FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868
maita_q@hotmail.com

FORMA MUNDI∫

The shape and size of mathematics

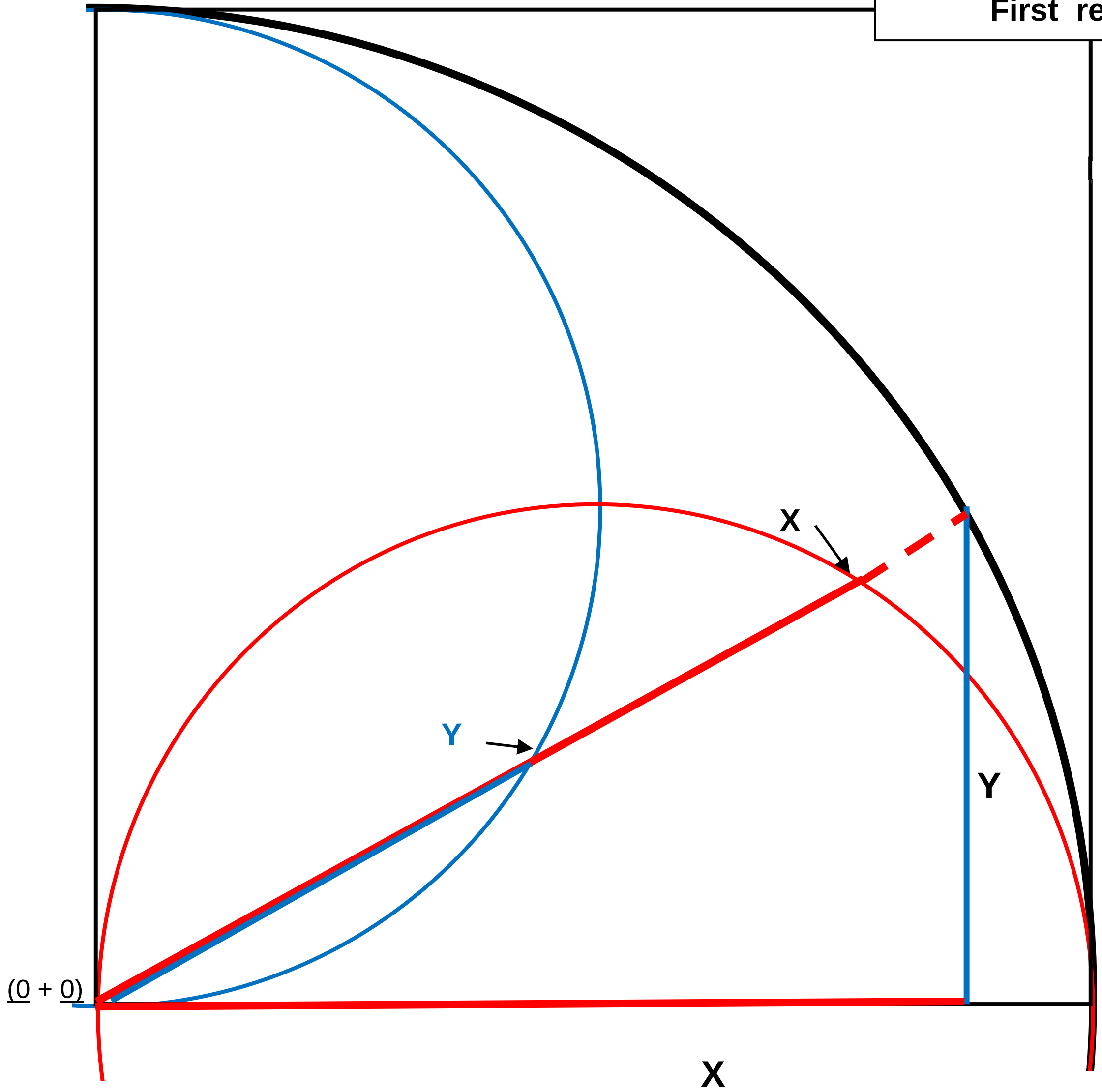
General solutions are seldom found. This figure shows the harmony of mathematics in the simplest geometrical relationships, displaying the basic functions of addition, subtraction, multiplication, division, natural, rational, and irrational numbers, potency, roots, inverse, trigonometry, Phytagoras theorem, Newton's binomial, Last Fermat, Goldbach, quadratic equation and some other relations… but some of this figures are just fingers pointing to the moon

They were interesting when things were solved with compass and squares and in this time of computers, they are not so impressive, but I am certain that the Samos' island sage and Sir Isaac, would have liked them

Find in YouTube: "Forma Mundis Plus"
Google: https://drive.google.com/file/d/1eypAr3BFJv_sGw2o662LYuHA-lCcQvhx/view?usp=share_link

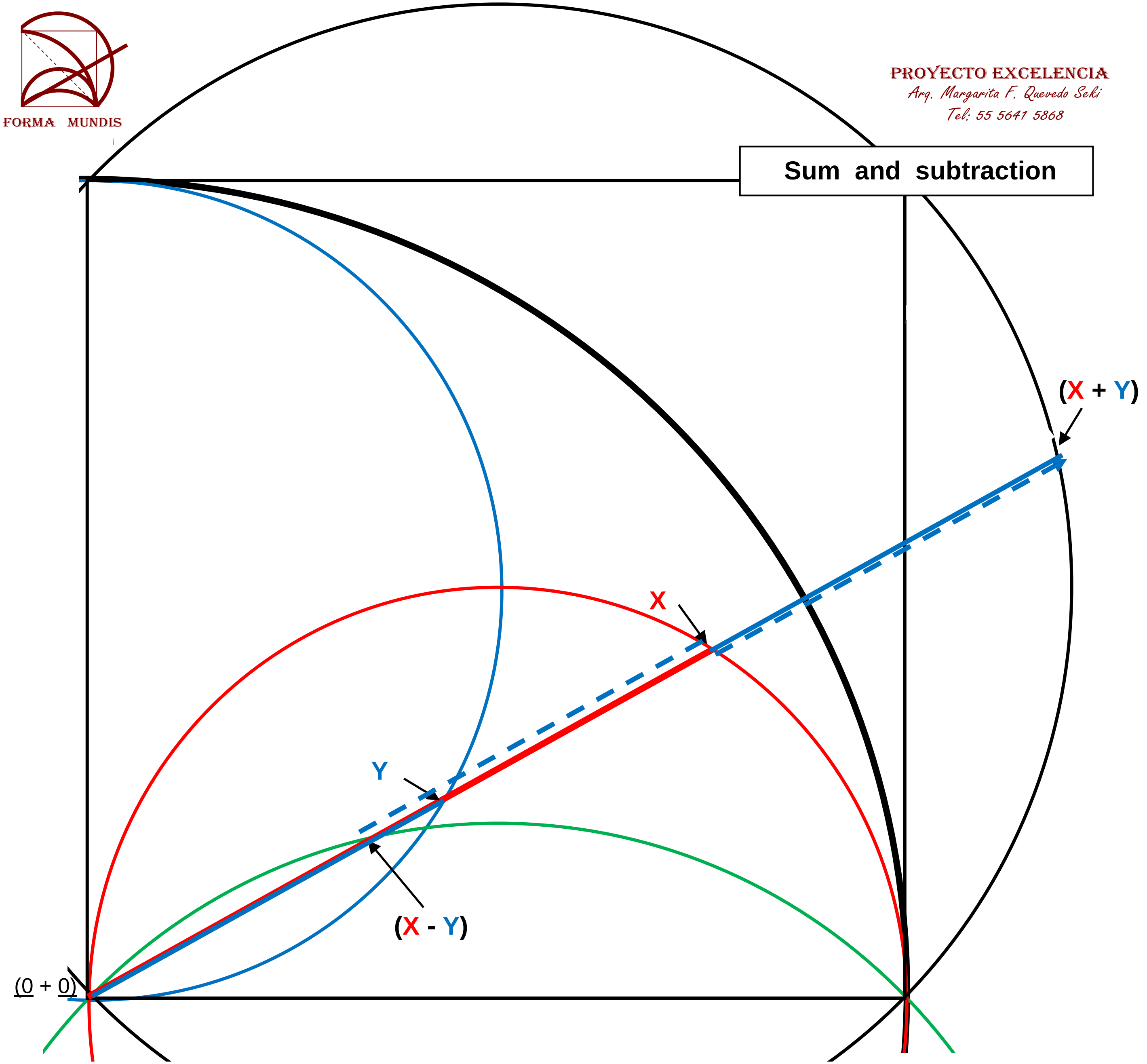
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

