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Blogs - 2018 - May

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Mathematics Terms

Before going into the terms themselves, it is necessary to clear up and be sure about the outlines for the subject. The plural form noun and the adjective are written with the same contraction: mathematics and mathematical. The other adjective mathematic is written in full. If you need to differentiate between those two contractions, or feel that reading back might be unclear, then they should be abandoned and written in full. When these are abbreviated in popular speech, we have two outlines to consider: in the UK we say maths, and in the USA it is math. Both of these spoken abbreviations are written as full outlines, always with the vowel inserted and clearly in first position, so that they do not look like the contraction. As a shorthand writer*, you are unlikely to meet all the terms together, unless you are working in that field, but any of them could occur in normal topics, as many business matters include amounts and calculations, so it is well worth knowing the outlines for the terms.

* Omission phrase "short(hand) writer"

Mathematics Terms

Although the noun mathematics has a plural form, it functions as a singular noun, for example, "Mathematics is a popular subject at school." It is defined* as "a group of related sciences, including algebra, geometry and calculus, concerned with the study of number, quantity, shape and space, and their interrelationships, by using a specialized* notation". The outlines for some of the terms are vocalised rather more than you would need to do if you were in that line of work and writing them all the time.

* "defined" Always insert the diphthong, and the last vowel in "definite", as these are similar in outline and meaning

* "specialised" Insert the diphthong to differentiate it from "specialist" which has a similar meaning

Mathematics Terms

The most basic operations in mathematics are those for simple calculations, namely add, subtract or take away, multiply or times, and divide. The nouns are addition, subtraction, multiplication and division. The result of an operation on one or more values is called the output value. The abstract term number refers to the idea, and the word numeral or figure refers to the written form. A whole number is called an integer. Our numerals are known as Arabic or Hindu-Arabic. Roman numerals are written with capital letters of the alphabet, and are used on monuments and inscriptions.
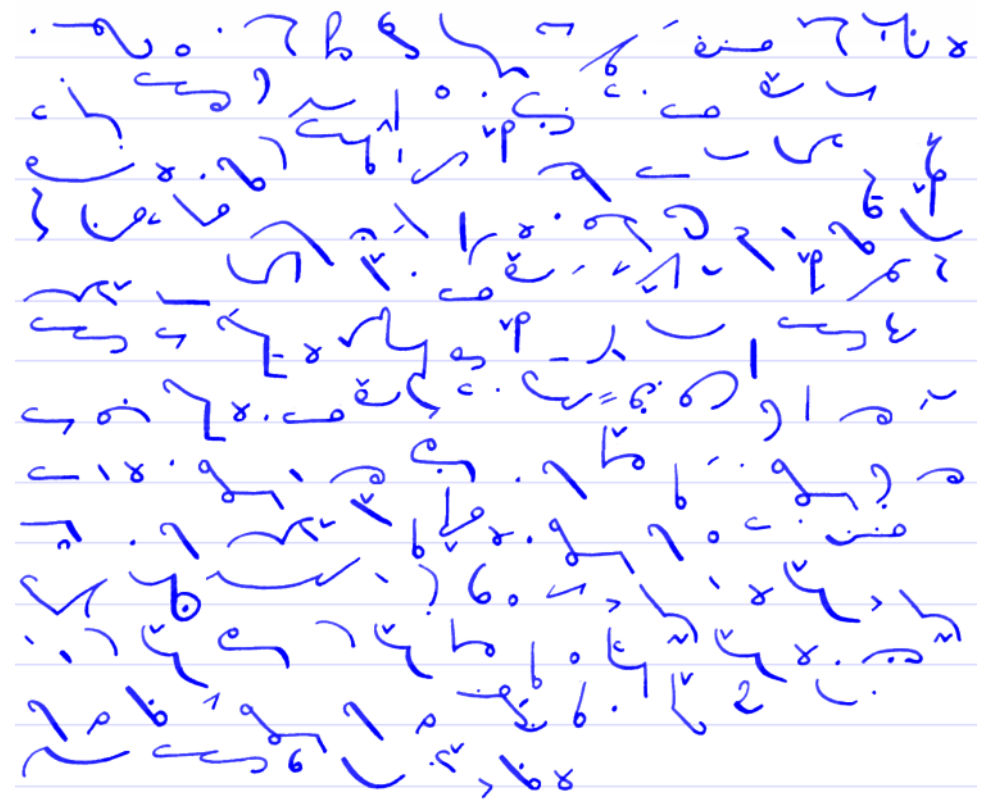
Mathematics Terms

An expression is a mathematical statement that has been formed according to the rules and syntax of mathematical notation. When comparing calculations, they are written out as an equation, with an equals sign in the centre. The numbers or quantities on one side must be equal in value to those* on the other side*, although the various parts may be made up differently. A simple version would be two numbers being multiplied together, followed by an equals sign, and on the right hand side the result of that calculation, called the product. Alternatively, the second side could show another different calculation that would equal the same product. The equals sign with a forward slanting slash through it means "not equal to". A superscript 2 means squared, the number times itself, and a superscript 3 means cubed, the number multiplied by itself twice. The superscript number is called an index, plural indices*, and another way of saying this is* "to the power of". Five to the power of two, or five squared, or five times itself, is twenty-five. The main number is the base and the superscript number is the exponent, which is a type of shorthand for a longer calculation that is being applied to the base.

* Omission phrase "mus(t) be"

* "to those" Always insert the vowel in "these" and "those" when they are out of position in a phrase

* Omission phrase "on the oth(er) side"

* "indices" In common usage, the plural is more likely to be seen as "indexes"

* "this is" Not phrased because of the pause between

Mathematics Terms

A hyphen before a number means the number is negative. Normal numbers, except zero, are assumed to be positive, but a plus sign may be written in front of them. An estimate is an approximation based on limited information. I have estimated that we will need six tons of cement, but my estimation is subject to revision. An estimate generates an answer to a question* that is useful for practical purposes but not necessarily accurate or precise. The zero is necessary because our number notation relies on the position of numbers from right to left. Zero is also called nought or Oh. When reading out loud a reference containing both numbers and letters, it is best to use the word zero for the number and "Capital O" for the alphabetic letter. In handwriting, you can distinguish the zero by writing a slanting slash through it. The other spelling "naught" is not a mathematical term but an archaic word meaning "nothing".

* "question" Not using the optional contraction Kw+Hook N in first position, as in this context that might be misread as "equation"
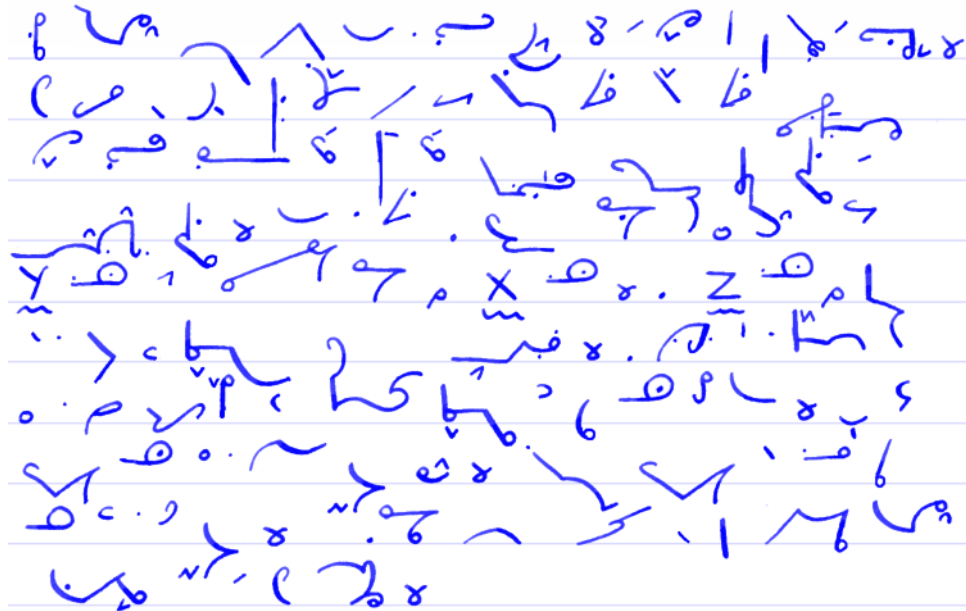

Mathematics Terms

In mathematics, brackets are used to determine the order in which operations are carried out. Expand means to multiply out the brackets in an expression. Square brackets have right-angled ends and the parenthesis is a smooth curve (plural parentheses with a long last vowel). The curly parenthesis with a little point in the middle is a brace. When these are nested in an expression, parentheses appear in the centre, then square brackets, then braces. Outside of mathematics, the names and usages for these and many others vary widely.
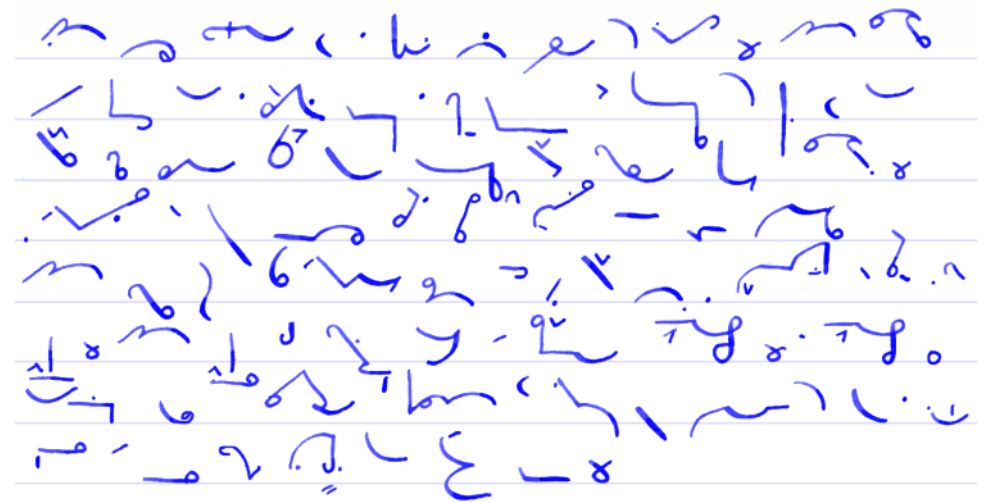
Mathematics Terms

An even number can be divided by two, and an odd number cannot. An average is a value that best represents a given set of data, and there are three more precise terms for this: the mean, the median and the mode. The mean is a more scientific and precise word for the average. The median is the middle value of the list when it is arranged from smallest to largest. The mode refers to the most common value in a list, in other words the value with the highest frequency, and if no value occurs more frequently than any of the other values, there is no mode.

