Pyramids of Squaring Pi.

The powers of Pi

Drawings *Dibujos* $\pi^n = \square$

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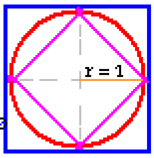
The Squaring Pi (proposed here as the right Pi number) consists of two parallel functions (exponential) of the inscribed and circumscribed squares to the circumference.

Total interrelation: geometric and mathematical

Formula of Interrelation
- *Decimal System* 10
- *Circums. square* 8
- π



Cuadrado circunscrito

$$\frac{10}{8} = \left(\frac{10}{\pi^2}\right)^{17}$$

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$$\pi = \sqrt{\frac{10}{\sqrt[17]{1,25}}} = 3,14159144414199$$

Squaring Pi = 3,14159144414199265218248841255 3.....

The pyramids of squaring Pi are numeric tables developed in pyramid or triangle form, which show us as successive powers of Pi go approaching to successive decimal powers of the inscribed and circumscribed squares to the circumference, to end up coinciding at certain level. With the values of these levels of coincidence we can obtain the squaring Pi by means of root of these values.

Below is showed two pyramids that relate the squaring Pi with the perimeters of the inscribed and circumscribed squares to the circumference.

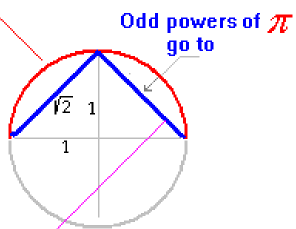
Firstly the relative to the inscribed square, where we observe that the Pi powers go approaching to the decimal product of the inscribed semi-square to the circumference, till get to (Pi^17) and (2 x Sqrt2 x 10^8) where is produced the coincidence of values.
Being this way in this level-point Pi^17 = 2 x Sqrt2 x 10^8