First relation



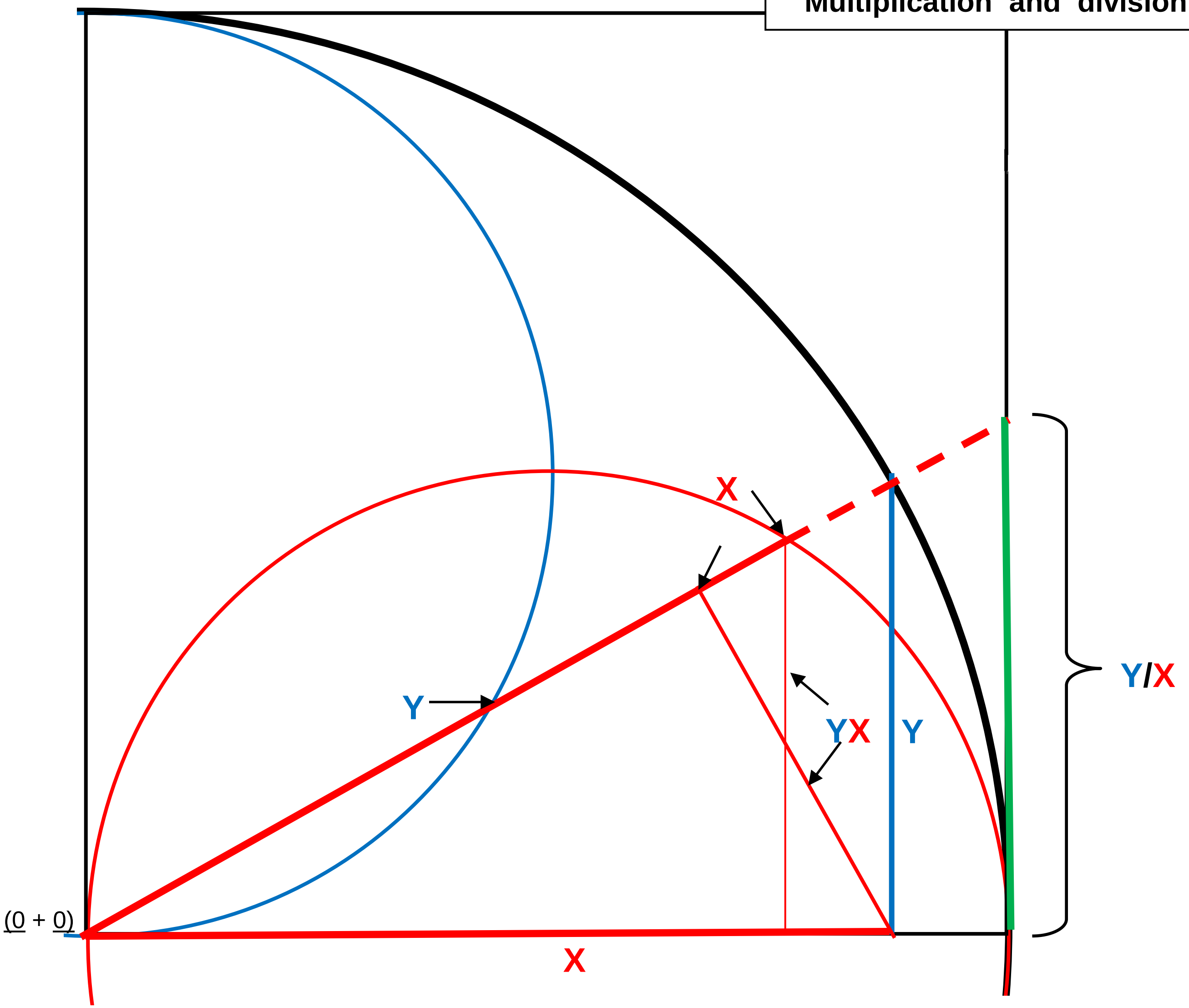
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Sum and subtraction



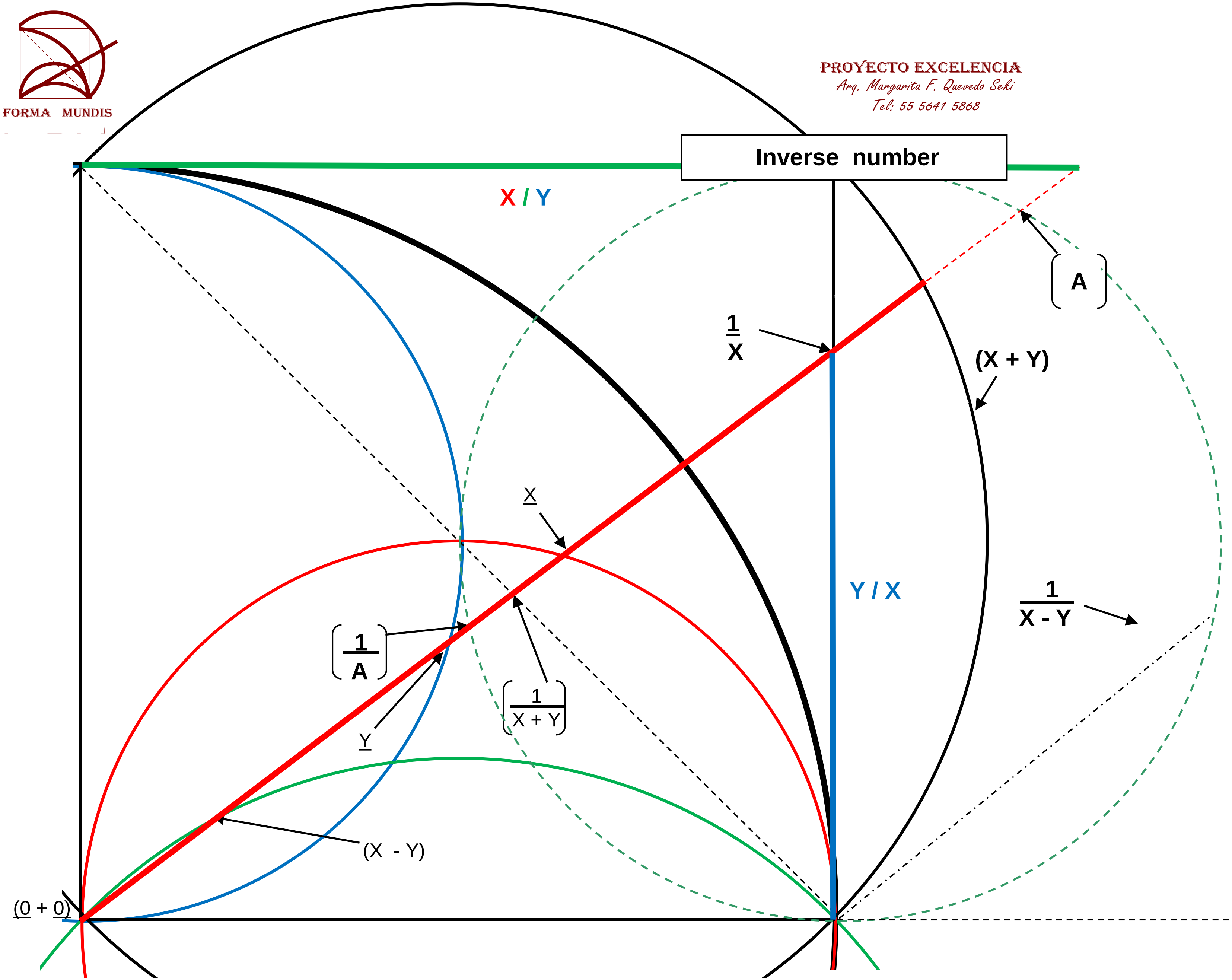
FORMA MUNDIS
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Multiplication and division