Mathematics Terms

A prime number is a number that cannot be divided by anything other than the number one and itself. Three, five, seven and eleven are prime numbers. A fraction is a way of writing a division calculation. One divided by two is a half, but as we don't have a written sign for that, it is expressed as two numbers. The top one is the numerator and the bottom one is the denominator, with a short line separating them. The numerator tells us how many pieces we have, and the denominator tells us how many of those pieces are needed to make the whole. We do have a normal word for half, third, quarter, fifth and other simple fractions, but more complicated ones have to be indicated in spoken numbers, such as seven over nine or seven ninths, or thirty-one over sixty seven. The short line for the fraction can be typed on the normal keyboard by using the slash sign.

Mathematics Terms

When dividing a number by another, the answer can be expressed in whole numbers plus a remainder, rather than a fraction. For example, eleven divided by four is two remainder three. Probability is a measurement of how likely something is to occur, expressed in numbers or percentages. There is a one in three chance that it will rain. There is a hundred to one chance this horse will win the race. There is a fifty per cent likelihood that it will snow today. Probabilities can be shown in a tree diagram which gives all possible outcomes of an event. The reciprocal of a number is one divided by that number. The reciprocal of four is a quarter i.e. one over four. A number multiplied by its reciprocal always comes to one. Another definition is: what to multiply a value by to get one. Four times a quarter equals one.

Mathematics Terms

Fractions can also be expressed as decimals, which is an alternative notation that breaks down the fraction part into a range of values based on tens. The first number after the decimal point is tenths, the next is hundredths, then thousandths, and so on, adding a zero each time and writing the next number to the right hand side. This is similar to the normal notation of numerals, which increases by a factor of ten for each place and goes leftwards, signifying ever greater quantities. The decimal numbers sit* to the right of the decimal point, travel to the right and the denominators increase by factors of ten, and the quantity they signify gets smaller.

* "sit" Always insert the vowel in "sat, set, sit, stay" as they are similar in meaning

Mathematics Terms

Irrational numbers are those that cannot be adequately expressed by a finite number of decimals or by a fraction. The decimals of these are never-ending, or non-terminating. If there is a repeating pattern in a decimal number, it is called recurring or repeating. One third written in decimals is a recurring number, and is spoken as nought point three recurring. The fact of it recurring is signified by writing a line or a dot over the three, or an ellipsis (three close dots) after the three. Decimals with a longer recurring pattern can be shown with a dot over the first and last digits of the pattern, or the pattern twice followed by an ellipsis.

Mathematics Terms

An equation is solved by progressively simplifying the parts of the equation. All the adding, subtracting, multiplying and dividing is carried out until the simplest numerical answer is obtained. Several numbers added together make one number that is the sum. Subtracting one number from another gives the difference between the two. Doing your sums is an informal phrase that means doing the exercises in a mathematics class in school, making calculations on some work or project, or, even more colloquially, coming to a conclusion or decision based on the information available. The sum of five and six is eleven. The difference between nine and six is three. The product of two times three is six. Twenty is divisible by both four and five. The number being divided is called the dividend. The divisor is the number by which another number is to be divided.

Mathematics Terms

Sets of values may be represented in a graph showing points and lines at different positions and gradients. Other ways to show data concisely are: bar charts, pie charts, histograms, line graphs, scatter plots, dot plots, pictographs, frequency distribution tables and cumulative tables. In a chart, the vertical scale is called the Y-axis and the horizontal scale is the X-axis. The Z-axis* is the depth of an object when describing 3-dimensional coordinates. The legend on a diagram is a list to one side that describes what these axes stand for. Note that the plural axes has a long vowel

sound. Compare the plural of axe which is axes*, with a short vowel. The scales may refer to different ranges, values, variables and other measurements.

* "Z-axis" Whether pronounced Zed or Zee, this does not affect either the shorthand note or the final transcript

* "axes" The short E dot is never shown inside the large circle, as it is the most common, all other vowel signs can be shown inside

Mathematics Terms

Random means occurring without a definite* aim, reason or pattern. Random samples are taken in a survey to get a true picture of the facts or data, without any bias towards certain choices being introduced by the person doing the sampling. The operators of public games of chance such as lotteries go to great lengths to choose random numbers, so that those operating the system cannot cheat by improving the likelihood of a particular outcome. Random outcomes do not preclude unusual and striking coincidences. A coincidence is unconnected events happening at the same time* that appear to be linked or have a common cause, and comes from the Latin for "falling together".

* "definite" Always insert the last vowel, and the diphthong in "defined", as these are similar in outline and meaning

* "at the same time" Halving to represent the T of "time"

Mathematics Terms

Algebra is the branch of mathematics that enables us to create generalised statements or models, using numbers, and letters and symbols to represent variables and unknowns. It lets us describe relationships that can be illustrated by, but not described or resolved by, arithmetical calculations. Algebra first appeared under this name in the sixteenth century, prior to which the only branches of mathematics were arithmetic and geometry. The word comes from the Arabic for "reunion of broken parts" referring to the way it simplifies the mathematical expressions. The subject is divided into elementary algebra, and abstract or modern algebra. A mathematician who studies this is an algebraist and the adjective is algebraic.

Mathematics Terms

An algebraic term may consist of a constant and a variable, for example 3B. The number 3 is the constant as it never changes. The letter B is the symbol that represents a value that is unknown or may change, and it can be thought of as a placeholder. In the term 3B, the number is called the coefficient, and it is written immediately in front of the variable, whereas in arithmetic there would be a multiplication sign in the centre. An algebraic expression shows how the terms are related. "Like terms" are ones that are the same except for the coefficient e.g. 4B 5B 9B. An algebraic fraction contains an algebraic expression within its numerator and/or its denominator.

[shorthand notes]

Mathematics Terms

The number Pi has its own Greek symbol and is an irrational constant (a value that stays the same) and its decimal notation is never-ending, starting with 3.14. It denotes the ratio of a circle's diameter to its circumference and its value is the circumference divided by the diameter. In other words, there are 3.14 diameters in the circumference. It is used to calculate the area and circumference of a circle. As a fraction it is approximately 22 over 7. The

fraction 355 over 113 is a much closer approximation. I can't resist adding in a note on Pi Day USA on March 14th which is 3/14 (similar to the decimal value 3.14), or a possible Pi Day UK on 22 July which is 22/7. I do remember celebrating, for one minute in the lunch break at work, the momentous point in time at 12.34pm on 5 June 1978 which is most of the numerals in sequence: 12.34 5.6.78. However, I don't remember celebrating at 23.45 on 6.7.89.

[shorthand notes]

Mathematics Terms

Finally, I think you ought to have at your fingertips the well-known rhyme for remembering how to write Pi to 20 decimal places, counting the letters in each word and with the comma standing for the decimal point:

Sir,* I bear a rhyme excelling
in mystic force and magic spelling
celestial sprites elucidate
all my own striving can't relate

To an outsider, our shorthand, just like the ineffable indefinable value of Pi, is a mysterious and magical notation,

meaningful only to the initiated and certain special persons, but to you and me it is a simple, clear, logical and easily learned system of representation, available to everyone, which, like mathematics, speeds up our ability to represent words and ideas on paper. (2358 words)

* "Sir," The comma is never used in shorthand as it is too much like an outline, but here it is meaningful to put it in and therefore it needs a wavy line underneath to draw attention to it. Comma-type pauses in speech can be shown if necessary by a larger gap between the outlines.