Pyramid of Squaring π *On the inscribed square* *ferman*

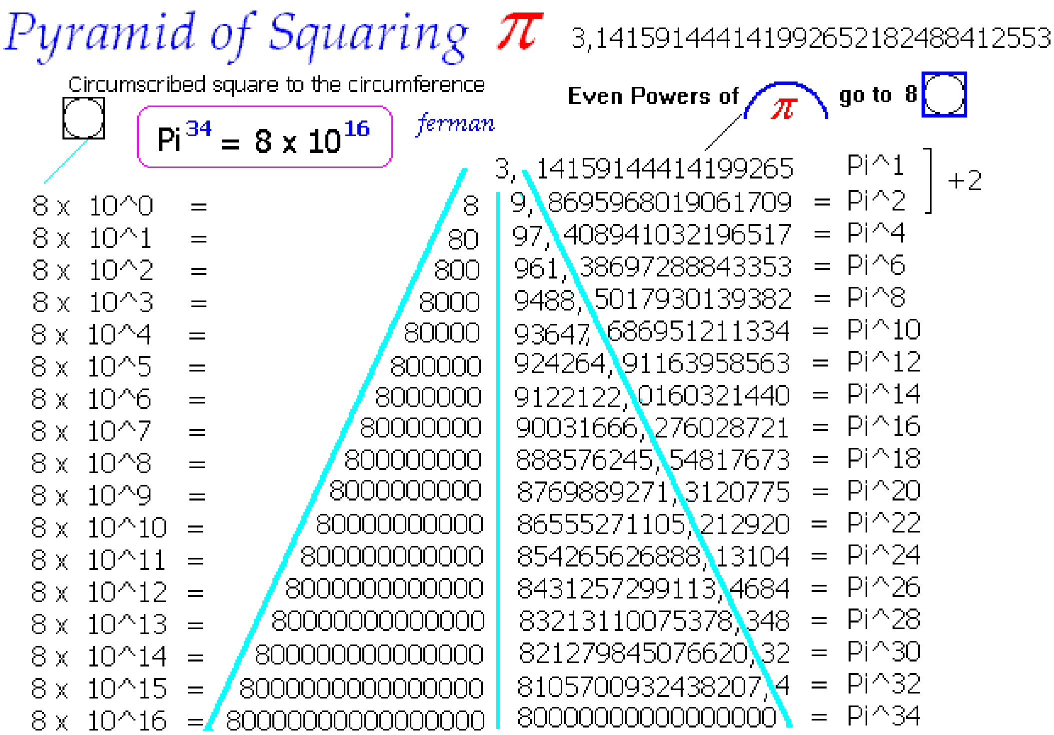
Pi^17 = $2\sqrt{2}$ x 10^8

π = 3,14159144414199265218248841 2553

Pi^ 1 =	3,14159144414199265218248 84	
Pi^ 3 =	31,00624086999959973686302 3	
Pi^ 5 =	306,01909572968046082073010 5	
Pi^ 7 =	3020,28508853587264802485046	
Pi^ 9 =	29808,99605065854503370897695	
Pi^11 =	294202,77208961325593303630 48	
Pi^13 =	2903662,73852757707815848587 0	
Pi^15 =	28657980,47798588896954393132 0	
Pi^17 =	282842712,47461900976033774484	= $2\sqrt{2}$ x 10^8



In this second pyramid, it is shown the power Pi^34 in relation with the perimeter of the circumscribed square to the circumference (8) by the decimal powers 10^16.



As we see, the odd powers of squaring Pi drive us to the inscribed square to the circumference, and the even powers drive us to the circumscribed square.

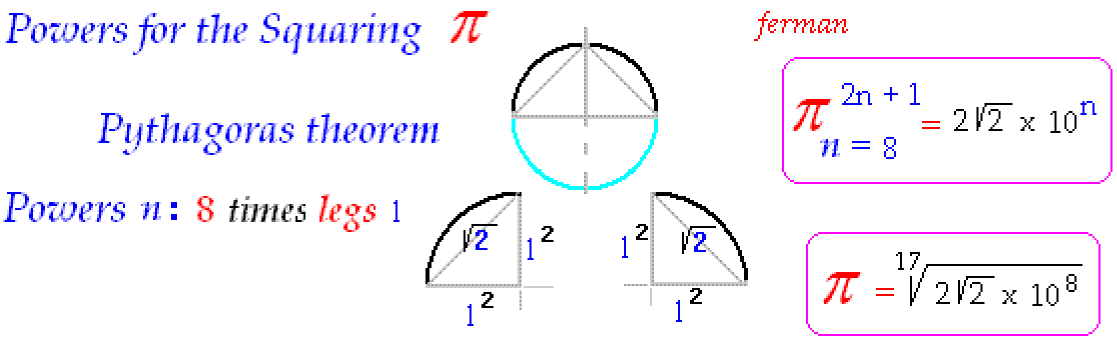
Here we observe as the Pi powers are approximately the double that the decimal powers (x10^n) applied to the perimeters of the squares, and it is due to get any decimal value applied to the sides perimeter is necessary the square of the number Pi (Pi^2 = 9.8696....)

We also observe that the powers of Pi in relation with the squares perimeters are the order of 2n+1 and 2n+2 due to for starting the pyramids of powers we need of +1 or +2 the powers of Pi to get the first term in the powers of the squares' perimeters.