FORMA MUNDIS

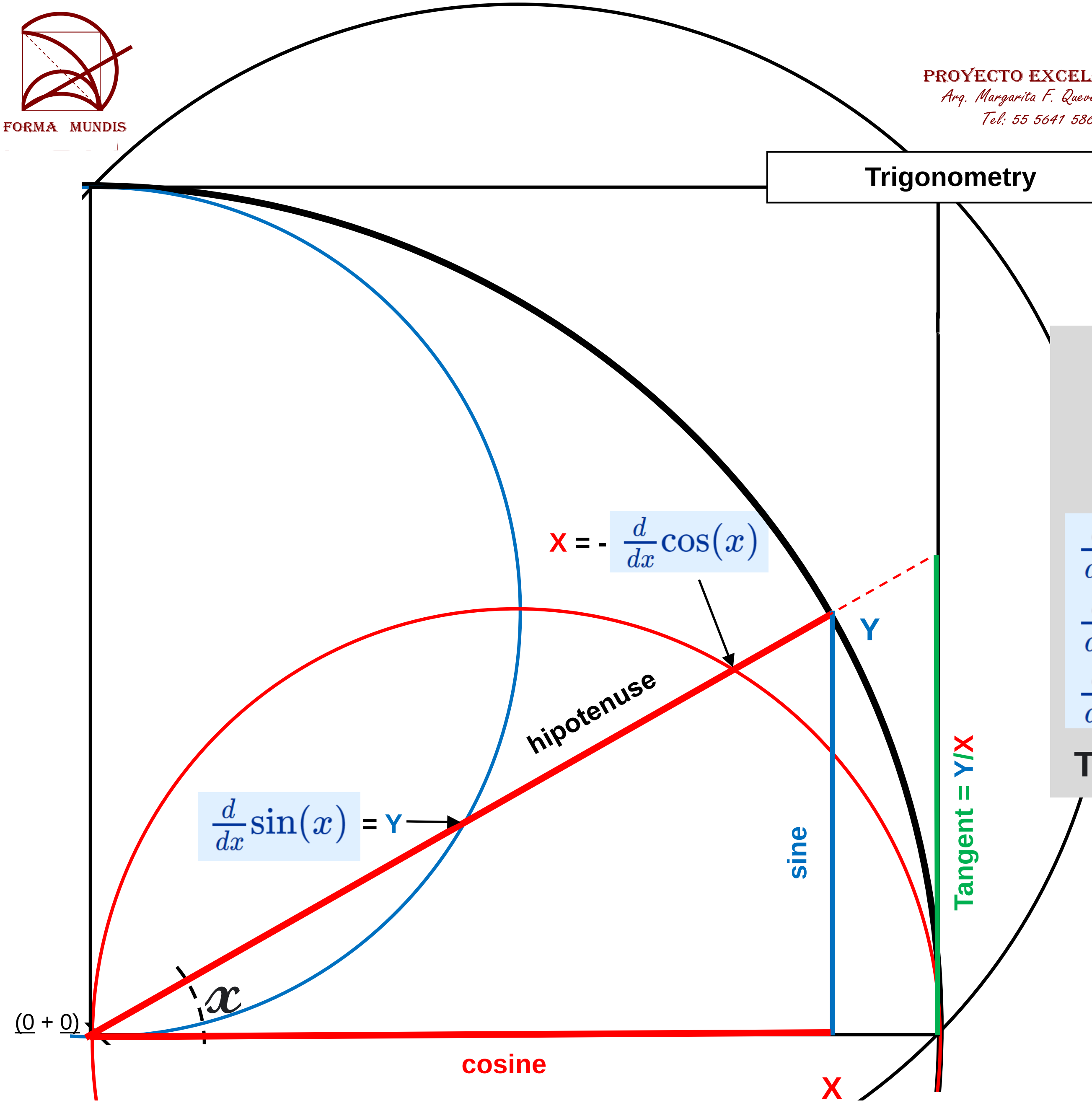
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868



FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Trigonometry



A little calculus… Derivatives of trigonometric functions:

$$\frac{d}{dx}\sin(x) = \cos(x)$$

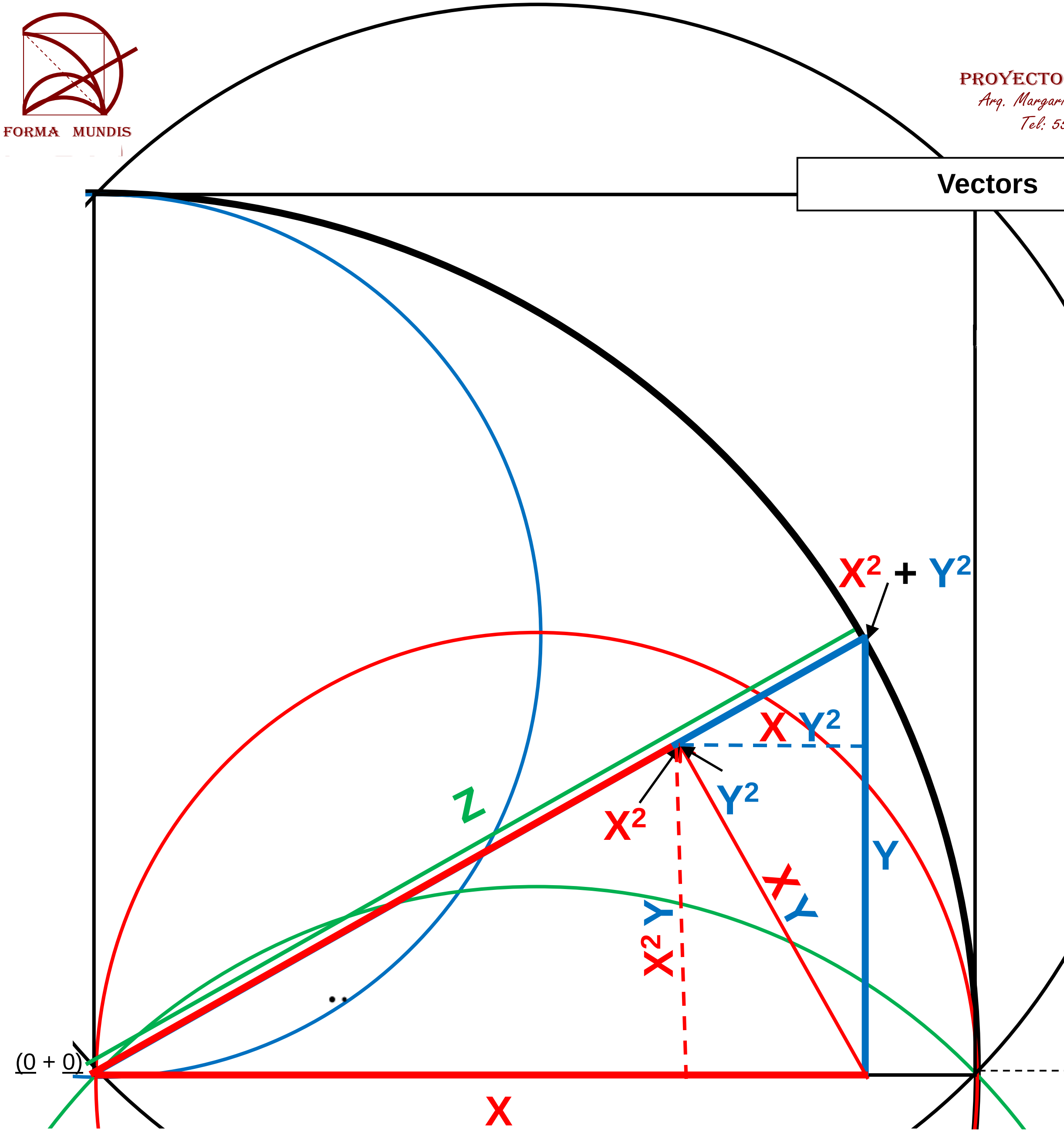
$$\frac{d}{dx}\cos(x) = -\sin(x)$$

$$\frac{d}{dx}\tan(x) = \sec^2(x)$$

This opens a big door.