Geometry Terms

Plane geometry is the science of lines and the shapes that they enclose on a flat surface or plane. A point has position but no dimensions. A line has position and length. A figure or shape has position, dimensions and an area that it encloses. In geometry a figure is a shape and does not refer to a number, as it does in mathematics and also in everyday speech. The word figure is also used to refer to a diagram in a book, for example, "Please see figure 3 on page 5 for an illustration of these forms."
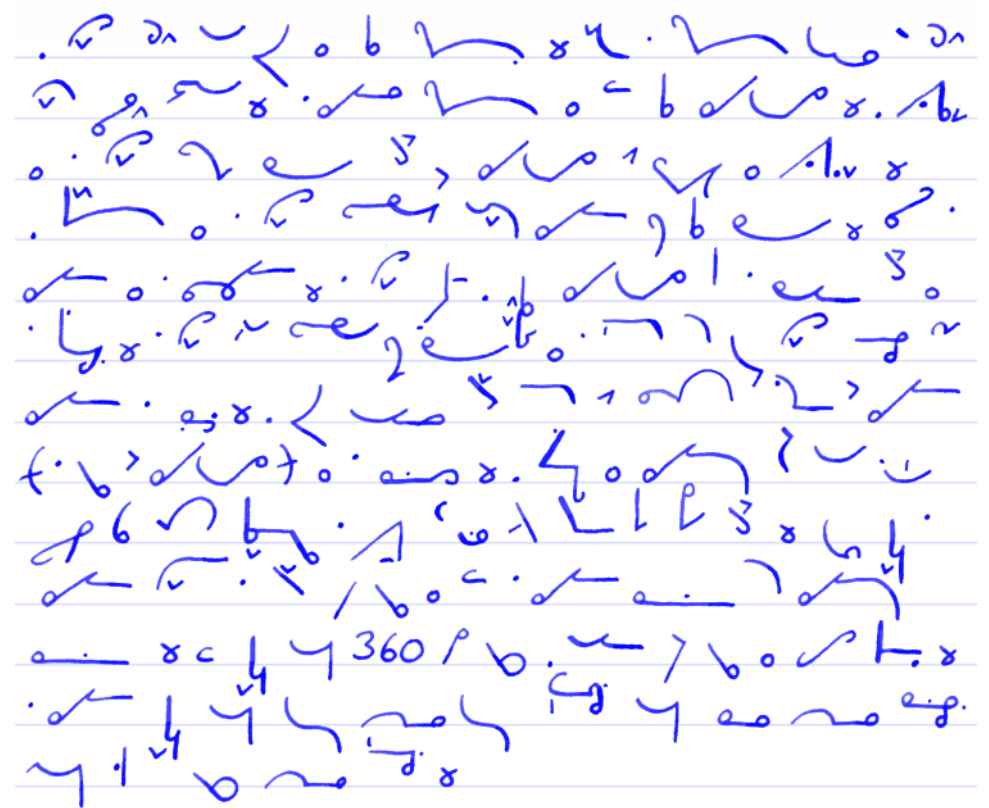
Geometry Terms

The line around any shape is its perimeter. I have a perimeter fence all around my house and garden. A circle's perimeter is called its circumference. The radius is a line from the centre point to the circumference, and the plural is radii. The diameter is a line crossing the entire circle through its centre. Half a circle is a semicircle. A line touching* the outside of the circumference at a single point is a tangent. A line not crossing through the centre is a chord or, if the line extends beyond the circle, a secant. The shape enclosed by the chord and the smaller arc* of the circle (a piece of the circumference) is a segment. The adjective is circular, although in common usage this also describes a route that ends up back at the start point. If you divide a circle like a pie, each piece is called a circle sector or circular sector. When divided into 360 such pieces, the angle of each piece is one degree. A circle divided into four makes four quadrants, into six makes sextants, and into eight pieces makes octants.

* "touching" Helpful to insert the vowel, as it is similar to "attaching"

* "arc" Helpful to insert the vowel in this context, as it could look like "irregular"

(shorthand outlines, approximately 9 lines)
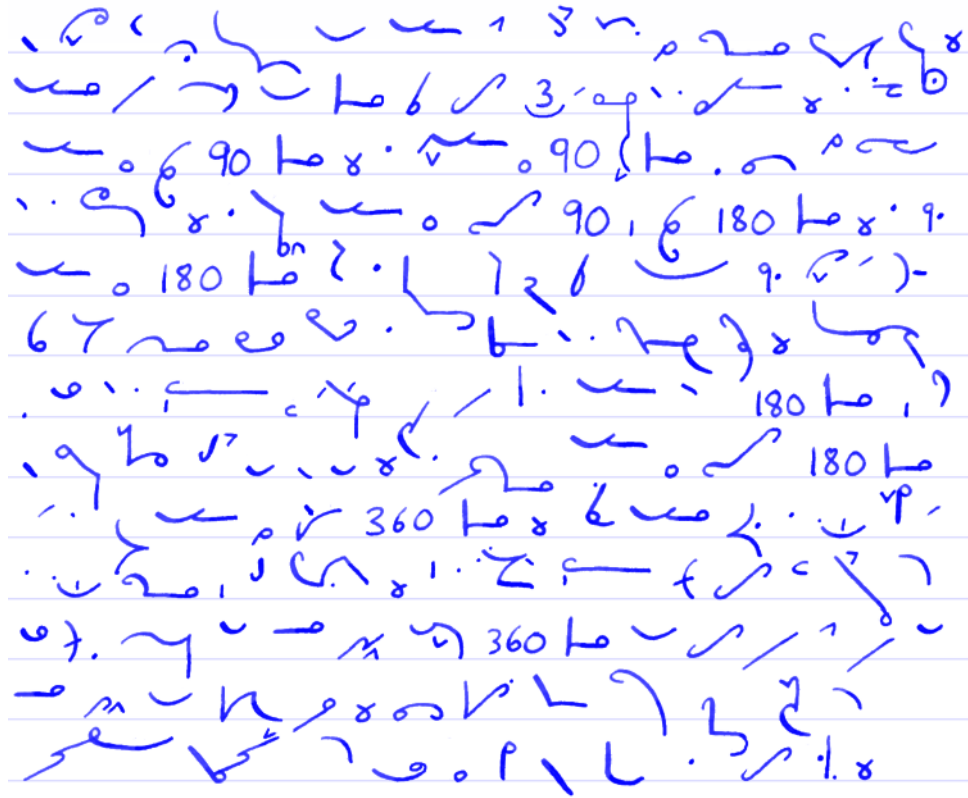
Geometry Terms

Two lines that meet form an angle and the point of meeting is the vertex, plural vertices. Angles are measured in degrees, which is one 360th of a circle. An acute angle is less than* 90 degrees. A right angle* is 90 degrees, the same as a corner of a square. An obtuse angle is greater than 90 but less than 180 degrees. A straight angle is 180 degrees, although a depiction of it would be just another straight line, and so this only makes sense as part of a description of a progressive process. For example, the hands of a clock when opposite each other are at an angle of 180 degrees but they are two separate items joined end to end. A reflex angle is greater than 180 degrees, and a full angle is the whole 360 degrees. Adjacent* angles share a common side and a common vertex but do not overlap. On an analogue clock

(one with pointers or hands) the minute hand goes round the entire 360 degrees in one hour, and the hour hand goes round in 12 hours. Someone turning back from their* direction of travel, or reversing their* behaviour or opinions*, is said to be "doing a one-eighty".

* "less than" Downward L in order to join the phrase

* "right angle" On its own "right" is full Ray+T

* "adjacent" Avoid being misled by the D in the spelling, as there is no D sound in the word

* "from their" "reversing their" Doubling for "their"

(shorthand outlines, approximately 8 lines)
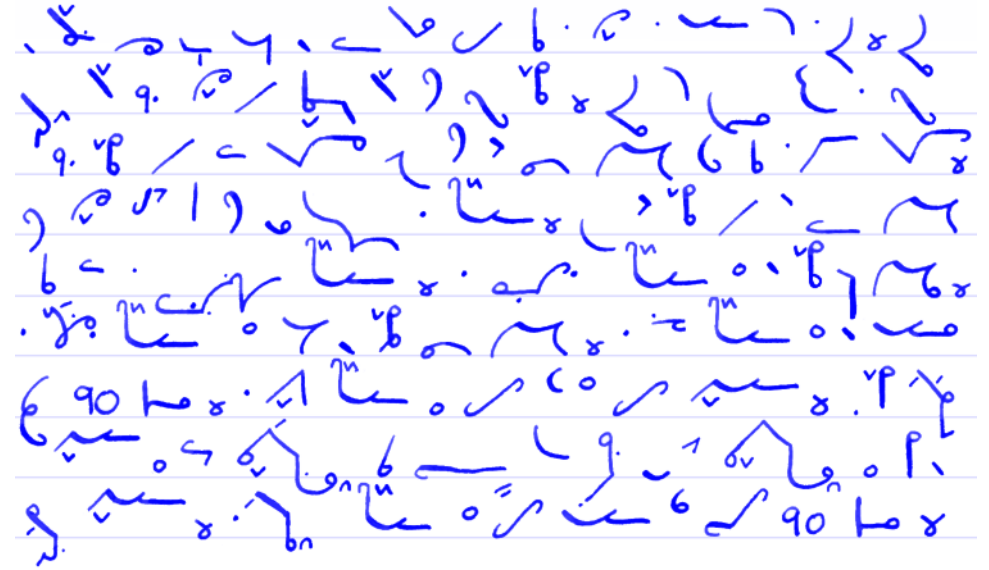
Geometry Terms

To bisect means to cut into two equal parts, whether it is a line, an angle or a shape. Shapes bounded by straight lines are described by their number of sides. Shapes or figures that have a number of straight sides are called polygons and if they are all the same length, then it is a regular polygon. Three lines joined at their ends form a triangle. If all the sides are of equal length it is called an equilateral triangle. A scalene triangle has all sides of different lengths. An isosceles triangle has only two sides the same length. An acute triangle has all angles less than 90 degrees. A right triangle is one that has one right angle. The side opposite the right angle is called the hypotenuse which is Greek for "stretching under" and the hypotenuse is said to subtend the right angle. An obtuse triangle has one angle that is greater than 90 degrees.