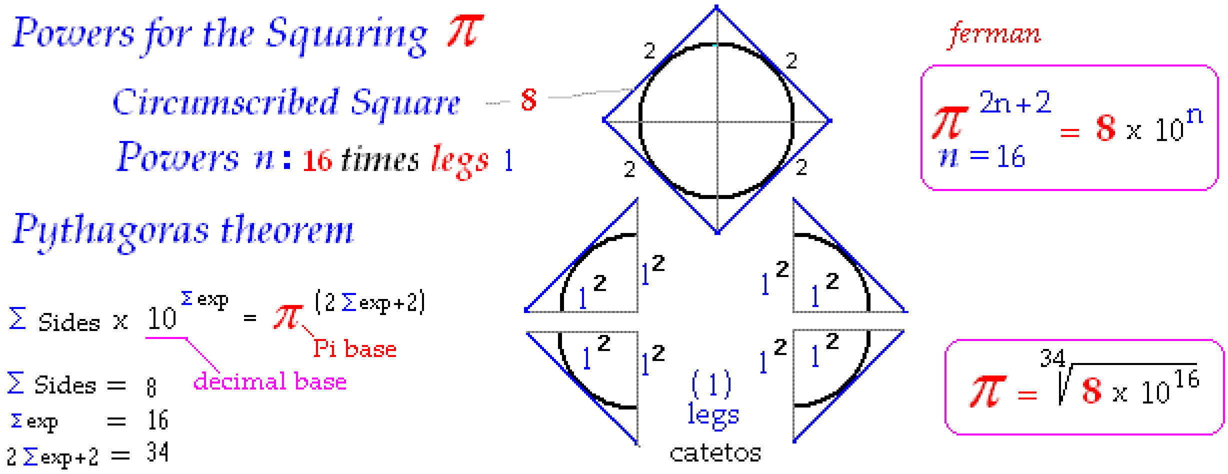
Reasoning the number n of powers

The number of decimal powers n (10^n) that multiply the sides of the inscribed and circumscribe squares to the circumference is the number of powers applied to the triangles legs that form these sides when they are obtained by the Pythagoras theorem.

It seems to be that the coincidence numbers in powers (n=8 and n=16) for the perimeters of the inscribed and circumscribe square to the circumference are produced to this level due to these n-numbers are the numbers of times that we must to multiply the sides (legs) of the triangles to build the perimeters of the squares, as for the Pythagoras theorem.
Say, to form a side of the inscribed square (hypotenuse) it is necessary to elevate any leg to the square, what gives us as result 4 powers of legs for any square-side and 8 powers to the both square-side inscribed to the semi-circumference (Pi)



* For the pyramid of the circumscribed square the result will be double because of here it is not a semi-square, but a complete square.

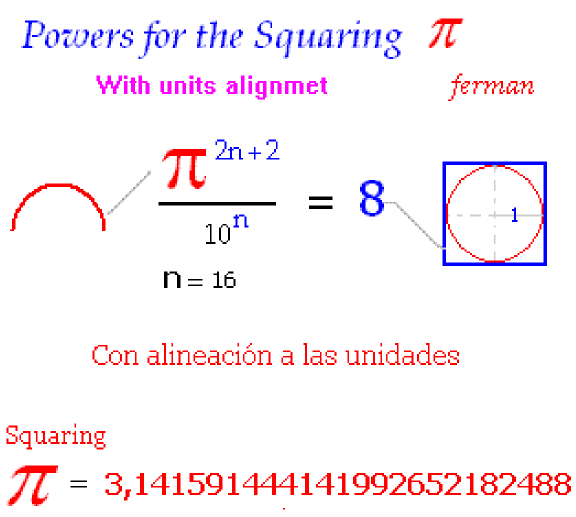


Basic concepts:

(Summation of sides) x (summation of exponents on decimal-base) = (2 summation of exponents + 2) on Pi-base.

Vision of alignment on the units' column

Other vision or geometric perspective is the alignment of the powers of Pi on the column of units.
This is gotten dividing the powers of Pi (Pi^2n+2) by 10^n, and with this we go observing clearer as these Pi powers go drive us to 8, the value of the perimeter of the circumscribed square to the circumference.
Getting this value (8) for n=16. (Remember, the number of powers that we must subject to the legs of the triangles component of the circumscribe square to the circumference)



