

June, 2020 Artists Almanac

June, the month of roses, the beginning of sensuous summer, with its gardens, fruits, and flowers. It began this year with Memorial Day, with roses, the queen of the flowers, in their full glory.

My mother was a rose grower, as was her friend down the street, Annette. Both were or had once been high school teachers, my mother of English, Annette of Algebra and Trigonometry. They competed for the prizes, state and local, for the finest roses, and took pride in each's awards.



Roses and Remembrance

Mother made a fragrant potpourri from the petals of her roses which she would scatter into her linens and pillow slips to bring memories of summer to darkest winter days.

The math Annette taught me was useful. As an artillery surveyor during the Korean War, I learned how trig tables enabled two forward observers, separated by a measured distance, to survey their respective angles to an enemy and triangulate. angle/side/angle, to put a round on target

Later as a CPA I found Algebra useful in using a formula with two unknowns, to accrue Tennessee Franchise and Excise Tax and Federal income Tax, each dependent upon the other. Math has its own beauty, seemingly ordained by divine law.

Today, quarantined in their homes by a mysterious virus, mothers are homeschooling their children, as mine did in me in the 4th grade at age 10 when I was quarantined at home with Rheumatic Fever. I learned more that year than any other. All I missed was learning the Roman numerals; what I learned instead was to read, read, read - *everything*. Churchill once wrote "*it is a mistake for a child to read too many good books too soon in life.*" I didn't; I read everything I could lay my hands on - books handed down from Annette's son, Bobby – books so long out of print and so obscure they probably can't be found today: *Poppy Ott, Jerry Todd, and Mark Tidd* were a series of boys' books.

I read *Winnie the Pooh*, by A. A. Milne, *Treasure Island*, *Kidnapped*, and *A Child's Garden of Verses* by Robert Lewis Stevenson. I devoured very book of Tennessee history I could find, including those on Thomas Spencer, Daniel Boone, Andrew Jackson, the brothers Bledsoe, the War Between the States; and mother's magazines of literary criticism from her days as a student at Ward Belmont and the University of Kentucky. I never spent much time on grammar, but learned to sing by ear, so to speak.

Music, literature, math and geometry each have their own symmetry and beauty. It often goes unrecognized how closely math and writing are related, so it is quite natural that I was attracted to the language of Accounting, and later taught it at three universities. I also taught map-reading and surveying while in the army during The Korean War.

Accountants are given to endless argument about how to express financial history and accounting logically in clear language. Those arguments are as lengthy and

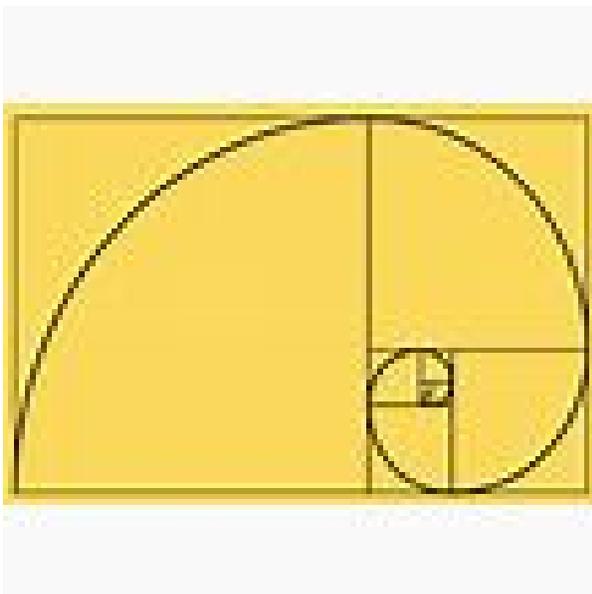


complex as those of philosophers of the Middle Ages arguing principles of art and theology. An Italian religious monk, Fr. Luca Pacioli da Vinci, is recognized as the father of modern double entry accounting. He, like the famous artist, Leonardo, was a native of Vinci, Italy, so it was natural that the two shared an apartment when they came to the big city, Venice to live and work.

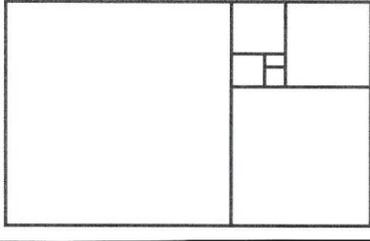
There Pacioli taught Leonardo how to keep a financial diary and use the Golden Section as a principle in artistic composition. The formula is not only intuitive in art but in nature as well, where the interval between branches and stems of plants is both determined and determinative of the formula. They jointly published a book which Pacioli may have influenced Leonardo of to rename *The Divine Proportion*.