Geometry Terms

A shape that has four sides is a quadrilateral or quadrangle, and this latter term is also used to describe a large area or courtyard between buildings. A square is a regular quadrilateral. A pentagon has five sides and a hexagon has six sides. A heptagon has seven sides, an octagon eight, a nonagon nine and a decagon ten. Triangles, squares and hexagons are the only regular shapes that can be tessellated on a flat plane, that is, fitted together like tiles with no spaces between and only using one shape for the tiles. Such tiles would be triangular, square or hexagonal. The cells in a honeycomb are hexagonal. Regular pentagons can be tessellated on a spherical surface, as often seen on black and white footballs.
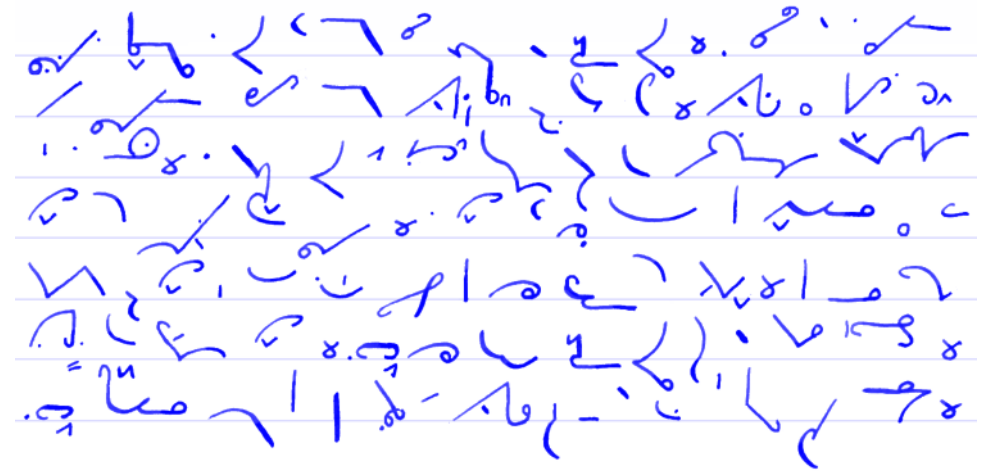
Geometry Terms

Symmetry describes a shape that can be halved to produce two identical shapes. The halves of a circle are symmetrical*, as one can be rotated to fit over the other. Rotation is turning around on an axis. A butterfly shape and the human* form both have reflectional, bilateral, line or mirror symmetry. A line that meets another at right angles is called perpendicular to that line, but in common usage it means vertical or upright*. It comes from the Latin for "plumb line". Congruent means having identical shapes so that all parts correspond. Congruent triangles may be at different positions and rotations, but they could all fit on top of each other exactly.

* "symmetrical" Needs care to write accurately, as in this context it could be misread as "semicircle" if untidily written

* "human" Special outline in first position following the second vowel, to differentiate from "humane", similarly "woman" and "women"

* "upright" On its own "right" is full Ray+T
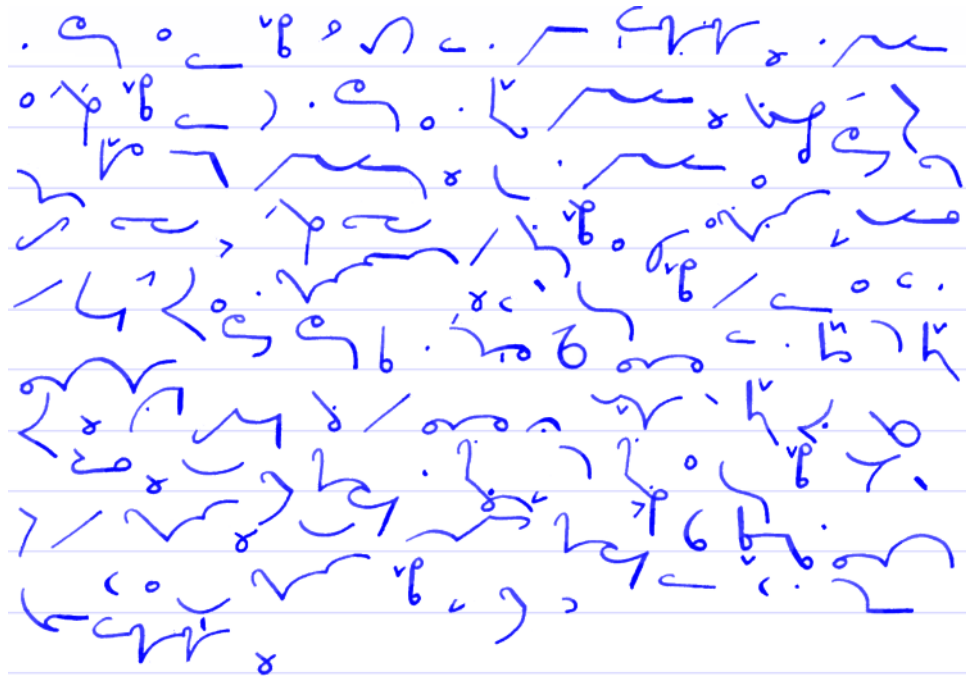
Geometry Terms

A square has equal sides and is also called a regular quadrilateral. A rectangle has opposite sides equal, so a square is a type of rectangle. Paving stones and bathroom tiles can be rectangular. If a rectangle is squashed from one corner to the opposite corner, each pair of sides is still parallel but the angles are changed and the shape is a parallelogram*. When all four sides are equal, as with a similarly squashed square, it is a rhombus, and this is sometimes called a diamond or diaper shape. Leaded window panes are sometimes made entirely of diaper shaped pieces of glass. In British terminology, a trapezium or trapezoid has four sides, only two of which are parallel. In American terminology, this describes a similar figure that has no parallel sides, but the British would call that an irregular quadrilateral.

* "parallelogram" This is likely to invade the outlines on the line above, and if so just drop down to the same position on the line below and continue from there, or write the outline in two parts
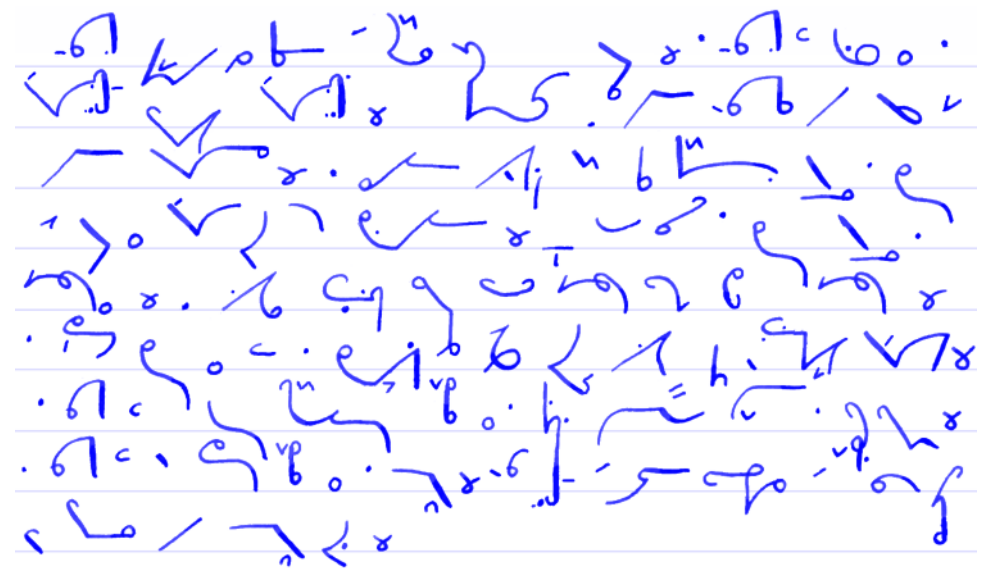
Geometry Terms

Solid geometry is the description and science of three-dimensional objects. A solid with faces is a polyhedron, plural polyhedra. The regular solids are based on the regular polygons. A circle rotated about its diameter becomes a sphere and the object is ball shaped or spherical. Cut in half a sphere becomes a hemisphere. The Earth's equator separates the northern hemisphere from the southern hemisphere. A squashed sphere is called a spheroid, and this is the shape of the Earth, due to equatorial bulge. A solid with four triangular sides is a tetrahedron, looking like a three-sided pyramid. A solid with all square sides is a cube. Salt and sugar crystals, and some children's building blocks, are cube shaped.
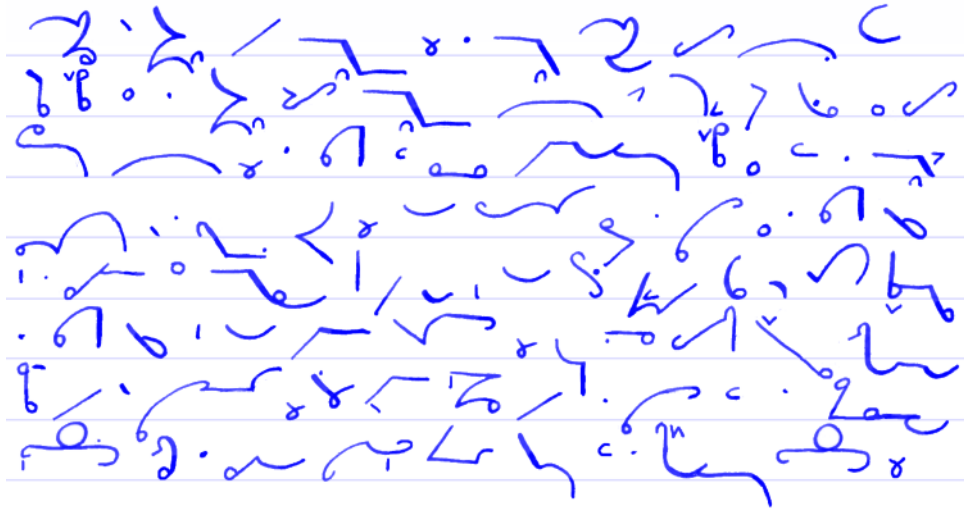
Geometry Terms