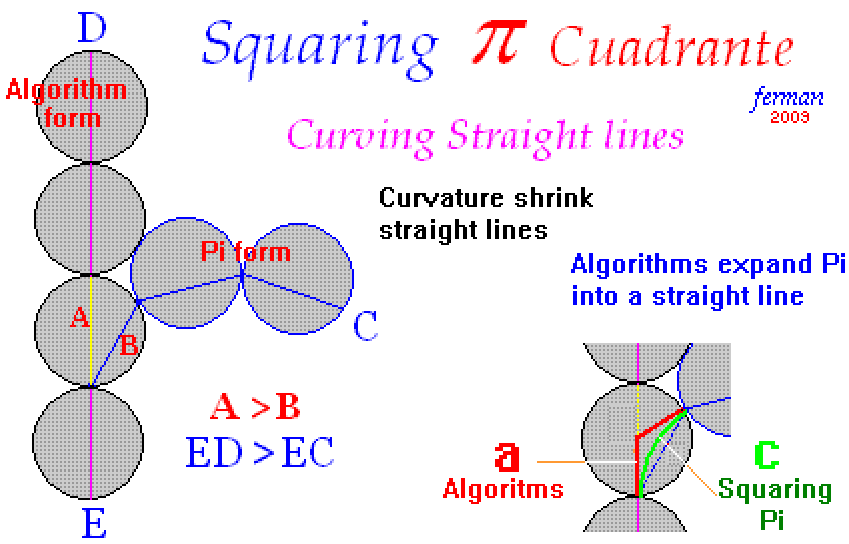
Pi^2 : 1	= 9	8695968019061709
Pi^4 : 10^1	= 9	7408941032196517
Pi^6 : 10^2	= 9	6138697288843353
Pi^8 : 10^3	= 9	4885017930139382
Pi^10 : 10^4	= 9	3647686951211334
Pi^12 : 10^5	= 9	2426491163958563
Pi^14 : 10^6	= 9	1221220160321440
Pi^16 : 10^7	= 9	0031666276028721
Pi^18 : 10^8	= 8	8857624554817673
Pi^20 : 10^9	= 8	7698892713120775
Pi^22 : 10^{10}	= 8	6555271105212920
Pi^24 : 10^{11}	= 8	5426562688813104
Pi^26 : 10^{12}	= 8	4312572991134684
Pi^28 : 10^{13}	= 8	3213110075378348
Pi^30 : 10^{14}	= 8	2127984507662032
Pi^32 : 10^{15}	= 8	1057009324382074
Pi^34 : 10^{16}	= 8	

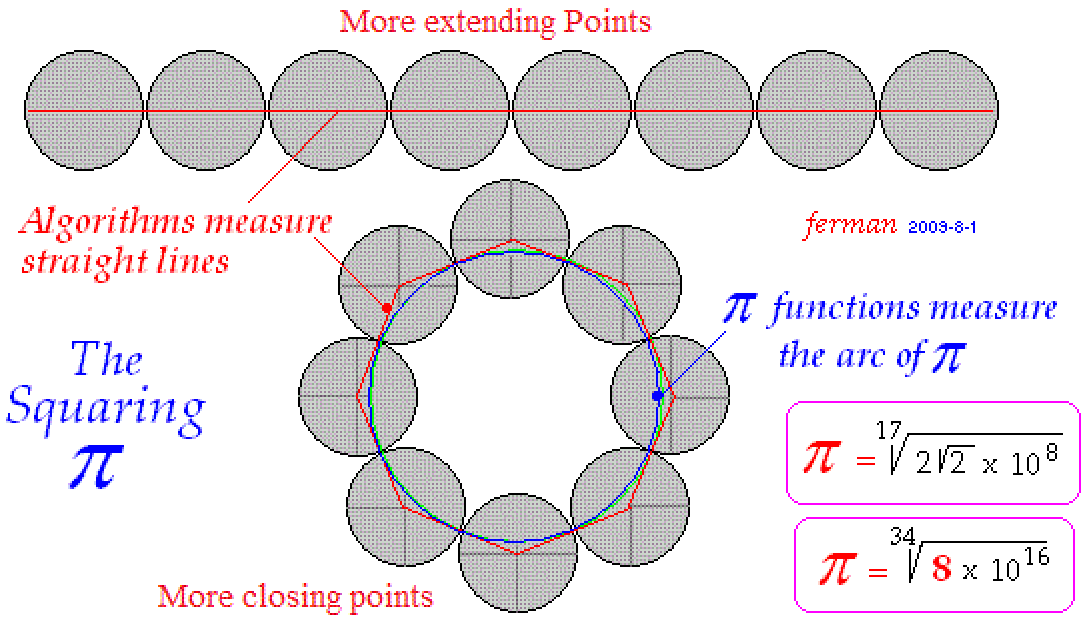
Antecedents: The birthday of an idea.