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Vectors



VECTORS

(absolute values)

$X \bullet Y = 0$

scalar

$X + Y = (X^2 + Y^2)^{1/2} = Z$

vector over hypotenuse

$X \times Y = (X\ Y)\ Y = X^2\ Y$

vector going out of the plane

$X \times Z = (X\ Z)\ X = X^2\ Z$

vector going out of the plane

$Y \times Z = (Y\ Z)\ Y = Y^2\ Z$

vector going out of the plane

for $Z = 1$

$X + Y = (X^2 + Y^2)^{1/2} = 1$

vector over hypotenuse

$X \times Z = (X)\ X = X^2$

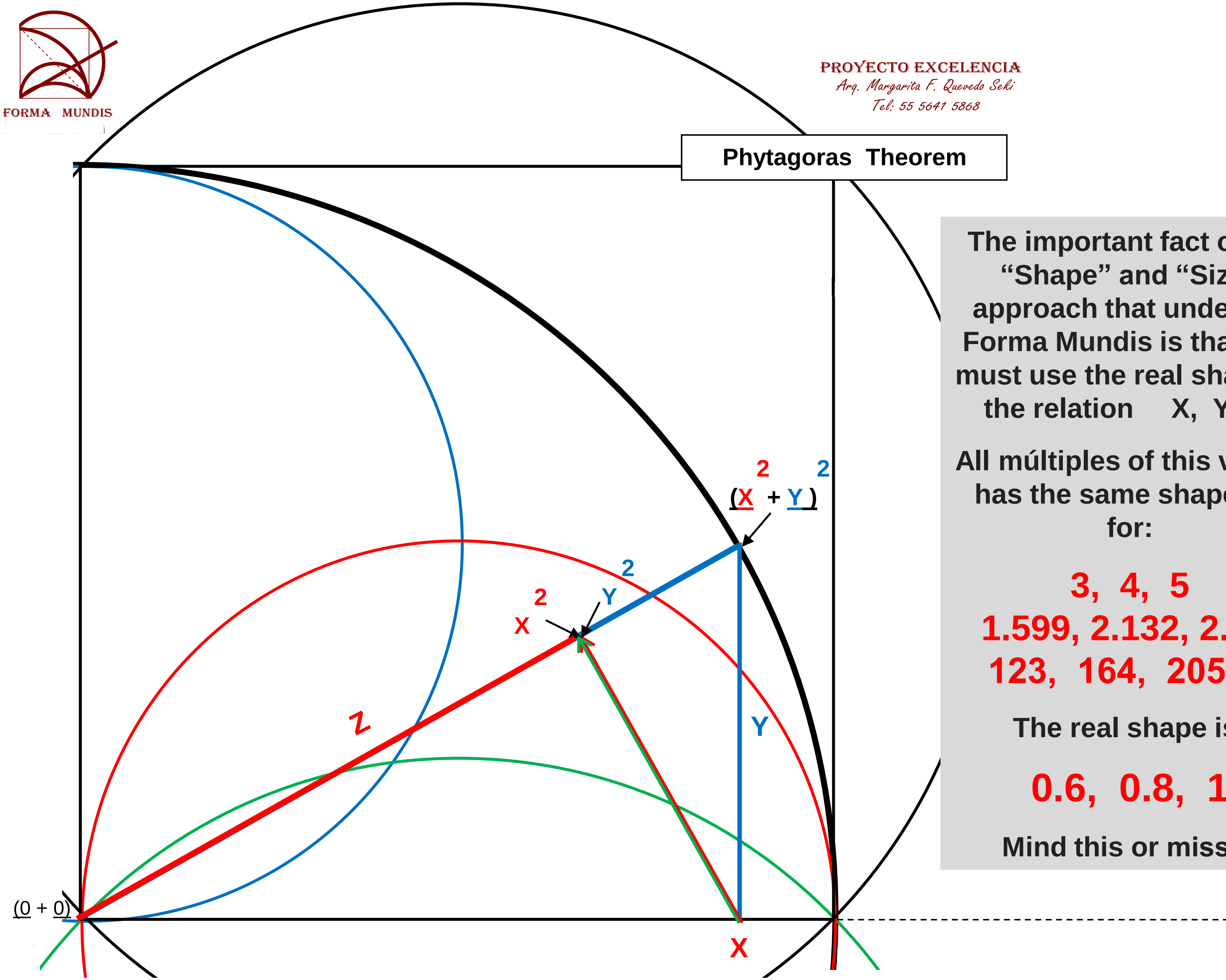
vector going out of the plane

$Y \times Z = (Y)\ Y = Y^2$

vector going out of the plane

FORMA MUNDIS
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Phytagoras Theorem



The important fact of the "Shape" and "Size" approach that underlies Forma Mundis is that you must use the real shape of the relation X, Y, Z.

All múltiples of this values has the same shape, so for:

3, 4, 5
1.599, 2.132, 2.665
123, 164, 205 …

The real shape is:

0.6, 0.8, 1

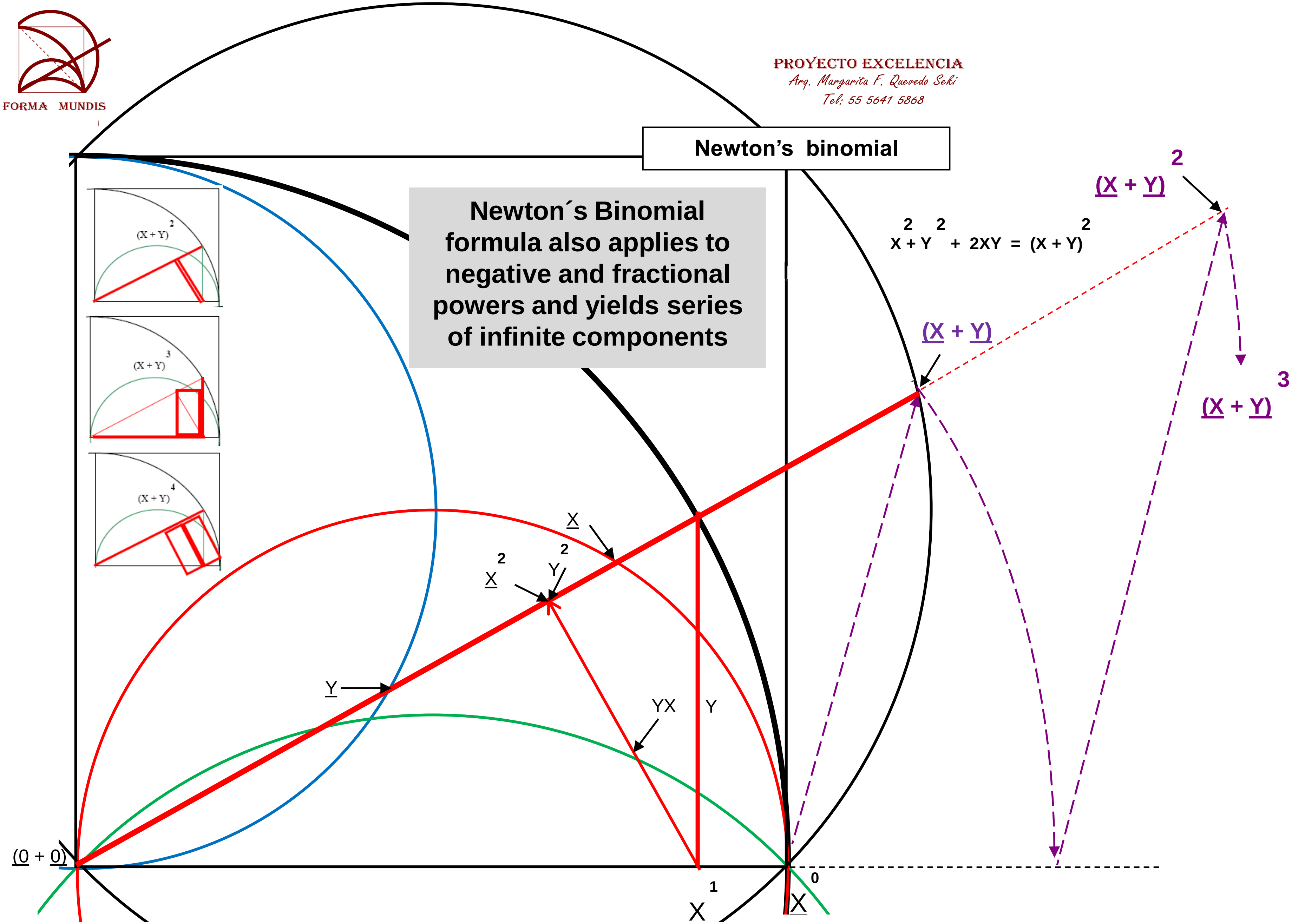
Mind this or miss…

FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Newton's binomial

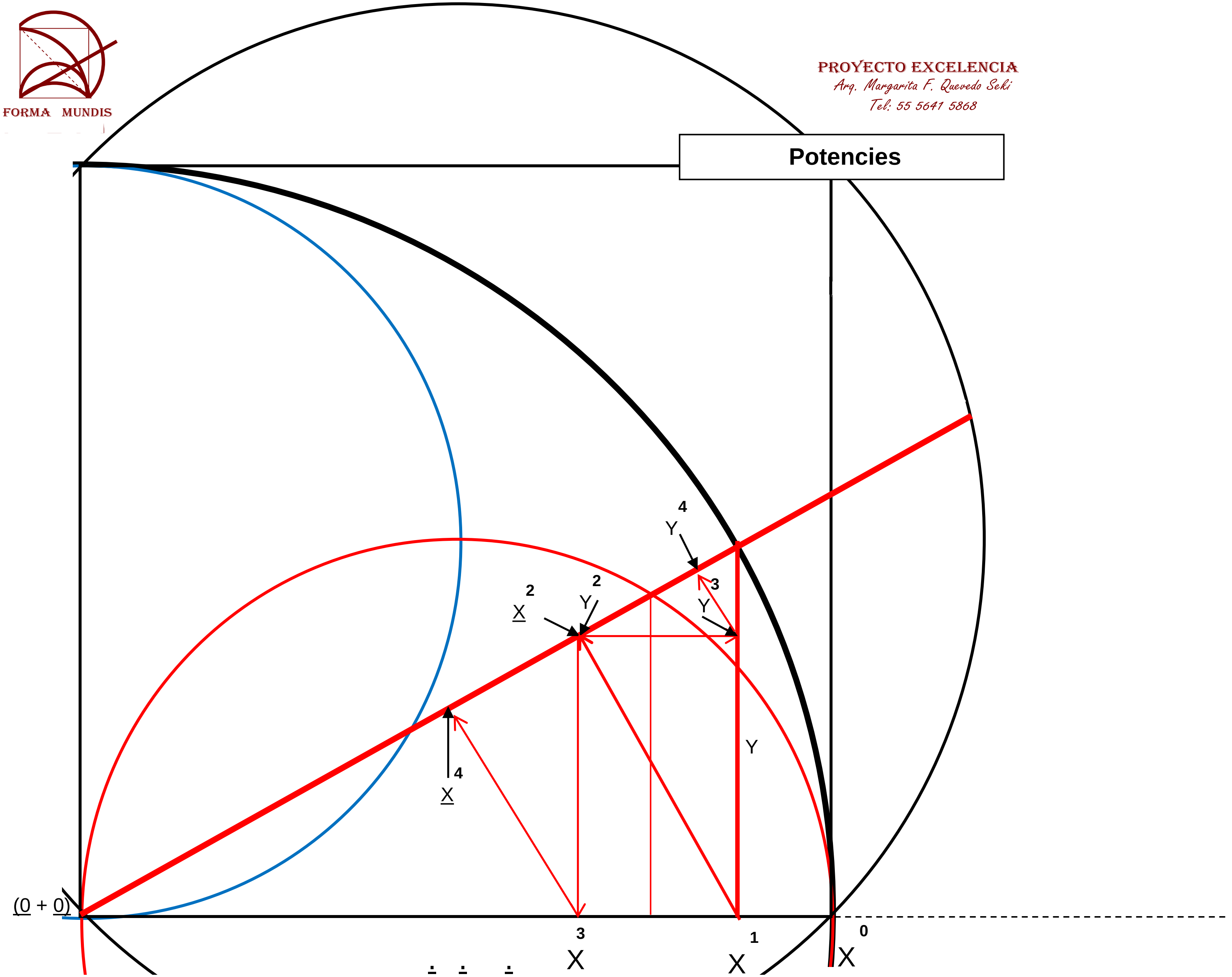
Newton´s Binomial formula also applies to negative and fractional powers and yields series of infinite components



PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

FORMA MUNDIS

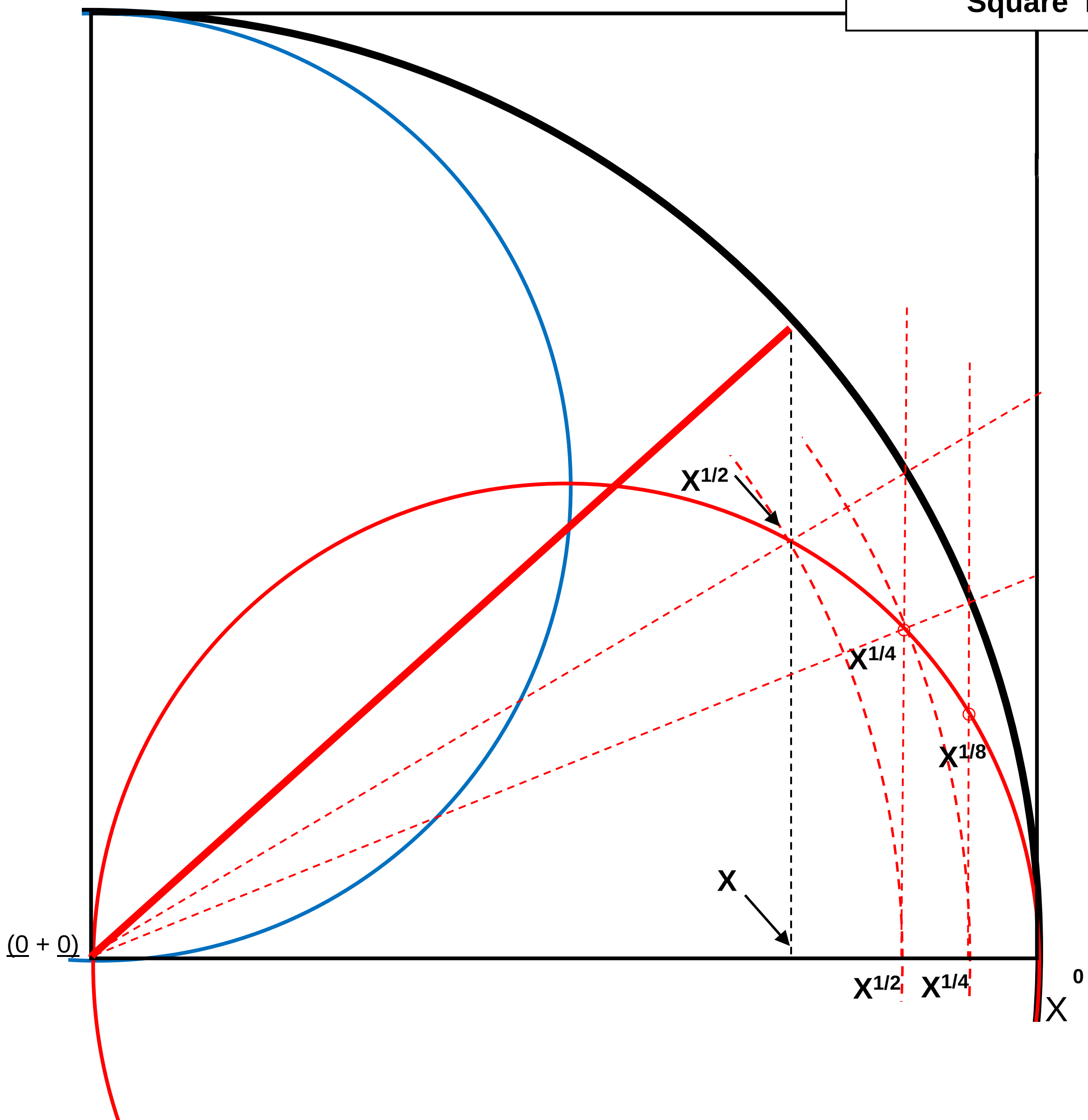
Potencies



FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

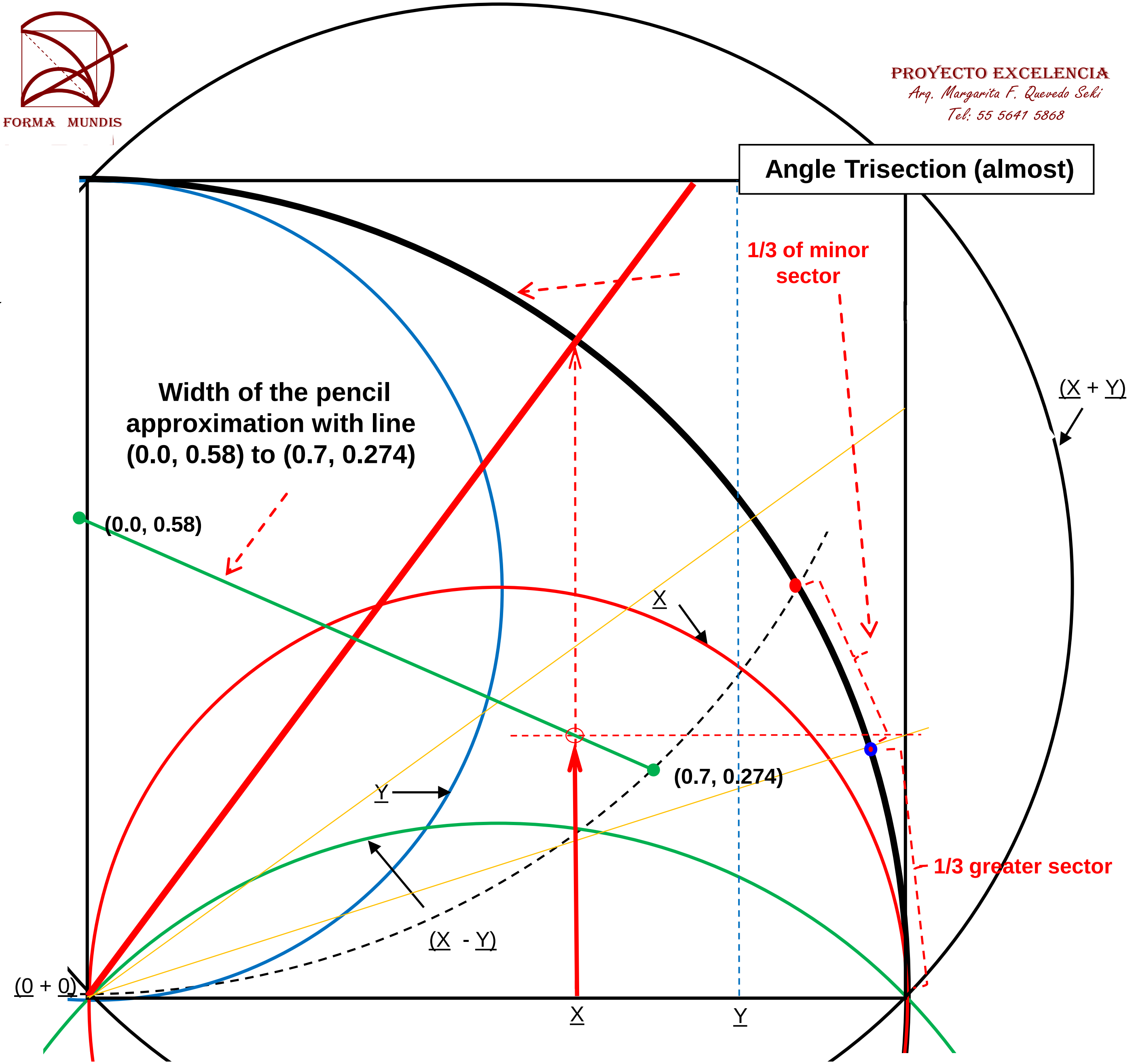
Square root



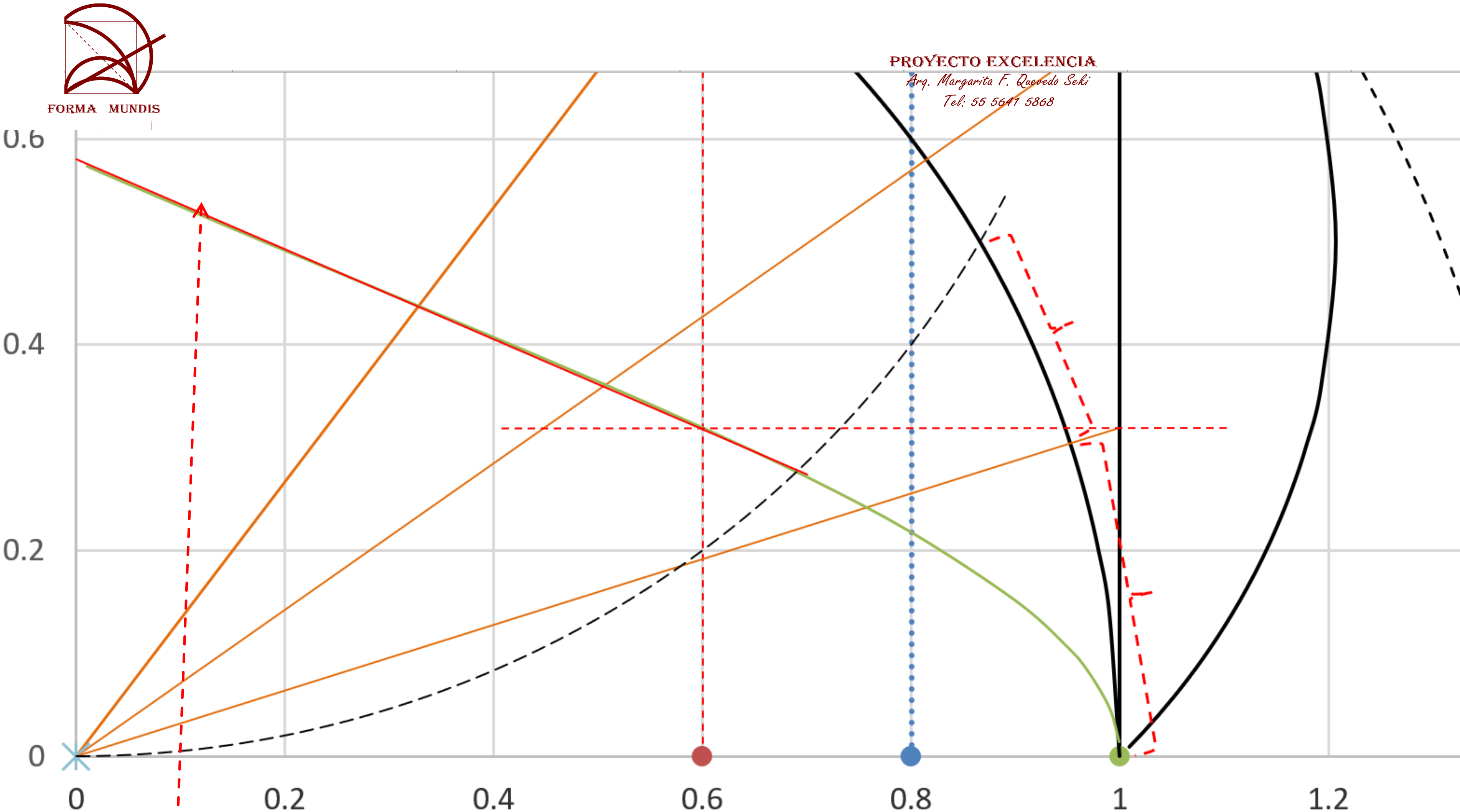
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

FORMA MUNDIS

Angle Trisection (almost)