Measurements of volume are cubic. A cube measuring one metre along all its sides has a volume of one cubic metre, and the area of each face is one square metre. A solid with six rectangular sides is called a cuboid*, similar to a brick shape. In normal speech a cylinder is a solid based on a circle, as can be seen at each end, but in plane geometry this word also describes a solid based on any regular polygon. Food cans*, water pipes and drinking straws are all cylindrical*. Basalt rock columns are a cylinder with a hexagonal cross-section* and there is a certain well-known chocolate bar with a triangular cross-section.

* "cuboid" Insert the diphthong, so it is not misread as "cube"

* "food cans" The noun "can" does not use the short form

* "cylindrical" Doubling would not normally be used where there is no vowel (or a different vowel)between the D and R sounds, but it is kept where it produces a fast, easy and readable outline, similarly "central" "concentric" "natural" "picture" and others

* "cross-section" The large circle is used to signify both S's, even though they are barely pronounced separately

Geometry Terms

A solid with a circle at its base and rising to a single point or apex is called a cone. In strict geometry terms, a cone can have any regular polygon at its base. Examples of conical shapes are road traffic markers, wafers to hold ice cream and mountains of volcanic ash. You can make a cone by cutting a section out of a circle, and bending and joining one of the pieces to itself along its straight cut edges. A horizontal cut through a circular cone, i.e. parallel to the base, produces a circle. A slanting cut through the cone produces an ellipse, which can be thought of as a squashed circle. A cut whose plane is parallel to the side of the cone produces a curve called a parabola. A cut whose plane is parallel to the vertical axis produces a curve called a hyperbola. A pyramid has a polygon at its base and triangular sides rising to an apex. The pyramids of Egypt are square pyramids. If two square pyramid shapes are joined base to base, the resulting solid is an octahedron.
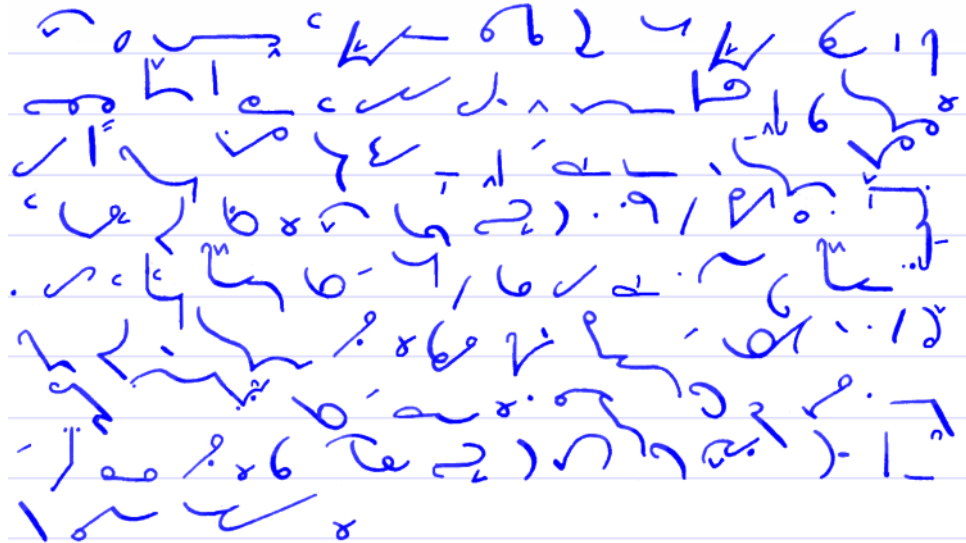
Geometry Terms

My first encounter with geometrical solids was not in the geometry lesson, but during Christmas time at school when we were shown how to make decorations out of these forms. We had printed patterns for them that we cut out and stuck together to form balls with various shaped faces. My favourite* creation was a star, which started as an icosahedron, the one with twenty triangular faces, and onto each face we stuck a long thin triangle pyramid shape, to form the rays. This was truly* spectacular and necessarily* of a large size in order to be able to* manipulate the pieces and sticking. A simpler version would be to use a cube and attach six rays. This magnificent creation was also very lightweight, so it could be hung anywhere.

* "favourite" Note that "favoured" used the left Vr, in order to differentiate

* "truly" Always insert the vowel, as it is similar to "utterly" which would also make sense in most contexts

* "necessarily" Downard L to keep the outline compact, similarly "sincerely"

* Omission phrase "in ord(er to) be able to". As the "to" is part of the first stroke, this phrase does not use the third place phraseogram "to be"
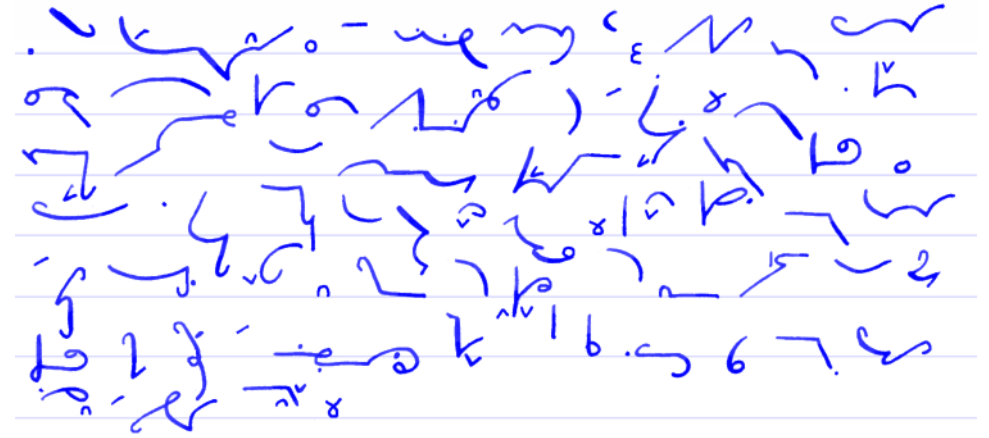
Geometry Terms

The above vocabulary is quite intensive, and I am sure that when you return to your normal simple matter, it will seem ridiculously easy and congenial. Maybe a time of creative relaxation in making the geometric paper decorations is in order, a change of activity for both the mind and fingers. It might* at least keep family and children entertained while you practise your outlines, or you can record in shorthand the discussions during the process and exclamations of delight at its conclusion, thus keeping everyone amused* and usefully occupied. (1664 words)

* "might" Avoid phrasing "might" "could" "note" to differentiate them from "may, can, know"

* "amused, amazed" Always insert the second vowel to differentiate
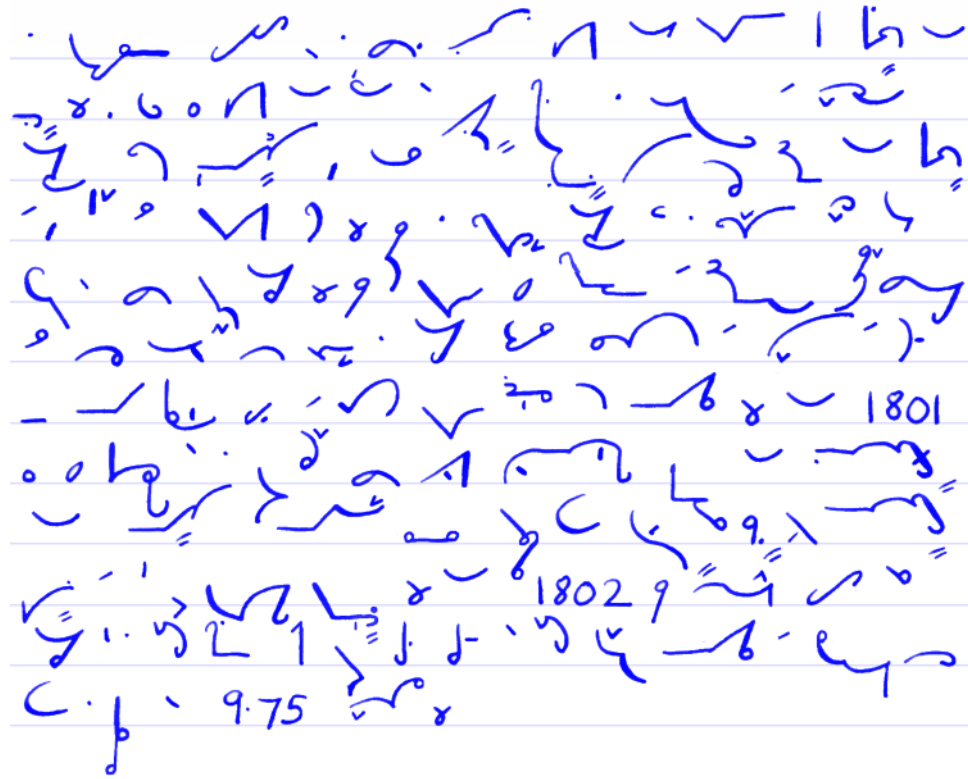
Steam Day