The first idea for searching the Squaring Pi was born from the observation of the curve functions in the Cartesian coordinates.
If we look at the function y=x^2, this function gives us a curve, which in values between 0 and 1 is similar to a quarter of circumference.
So, if the perimeters of the inscribed and circumscribed squares to the circumference are straight lines, and the inscribed circumference is a curve, (having both the same basic parameters of construction: circumference diameter and squares sides), then it should be possible (and mathematically required) that adequate powers and roots of these perimeters give us any function that unites both parameters.
Later on, alone I must to practice and operate extensively till find the "Circle's squaring": The Squaring Pi.

Observation on the current Pi number

With the current algorithm method for obtaining Pi what we make is the addition of the semi-circumference points to build with them a straight line*, but Pi is an arc of circumference and not a straight line.
* Because here we are uniting and adding in a continue way the n-gon sides of the polygon in that we divide the circumference.
In this case, we forget a property or geometric principle that could say us:
"Any straight line that goes being curved endless, also goes losing dimension or longitude till disappear in a central point when this is curved indefinitely (endless) in symmetric or circumferential shape."
Say, any curved line has its corresponding coefficient of curvature, which in turn takes implicit a dimensional or longitude loss regarding the straight line.
And this is due to when we curve a straight line, the points that form the same go closing progressively among them by the interior side of the curve, till join together in a central point if the curvature is symmetric and endless.
Inversely, in the case of the algorithmic Pi, to the component points of the circumference we go adding them in straight line, and with that, we go extending them till form a straight line with more longitude (although in minimum value) than Pi in curved line.





And to finish, let me put the mathematical maxim of Squaring Pi.

*** Mathematical maxim of squaring Pi.** : "If the circumference is built, contained, limited and changed depending on the value of its inscribed squares (inner and outer), and vice versa...... Then, a direct function of the perimeters of these squares that gives us the exact value of Pi ought to exist, and vice versa ..... A direct function of Pi that gives us the value of the perimeters of the inscribed (inner and outer) squares to the circumference also ought to exist."

Curiosity: The Squaring Pi in function of 2

Algebraic formula for Squaring π

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[2 function]

(diameter circumference r = 1)

$$\text{Squaring } \pi = \sqrt[2^5+2]{2^3 \times (2^3+2)^{(2^4)}}$$

Squaring Pi adjustment: (2^3 x ((2^3 + 2) ^ (2^4))) ^ (1 / (2 ^5 + 2)) = 3,14159144414199265218248841255 3 ...

Proofs and Properties

Summarizing a lot, we can note the following properties and proofs of the quality of the Squaring Pi.

1.- Logically, the most important one could be the consideration of the Squaring Pi as de true value of Pi; although this question doesn't correspond to me its solution, but to the future mathematical development.

2.- The second characteristic is the easy way to obtain the squaring Pi by mean of two very simple functions of the inscribed and circumscribed squares to the circumference, say:

Pi = Raiz-34 de 8x10^16 ------------------- [8 x 10^16] ^(1/34)
Pi = Raiz-17 de 2-raiz de 2 x 10^8 -------- [2 x 2^(1/2) x 10^8]^(1/17)

$$\pi = \sqrt[17]{2\sqrt{2} \times 10^8} \qquad \pi = \sqrt[34]{8 \times 10^{16}}$$

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3.- The third characteristic is the a lot of interrelations of all possible inscribed and circumscribed circumferences and squares among them that we can encounter expressed in different levels of the numeric tables of the Pyramids of Squaring Pi exposed in this work.

Proofs and Properties of the Squaring π 3,14159144414199265218248841255 3.....

