

*Probability* the likelihood of that outcome occurring, expressed as a number between zero and one

*Quartiles* measures of dispersion that divide the data set into quarters

*Range (of a data set)* the difference between the highest and the lowest value in the data set

*Range (of a relationship)* the set of values of the dependent variable (usually  $y$ ) for which a relationship is defined

<i>Recursive pattern</i>	<i>a pattern in which a given term can be expressed in terms of one or more of the preceding terms, e.g Fibonacci+</i>
<i>Regression function</i>	<i>another name for the line of best fit</i>
<i>Relative frequency</i>	<i>the experimental probability of an outcome</i>
<i>Right cylinder</i>	<i>a cylinder of which the axis is perpendicular to the basis</i>
<i>Right prism</i>	<i>a prism of which the lateral faces are all rectangles</i>
<i>Root( of an equation)</i>	<i>a value of the variable that satisfies the equation</i>
<i>Scalene triangle</i>	<i>a triangle with no equal sides and no equal angles</i>
<i>Scatter plot</i>	<i>a graph on which we represent data as a collection of (x;y) coordinates</i>
<i>Search line</i>	<i>a line used in linear programming to find the optimal solution</i>
<i>Secant</i>	<i>a line that cuts across the circle or curve at two points</i>
<i>Sigma-notation</i>	<i>a form of a short hand to describe the sum of series</i>
<i>Similar triangles</i>	<i>triangles that have exactly the same shape, but not necessarily the same size.</i>
<i>Skewed distribution</i>	<i>a distribution that is not normal, but is negatively or positively skewed.</i>
<i>Standard deviation</i>	<i>a measure of dispersion of a numerical data set.</i>
<i>Stationary point</i>	<i>a point on the graph of a function at which the value of the derivative is zero</i>
<i>Stem-and-leaf diagram</i>	<i>a summary of a data set in which the data values are first grouped by the stem values, and then sorted into the leaf values</i>
<i>Surd form</i>	<i>irrational number written with root symbols but in a simplified form</i>
<i>Tangent</i>	<i>a line that touches the circle at only one point</i>
<i>Turning point</i>	<i>a point on a curve at which the gradient of the tangent to the curve is zero.</i>
<i>Vertex( of a polygon)</i>	<i>a point at which two adjacent sides of the polygon meet</i>
<i>Vertical line test</i>	<i>a test to decide whether or not a relation is a function.</i>
<i>Vertical transformation</i>	<i>a transformation that will shift the trig graph up or down along the y-axis</i>