A few weeks ago* we went to a Steam Rally held in the park at Dartford in Kent. The event is held in honour of Richard* Trevithick, an inventor and mining engineer from Cornwall, who in his later years worked in Dartford, and who died and is buried there. He was a brilliant engineer, with a fertile* mind for the development* of steam powered engines. He built the first practical and working high-pressure* steam engine*, and his improvements enabled him to create an engine that was smaller and lighter, and so could carry its own weight and also pull wagons or carriages. In 1801 his first demonstration* of a full size steam road locomotive took place in Camborne in Cornwall, carrying six passengers along Fore Street, up Camborne Hill and on to the village of Beacon. In 1802 he mounted one of his engines on an iron track and it pulled 10 tons of iron, 5 carriages and 70 men along a distance of 9.75 miles.

* Omission phrases "few wee(k)s ago" "high-(pre)ssure" Similarly "blood (pre)ssure" and "low (pre)ssure"

* "Richard" Written thus to help distinguish it from "Roger" which has J with R Hook

* "fertile" Note that "virile" is written with V+R+L strokes, to distinguish

* "development" Optional contraction

* "steam engine" In a compound outline, the whole is placed in position, therefore it is the J stroke that is through the line

* "demonstration" Omits the R
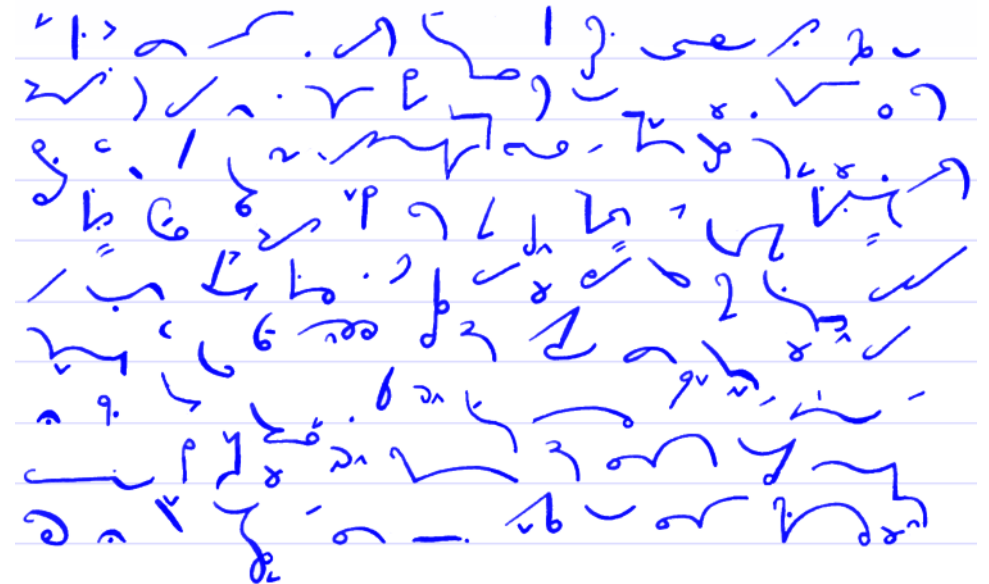
Steam Day

On the day of the Steam Rally, the weather forecast had threatened increasing rain towards the end of the morning, so we made an early start to get there in good time. The park is very spacious with two large fields beyond the ornamental gardens and bandstand* area. The river Darent flows to one side, from which the town of Dartford and the village of Darenth are named, joining the Thames a short distance away. As we passed through the fairground we were reminded that even those amusements* were originally steam powered. We made straight for the vehicles, the largest around 4 metres high and humming and clicking as it idled. Around the perimeter were smaller engines, miniature versions made by enthusiasts and some giving rides in small trailers.

* "bandstand" Alternative outline that omits the first N. In full it would be a disjoined outline.

* "amusements" Always insert the second vowel in "amaze" and "amuse" and all their derivatives

Steam Day

The second field was full of classic cars, row after row of gleaming and perfectly spotless vehicles, many with their bonnets (hoods) open revealing an equally spotless engine. Each particular make of vehicle seemed to have its own enthusiasts club, and no doubt they have many more outings throughout the year where they can share their enthusiasm with others around the country. I am not into classic cars but I do like to see things that have been restored and are well looked after and appreciated.

Steam Day

Further along were stationary* engines, some just running and others doing various tasks such as pumping water, filling and emptying containers and running a flour* grinding mill. This part of the display was rather smoky with occasional oily* smells as well, as* there were* so many of them in the long row under the trees and behind a rope fence for safety. The last engine in the row was endlessly pumping water, sucking it up from the big bucket and sending it cascading over a chute and back down again. In the centre of the field were more steam engines and some old vehicles and buses. We climbed to the upper deck of the open-topped omnibus* , which was more like just standing on the roof, with sides enclosing and seats bolted on top, rather than a purpose built upper level like our modern buses. Omnibus is the Latin word for "to all" i.e. to all places, from which we get the abbreviation "bus".

* "stationary" The Shun hook written on this side in order to join the R. "Station" on its own has the hook on the other side, as per normal rules. "Station<u>ER</u>y" refers to paper goods.
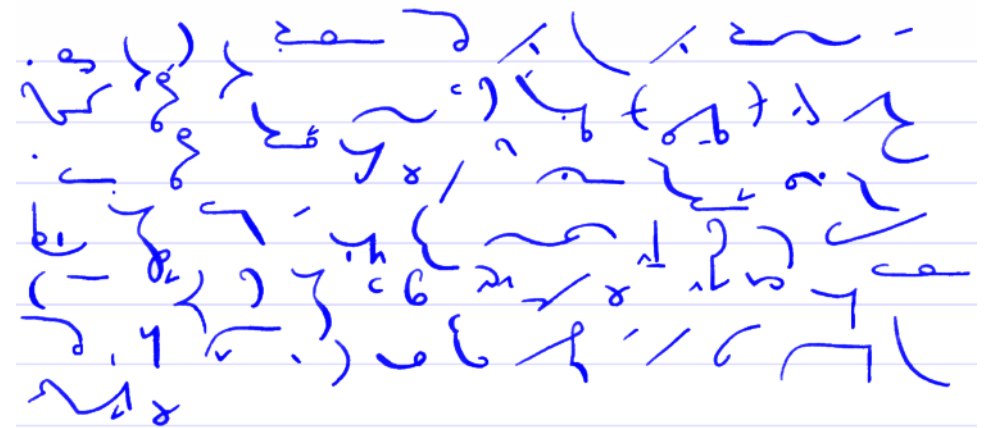
* "flour" This outline has a diphthong, compare with "flower" which has a triphone to signify the two syllables

* "oily" Insert the last vowel, as "oil smells" would also make sense

* "as well, as" Not using the full phrase, as there is a pause after the comma
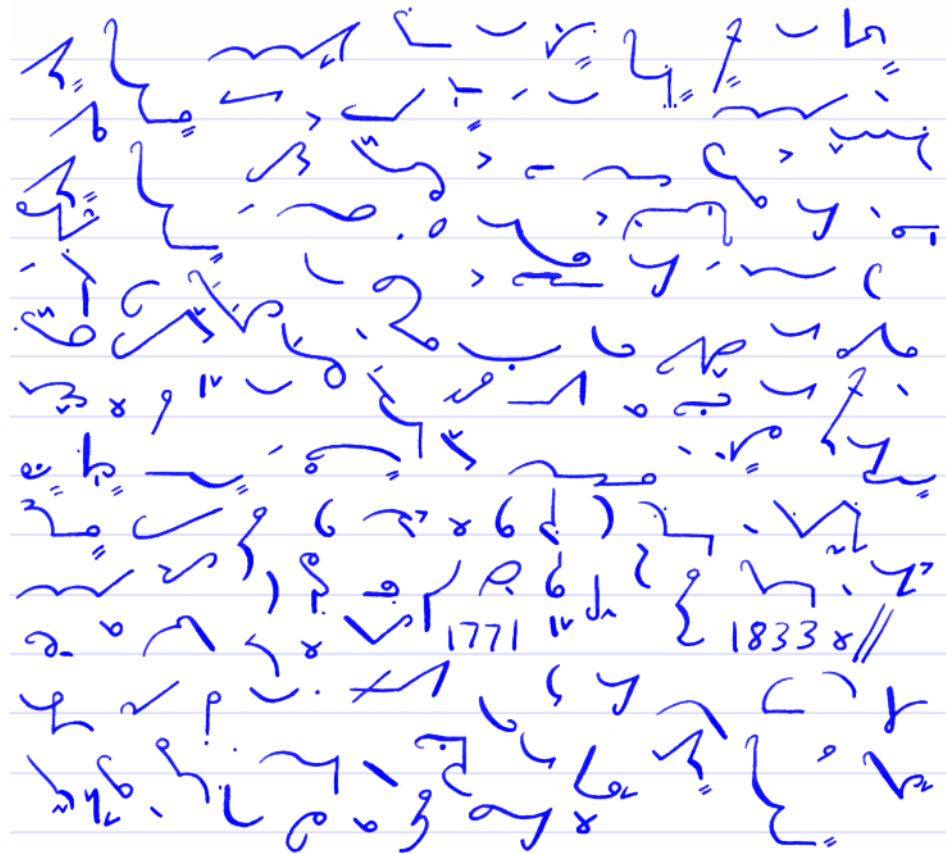
* Omission phrase "there (w)ere"