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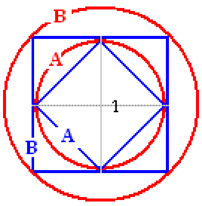
Inscribing circles and squares



$$\text{Ins-coeff.} = \frac{\pi^{16}}{10^8} = 0{,}90031666276028721 \ldots$$

Perimeters

Circumference A		Ins-coeff.		Inscribed square A
6,2831828882839853 ...	x	0,90031666276028721 ...	=	5,65685424

	Circumference B		Ins-coeff.		Inscribed square B
B $\frac{\pi^{18}}{10^8}$ →	8,8857624554817673....	x	0,90031666276028721 ...	=	8

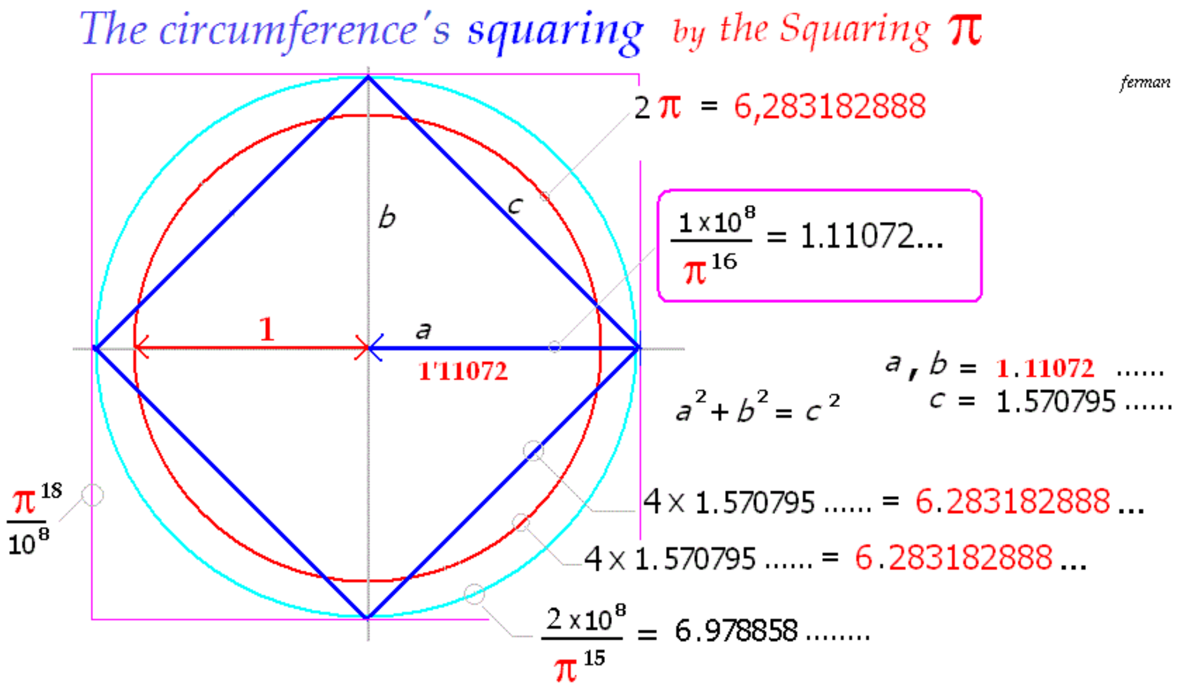
Inscribed Circumference A

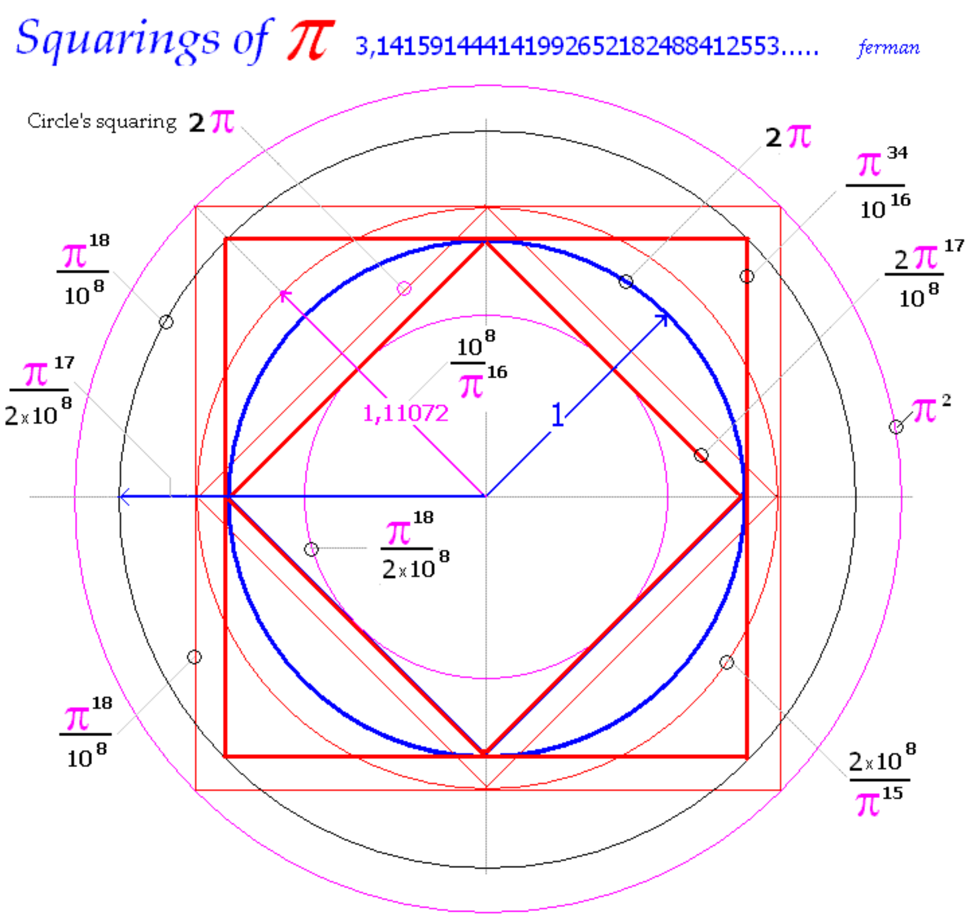
$$\frac{2\ \text{Perimeter B} \times 10^{16}}{\pi^{33}} = \frac{16 \times 10^{16}}{25464800698121644} = 6{,}2831828882839853$$