What is the golden section mean in math? A division in a line such that the proportion of the whole to the larger area is equal to the proportion of the larger area to the smaller one. This proportion is 1.62.... and goes on forever. It easier to demonstrate in art and architecture than to define.

Its universality in nature was perhaps the inspiration for the religious monk Pacioli renaming it as *Divine*. In mathematics, two quantities are in the golden ratio if their ratio is the same as the ratio of their sum to the larger of the two quantities. The figure below illustrates the geometric relationship.



The same proportions are in spiral ratios are found in snail shells, nautilus shells, the cochlea of the inner ear, spiral galaxies, hurricanes, trees, the human body, and the face.



The same ratios apply to rectangles, which is why the earliest square television screens were aesthetically modified to rectangles. By its very definition, two subjects of equal size are seldom found in art; one must dominate the other.

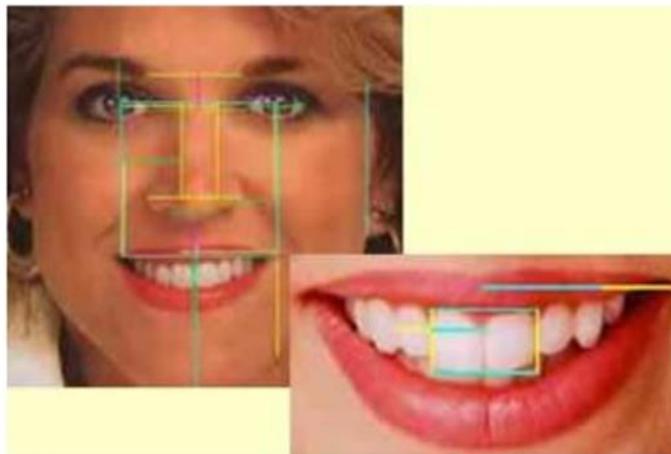
Even the human body and face generally reflect these proportions, as commonly found in art. Human beauty is based on the Divine Proportion. See the photo below which illustrates the following golden ratio proportions in the human face:

The photo below to the right illustrates the divine proportion as standards of beauty.

Even the human hand is cast in the divine proportion.



Golden Ratio in the Human Face



- The division of every long line to the short line equals the golden ratio.
- Length of the face / Width of the face
 Length between the lips and eyebrows / Length of the nose,
 Length of the face / Length between the jaw and eyebrows
 Length of the mouth / Width of the nose,
 Width of the nose / Distance between the holes of the nose,
 Length between the pupils / Length between the eyebrows.
 All contain the golden ratio.

Our hand shows Phi and the Fibonacci Series.

There are many examples of the Divine Proportion found throughout the design of the universe and everything in it, but let's take a look at one of the most important things first: You! We'll need a few Golden Section / Fibonacci building blocks:

Each line is 1.61804... times longer than the one before it. (Conversely, a section drawn at 0.61804 (or 61.8%) of each line equals the length of the one before it.)

Let's start with something simple. Take your hand off your keyboard or mouse and look at the proportions of your index finger.

Each section of your index finger, from the tip to the base of the wrist, is larger than the preceding one by about the Fibonacci ratio of 1.618, also fitting the Fibonacci numbers 2, 3, 5 and 8.

Curiously enough, you also have 2 hands, each with 5 digits, and your 8 fingers are each comprised of 3 sections. All Fibonacci numbers!

The ratio of your forearm to your hand is in the golden ratio, and your hand creates a golden section in relation to your arm, as the ratio of your forearm to your hand is also 1.618, the Divine Proportion. Perhaps Pacioli named it as "*Divine*" because there is no other way to explain its origin, except a mystery, created by God.

Without it the glory of the ceiling of the Sistine Chapel, which has inspired millions in Rome might lack the artistic and divine power it manifests.

Michelangelo painted the Sistine Chapel between 1508 and 1512. The book "The Divine Proportion" (De Divina Proportione), written by Luca Pacioli and illustrated by Leonardo da Vinci, was composed between 1496 and 1498, and first printed in 1509. Knowledge of the golden ratio clearly existed before Pacioli began to write the book. There's evidence of this in the earlier paintings of Leonardo, Botticelli, Raphael and other Renaissance painters. Leonardo da Vinci used this Divine proportion in a number of his paintings, including The Annunciation in about 1473, The Last Supper in 1495 and Salvator Mundi around 1500.

Then came the redbud and dogwood, followed by the sturdy irises, and now, in May, come peonies, azaleas and the first roses, smothering Stonehearth in their fragrant exuberance ... promising better times ahead.