* "omnibus" Helpful to insert the first vowel, as this is similar in outline and meaning to "minibus"

Steam Day

I thought the first steam engine we saw was a giant until we came to the agricultural* tractors* . First in line was an enormous modern tractor with wheels taller than me. I did wonder what sort of work it was designed to do, as that did seem rather over the top for pulling hay carts. Maybe I should have asked the driver who was sitting in the cab, but even if I had thought to do so, he was too far up in the air to hold a conversation with. Later on all the tractors were started up and went on a circuit of the area. In the long marquee were displays of old photographs of all the machinery* and farm horses in action, showing everything from ploughing to harvesting and every type of farm work

and village life in the Dartford and north Kent area. Behind the tent classic motorbikes were gathered, more rows of shiny paintwork, polished chrome and multiple headlamps and mirrors. Although the owners were all happily surveying the scene, a stationary motorbike is not the ideal, as after the admiration comes the real business of the day, which is motion, noise and speed.

* "agricultural" Optional contraction

* "tractors" Ensure the K is clearly doubled, so it does not look like "trucks"

* "machinery" Optional contraction

Steam Day

Over in one corner, away from the main crowds, was a large truck* with two heavy horses standing to the rear. These were Alfie and Arthur. They were well groomed with smooth black coats and enjoying being the centre of attention from groups of admiring and excited children. They are used to public life and give demonstrations* of ploughing around the country, but no doubt their life is a little more relaxed and comfortable than that of their forebears. Back at the main display area was a mobile forge making items for sale*. Most of these seemed to be

decorative iron items for the garden, as being the easiest and quickest for a public demonstration and for the visitors to be able to carry them home.

* "truck" Ensure the K is clearly normal length, and it is helpful to insert the vowel, so it does not look like "tractor"

* "demonstrations" Omits the R

* "for sale" Downward L in order to join the phrase

Steam Day

Richard Trevithick's memorial plaque in Holy Trinity Church in Dartford reads: "To the glory of God and in memory of Richard Trevithick, one of the pioneers of the great mechanical developments* of the XIX century and amongst the first inventors of the locomotive engine, of screw and paddle wheel propulsion for steamships, of the agricultural* engine and of many other appliances whereby the forces of nature have been utilised in the service of mankind. He died in poverty and was carried to his grave in the churchyard of Saint Edmund, King and Martyr, by the mechanics of Hall's Engineering Works where he was then employed. This tablet* was erected to perpetuate the memory of one whose splendid gifts shed lustre on this town, although he was not permitted to enjoy the fruits of his labour here. Born 1771 Died 1833." Next time* you are sitting in a railway carriage, even though the engine may be electric or diesel powered, please spare a minute to be grateful for the genius of Richard Trevithick and his brilliant idea of adding wheels to his high-pressure* steam engine. (1056 words)

* "developments" "agricultural" Optional contractions

* "tablet" Always insert the second vowel, as "table" could also make sense. Also always insert the vowel in "tableau" which is similar to these two in outline and meaning.

* Omission phrases "high-(pre)ssure" "ne(k)s(t) time"
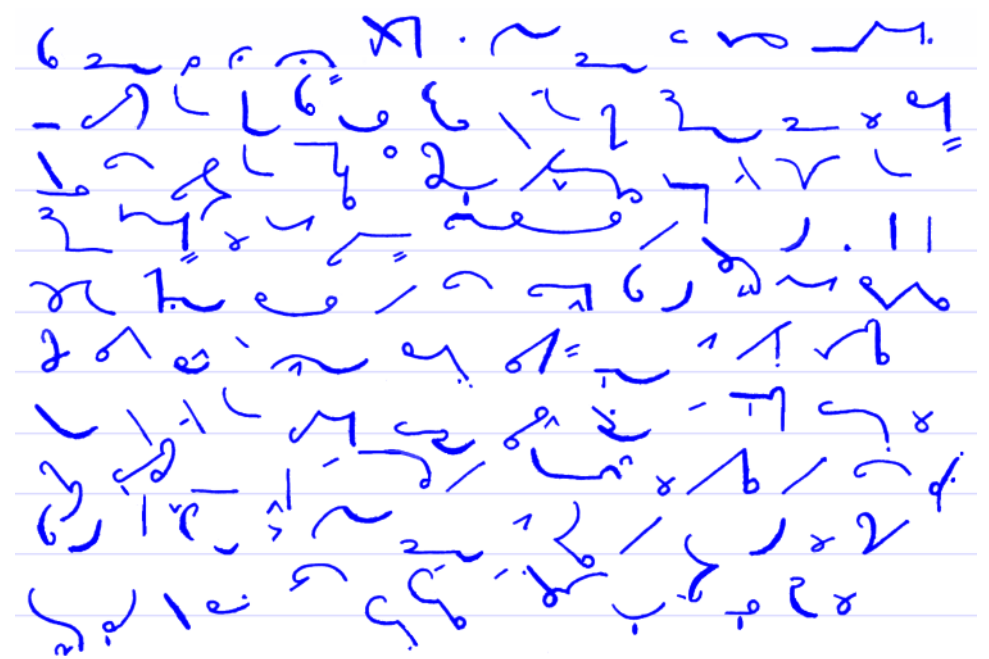
Lazing

This weekend is the late May bank holiday, a long weekend with almost guaranteed good weather for doing those things that have been put off during the working week. Sunday becomes more useful for activities as there is no requirement to get up early for work on Monday. In the UK, garden centres are busier than usual, the do-it-yourself and decorating centres are more crowded than usual and in the suburbs there is the happy sound of mowing, snipping, hedge-cutting, and the rattling of ladders being put up for window cleaning, house painting and gutter clearing. Pressure washers come out, and cars are vacuumed. Roads are more congested than usual at either end of the long weekend, and the shops are fuller than usual. There are fewer shoes to be seen and more flip flops, and absolutely no coats whatever.
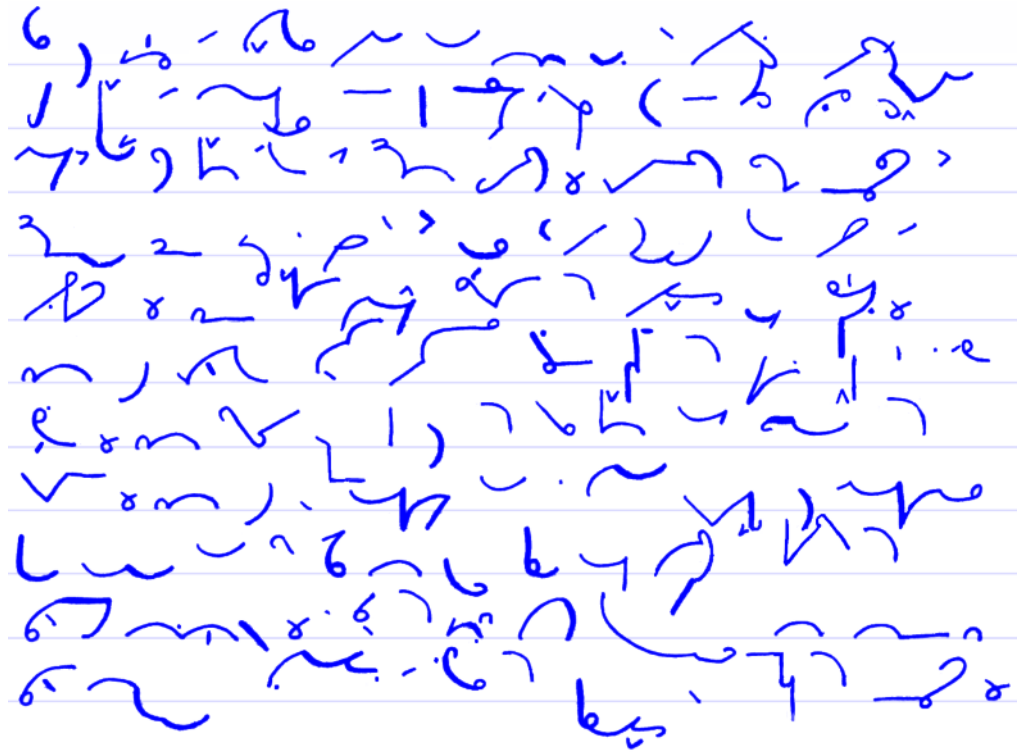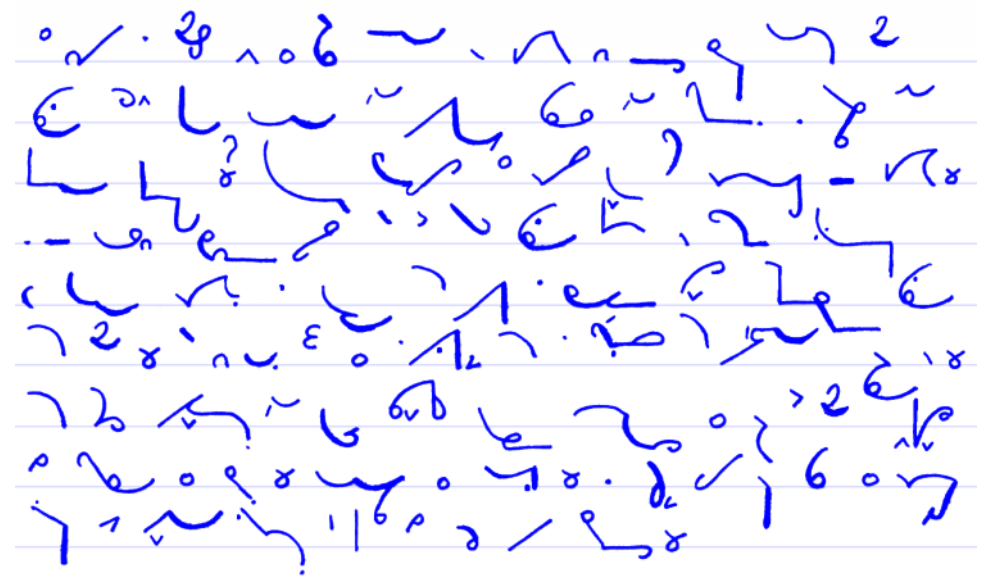
Lazing