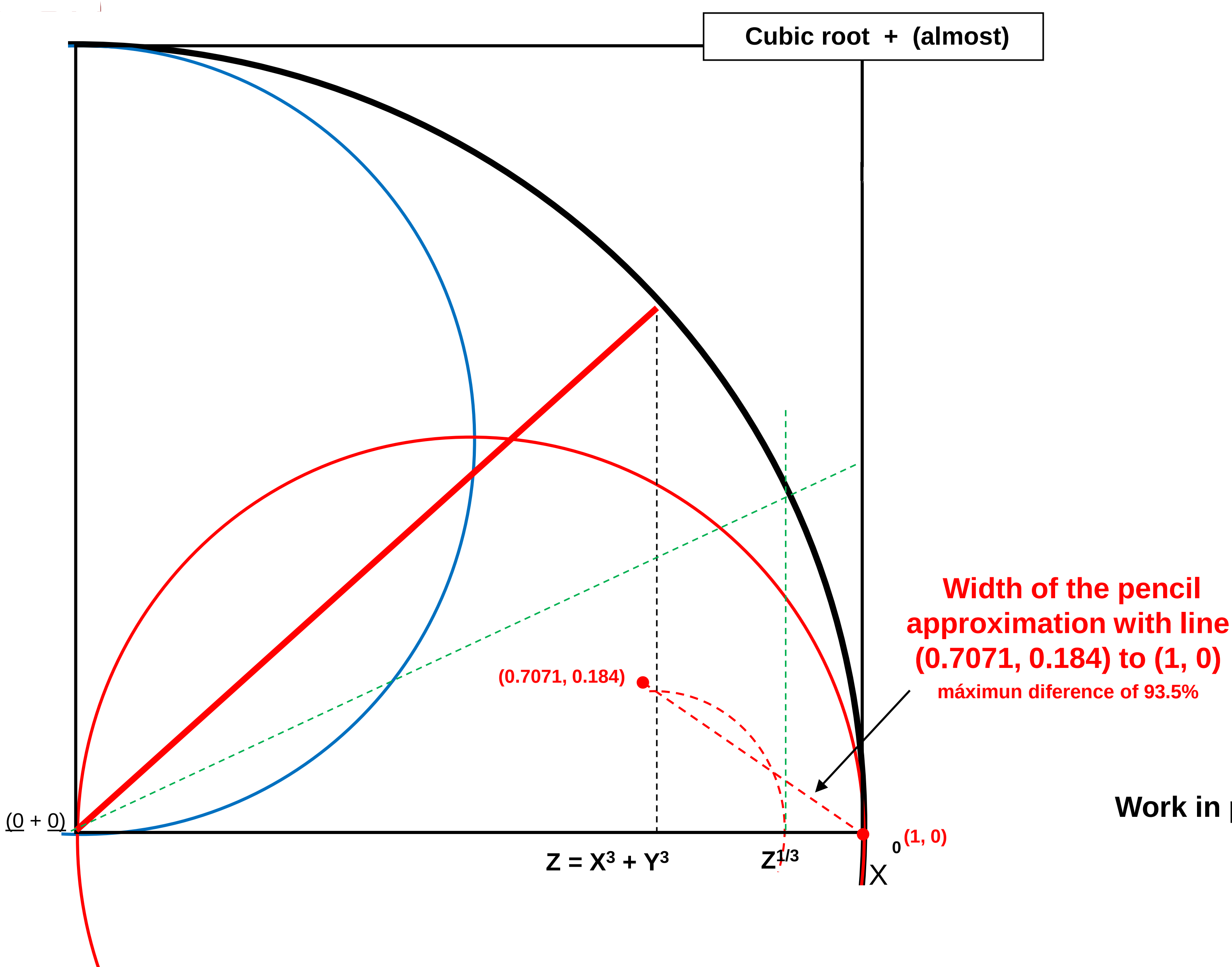
Work in progress



Green line (with slight "s" shape) is tangent of 1/3 of the big sector área por each X value (X=0.6 in this case).
Red line (0.0, 0.58) - (0.7, 0.274), is the graphic eye adjusted approximation of green real "s shape" solution, and you must avoid the stepped curve at the end, and solves the two sectors.

