Year 9 Maths Vocabulary List

(Tier 2 and Tier 3)

Congruent - Two or more geometric figures are said to be congruent when they are the same in every way except their position in space. Example: Two figures, where one is a reflection of the other, are congruent since one can be transposed onto the other without changing any angle or edge length.

Enlargement - A transformation of the plane in which lengths are multiplied whilst directions and angles are preserved. A centre and a positive scale factor are used to specify an enlargement. The scale factor is the ratio of the distance of any transformed point from the centre to its distance from the centre prior to the transformation. Any figure and its image under enlargement are similar.

Equation - A mathematical statement showing that two expressions are equal. The expressions are linked with the symbol = Examples: $7 – 2 = 4 + 1$, $4x = 3$, $x^2 – 2x + 1 = 0$

Interior angle - At a vertex of a polygon, the angle that lies within the polygon.

Irrational - A number that is not an integer and cannot be expressed as a common fraction with a non-zero denominator. Examples: $\sqrt{3}$ and π. Real irrational numbers, when expressed as decimals, are infinite, non-recurring decimals.

Linear - In algebra, describing an expression or equation of degree one. Example: $2x + 3y = 7$ is a linear equation. All linear equations can be represented as straight line graphs. Non-linear would be a graph that is not a straight line.

Lowest common multiple (LCM) - The common multiple of two or more numbers, which has the least value. Example: 3 has multiples 3, 6, 9, 12, 15, 18, 21, 24 …, 4 has multiples 4, 8, 12, 16, 20, 24 … and 6 has multiples 6, 12, 18, 24, 30 …. The common multiples of 3, 4 and 6 include 12, 24 and 36. The least common multiple of 3, 4 and 6 is 12.

Mean - The sum of a set of numbers, or quantities, divided by the number of terms in the set. Example: The arithmetic mean of 5, 6, 14, 15 and 45 is $(5 + 6 + 14 + 15 + 45) \div 5$ i.e. 17.

Median = The middle number or value when all values in a set of data are arranged in ascending order. Example: The median of 5, 6, 14, 15 and 45 is 14. When there is an even number of values, the arithmetic mean of the two middle values is calculated. Example: The median of 5, 6, 7, 8, 14 and 45 is $(7 + 8) \div 2$ i.e. 7.5.

Metric unit - Unit of measurement in the metric system. Metric units include metre, centimetre, millimetre, kilometre, gram, kilogram, litre and millilitre.

Mode - The most commonly occurring value or class with the largest frequency. e.g. the mode of this set of data: 2, 3, 3, 3, 4, 4, 5, 5, 6, 7, 8 is 3 Some sets of data may have more than one mode.

Parallel lines – A set of lines that are always equidistant. Parallel lines, curves and planes never meet however far they are produced or extended.

Prism - A solid bounded by two congruent polygons that are parallel (the bases) and parallelograms (lateral faces) formed by joining the corresponding vertices of the polygons. Prisms are named according to the base e.g. triangular prism, quadrangular prism, pentagonal prism etc. Examples:
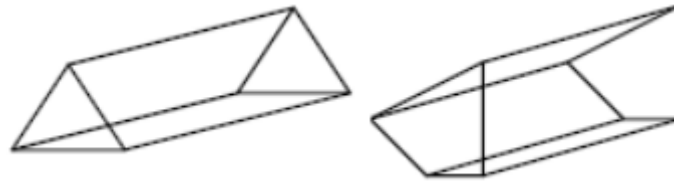
Pythagoras Theorem - In a right-angled triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other sides i.e. the sides that bound the right angle.
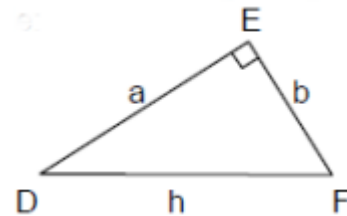
Example: When ∠DEF is a right angle, $a^2 + b^2 = h^2$

Quadratic - Describing a expression of the form $ax^2 + bx + c$ where a, b and c are real numbers. The function $y = ax^2 + bx + c$ is a quadratic function; its graph is a parabola (curved).

Simultaneous equations - Two linear equations that apply simultaneously to given variables. The solution to the simultaneous equations is the pair of values for the variables that satisfies both equations. The graphical solution to simultaneous equations is a point where the lines representing the equations intersect. e.g. $x + y = 6$ and $y = 2x$ is a set of simultaneous equations. The solution is the value of x and y which satisfies both simultaneously – i.e. $x = 2$ and $y = 4$

Surd - 1. An irrational number expressed as the root of a natural number. Examples: $3\sqrt{2}$. 2. A numerical expression involving irrational roots. Example: $3 + 2\sqrt{7}$.

Translation - A transformation in which every point of a body moves the same distance in the same direction. A transformation specified by a distance and direction.

Vertex - The point at which two or more lines intersect. Plural: vertices.

Volume - A measure of three-dimensional space. Usually measured in cubic units; for example, cubic centimetres (cm3) and cubic metres (m3).