Those whose homes and lives are not in immediate need of replenishment, refurbishment*, general tidying and maintenance, can do exactly the opposite, they can laze around and enjoy their time off and the warm weather. To recover from the exertions of the working week, here is a list of all the things that are essential for rest and restoration. You can idle, lounge, sprawl or recline under the sunshade. You may wish to loaf, loll, relax, bask, dawdle or chill out on a soft sofa. You may prefer to take it easy or pass time in the garden or park. You may wish to indulge in a long period of ease and indolence, doing nothing in particular, and this may even descend into lethargy, torpor or sluggish immobility*. A hot or humid lazy afternoon may make you slow-moving, languid, and averse or disinclined to activity or exertion.

* "refurbishment" Using "-nt" for the suffix, as "-ment" cannot join

* "immobility" The M stroke is repeated, as it is not safe to rely only on a vowel sign to distinguish between opposites
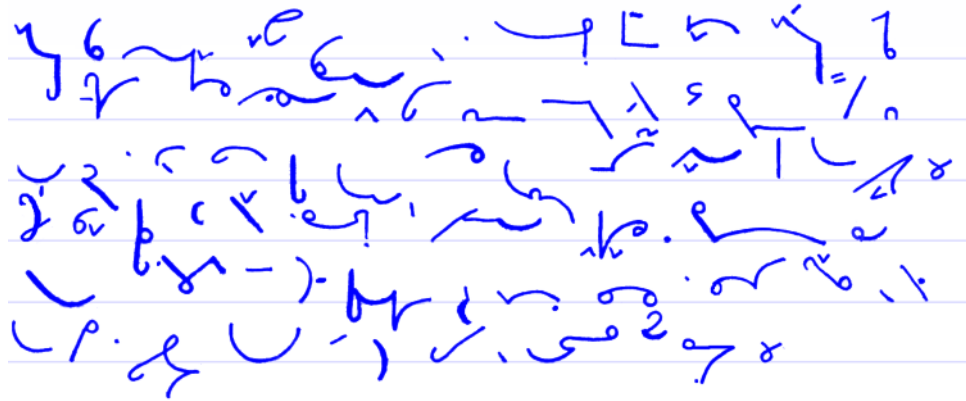
Lazing

As you are a shorthand student*, how is all this going to help you gain speed in your shorthand, lazing around doing nothing, not reading the lessons, not practising the passages and not taking dictation? After all, everyone has to rest if they are to maintain good health. The good news is that you can use all of the above lazing time to very good effect, without having to lift a finger or read a single line of textbook* lesson or shorthand. All you need with you is a radio or a broadcast or recording to listen to. Your assignment, requiring not even the slightest physical movement, is to think of the shorthand outlines as the person is speaking. Nothing else is needed. The easiest way to do this is to imagine the pad and the writing appearing on it as the words are spoken.

* Omission phrases "shorthand s(t)udent" "teks(t)book"

Lazing

I have done this many times whilst listening to an interesting talk on my Ipod*, and it is utterly* amazing* how well you can keep up with the speaker, which you know would be a lot more difficult, if not impossible, if you were actually writing it for real. There is the slight disadvantage that by concentrating on recalling outlines, the subject matter is not being absorbed quite so distinctly*, but that to me* seems a small price to pay for such a useful, efficient and easy way to increase shorthand skill.

* "Ipod" and "Ipad" Always insert the second vowel, to distinguish
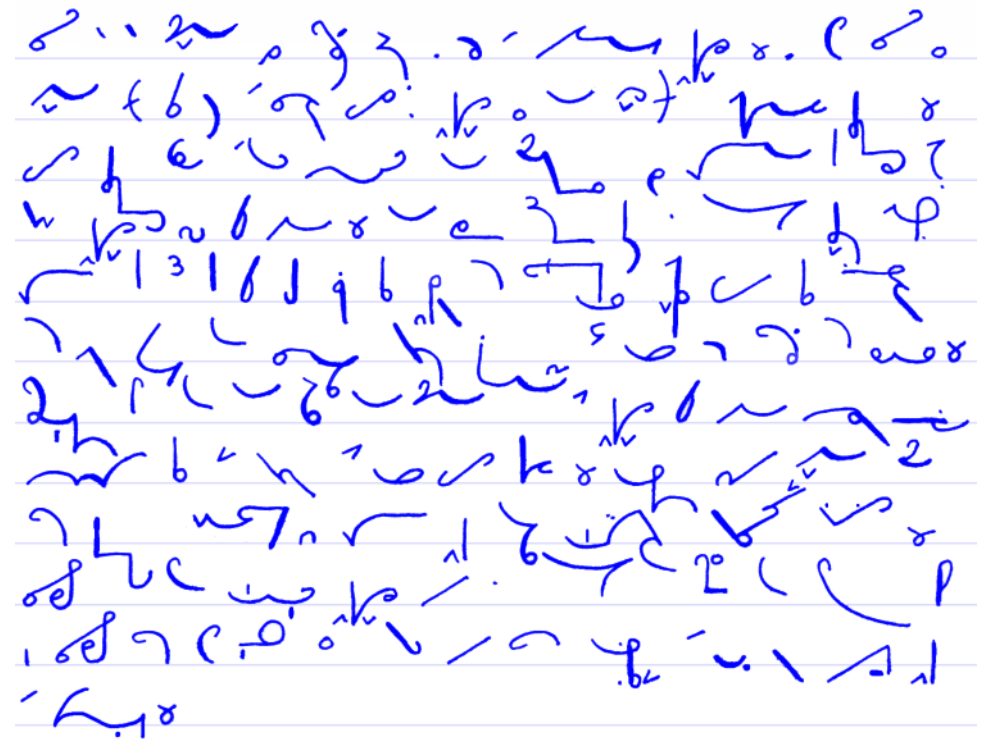
* "utterly" "truly" Always insert the first vowel, to help distinguish

* "amazing" "amusing" Always insert the second vowel, to distinguish

* "distinctly" Omits the lightly sounded K

* "to me" Helpful to insert the vowel when "me" and "him" are phrased

Lazing

Half of all shorthand writing* is the process of hearing the words and recalling the outlines. The other half is writing (which is easy and simple once the outline is in mind) and dealing with distractions. One distraction that is not often mentioned in shorthand books is that of looking at and thinking about the outline you have just written. In school work it was a natural desire, and necessity, to look at what you had just done, consider its suitability or correctness, and decide whether it is acceptable or should be changed for something else, before continuing with the next word, phrase or sentence. There is no time at all for any of this in shorthand writing*, and the outline just written must be* ignored immediately it is on the paper, and the next one dealt with. Next time you are writing shorthand from dictation, I encourage you to look out for this unhelpful behaviour pattern. Hesitations over unknown outlines are a natural target for further study, but hesitations from other causes, as above, are more insidious and need to be rooted out and eliminated.

* Omission phrase "short(hand) writing" "mus(t) be" "ne(k)s(t) time"

Lazing

The dedicated, enthusiastic, passionate, keen and eager shorthand student* will not be happy unless there is a notepad and pencil handy, so that after the visualization effort, any puzzling outline can be noted for later looking up. Obviously, complete idleness is impossible for the true speed aspirant, but I hope the* above suggestion for exercise in outline recall comes reasonably close. The answer to being* asked what you did over the holiday weekend is something like, "I have been working very hard for hours at a time*, lying under the parasol on my sun lounger with my eyes closed, completely silent and immobile*, other than taking the occasional sip of chilled orange juice." (823 words)

* Omission phrases "shorthand s(t)udent" "at (a) time" "I (h)ope the"

* "to being" Based on the short form phrase "to be"

* "immobile" The M stroke is repeated, as it is not safe to rely only on a vowel sign to distinguish between opposites