Circumscribed square B

$$\frac{\text{Circumference A} \times \pi^{33}}{2 \times 10^{16}} = \frac{6{,}2831828882839853 \times 25464800698121644}{2 \times 10^{16}} = 8$$

For example
-- Inscribed square to the circumference = Circumference x (Pi^16/10^8)
-- Circumscribed square to the circumference = (Circumference x Pi^33) / 2 x 10^16
-- Inscribed circumference to a square = [2Pc x 10^16] / Pi^33
-- Circumscribe circumference to a square = (Pc x 10^8) / Pi^16
Etc.
Where Pc is the perimeter of the square; and Pi is the Squaring Pi.





Construction of straight lines and curve lines

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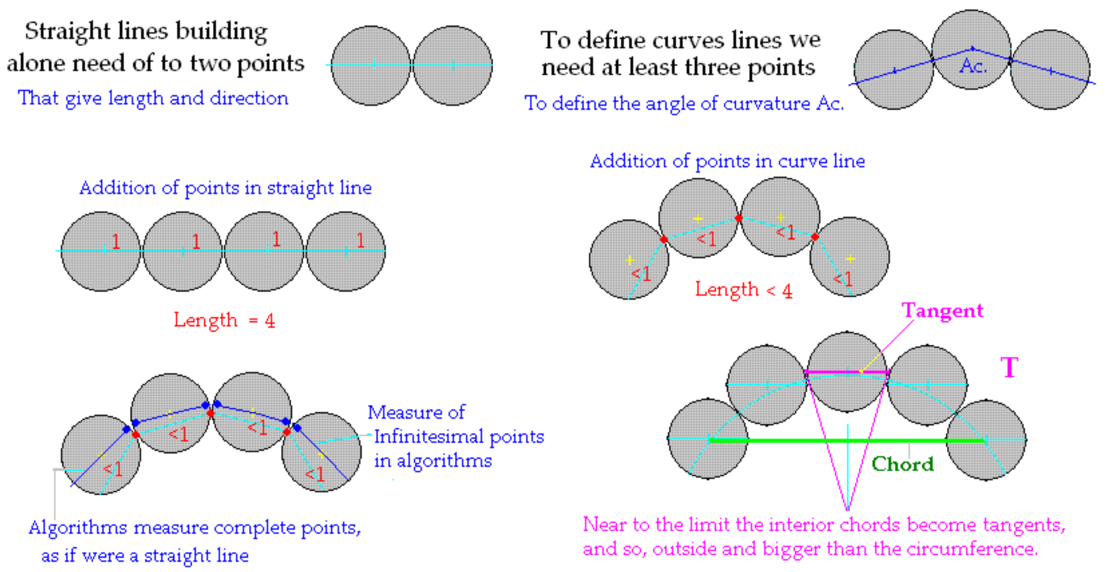

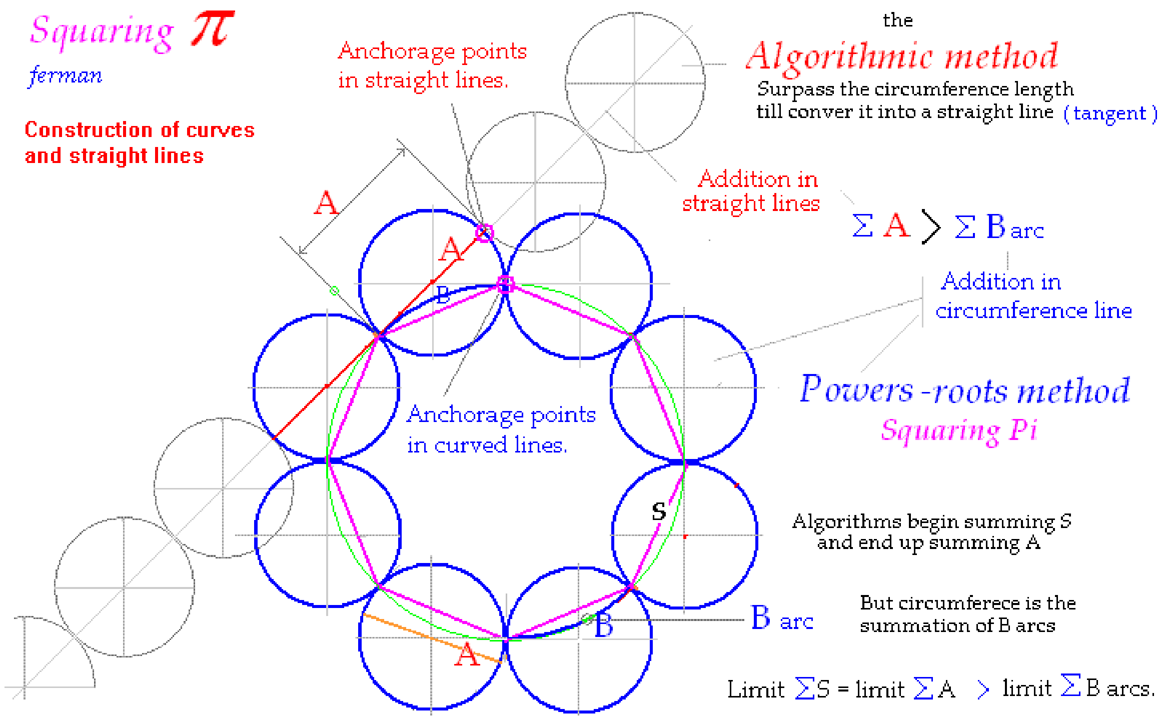

Structural Principle for curves and straight lines

A – B arc = Loss of length in each point union

All and each union among consecutive points (infinitesimal portions) of a curve produces an infinitesimal loss of length regarding to the same union if it were made in straight line.
This is due to in curve lines all their points are nearer among them by the interior of the curve.

Squaring π

decimal system *ferman*

sum of sides of the circumscribed square

$$\frac{10}{8} = \left(\frac{10}{\pi^2}\right)^{17}$$

$$\pi = \sqrt{\frac{10}{\sqrt[17]{1{,}25}}}$$

Interrelation, decimal system-circumscribed square-π

Interrelación matemática entre el Sistema decimal - Cuadrado circunscrito - Pi