FORMA MUNDIS

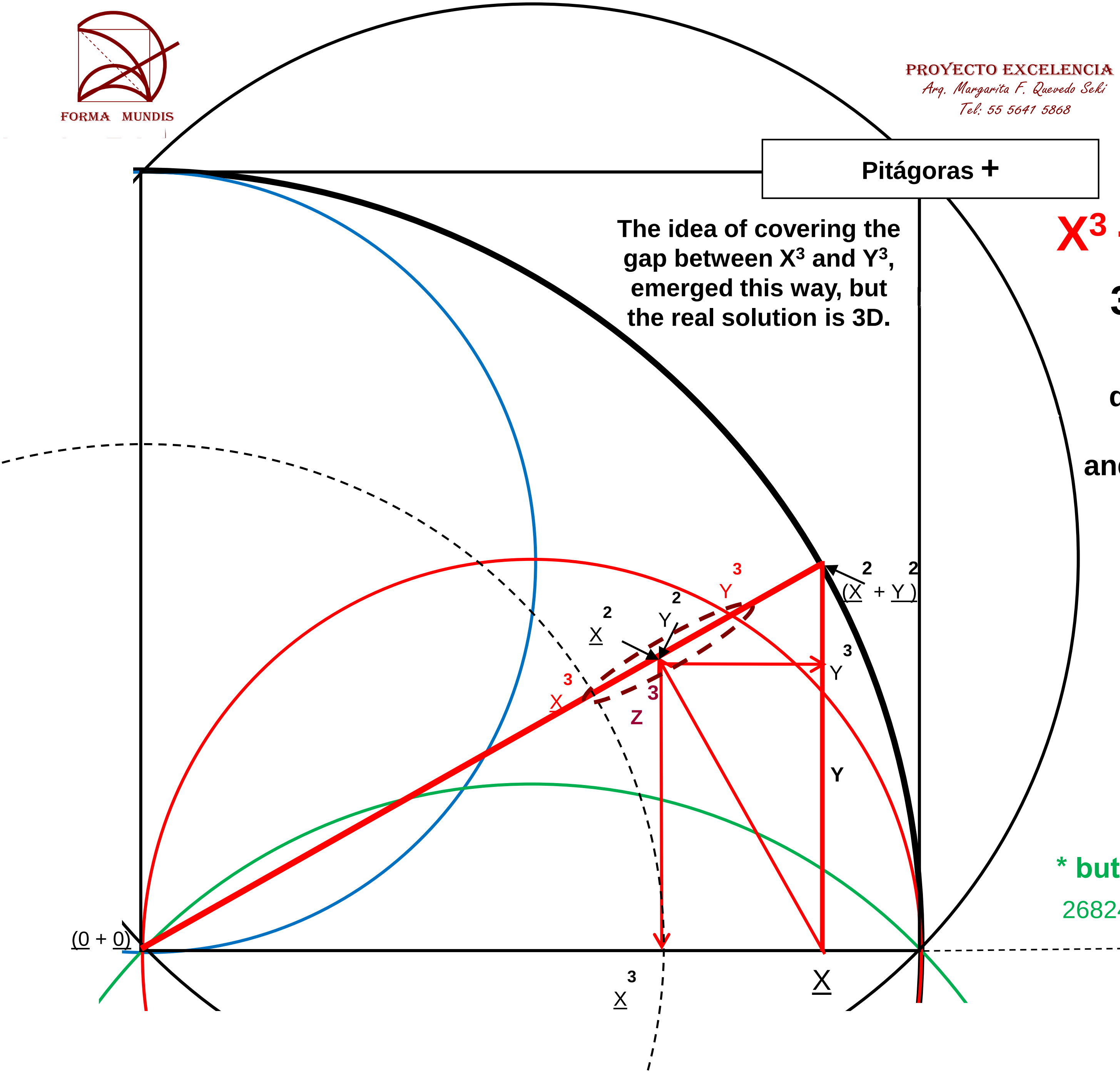
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868



Work in progress

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Pitágoras +



The idea of covering the gap between X^3 and Y^3, emerged this way, but the real solution is 3D.

$X^3 + Y^3 + Z^3 = U^3$

$3^3 + 4^3 + 5^3 = 6^3$

(after I found this, I saw Euler, et al.)

Very few families detected with my tools for n = 3 and none for n* = 4, 5, 6 …

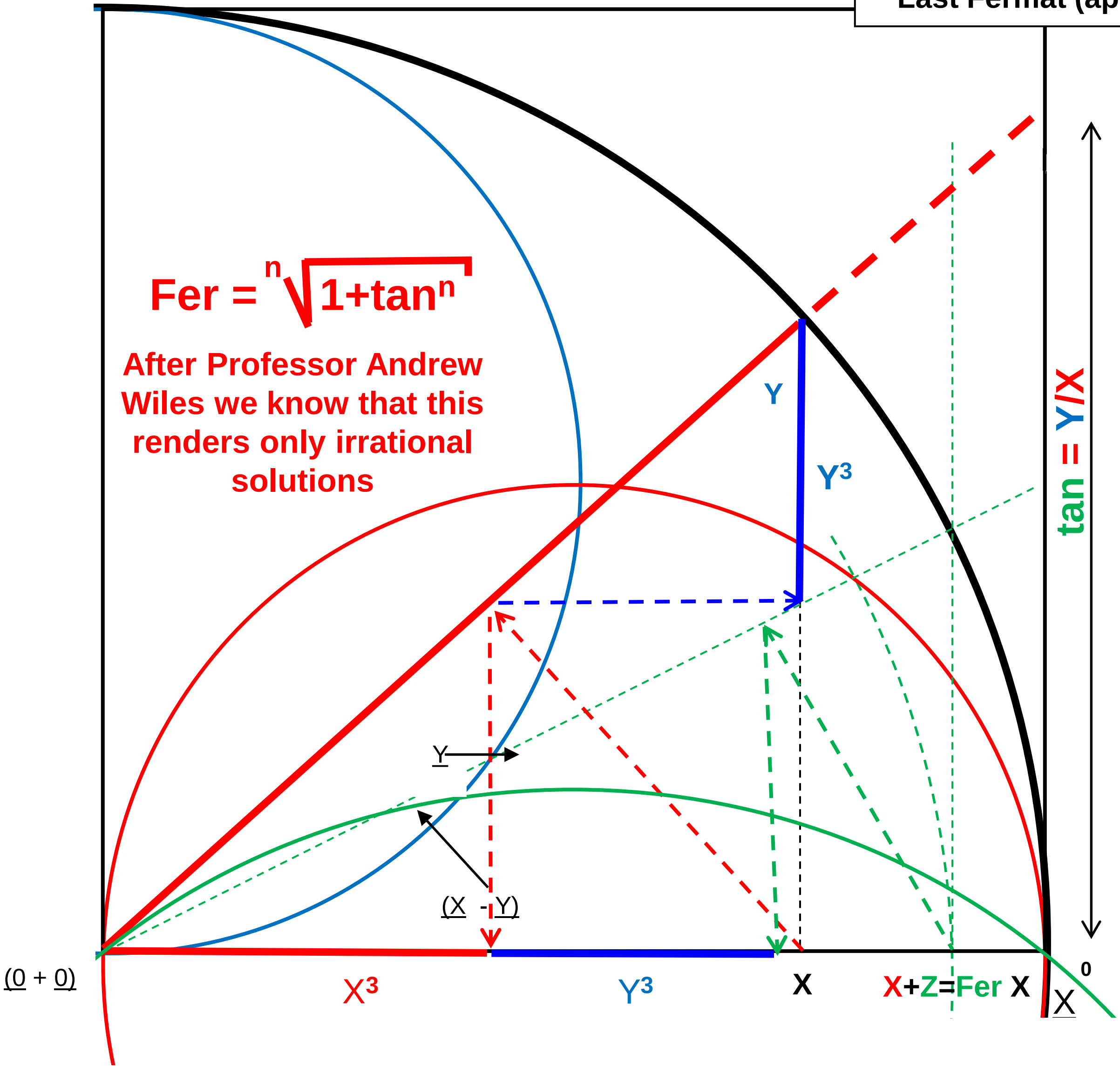
X	Y	Z	U
3	4	5	6
1	6	8	9
3	10	18	19
2	17	40	41
7	14	17	20
12	19	53	54
15	42	49	58
23	86	97	116
33	45	81	87
75	366	410	491

*** but…** $27^5+84^5+110^5+133^5 = 144^5$

$2682440^4 + 15365639^4 + 18796760^4 = 20615673^4$

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Last Fermat (approach)



The "Shape" and "Size" approach that underlies Forma Mundis supports this solution.

$X^n + Y^n = (\text{Fer } X)^n$,
Fer = Solution
$X^n + Y^n = \text{Fer}^n X^n$
$(X^n + Y^n) / X^n = \text{Fer}^n$
$1 + (Y / X)^n = \text{Fer}^n$
$\text{Fer} = (1 + \tan^n)^{1/n}$

for X=Y, tan=1 and n=3
Fer = $2^{1/3}$ =1.259921049…
And for X=4, Y=3, tan=.75, n=3
Fer = $(1+(3/4)^3)^{1/3}$ =1.1244853613…

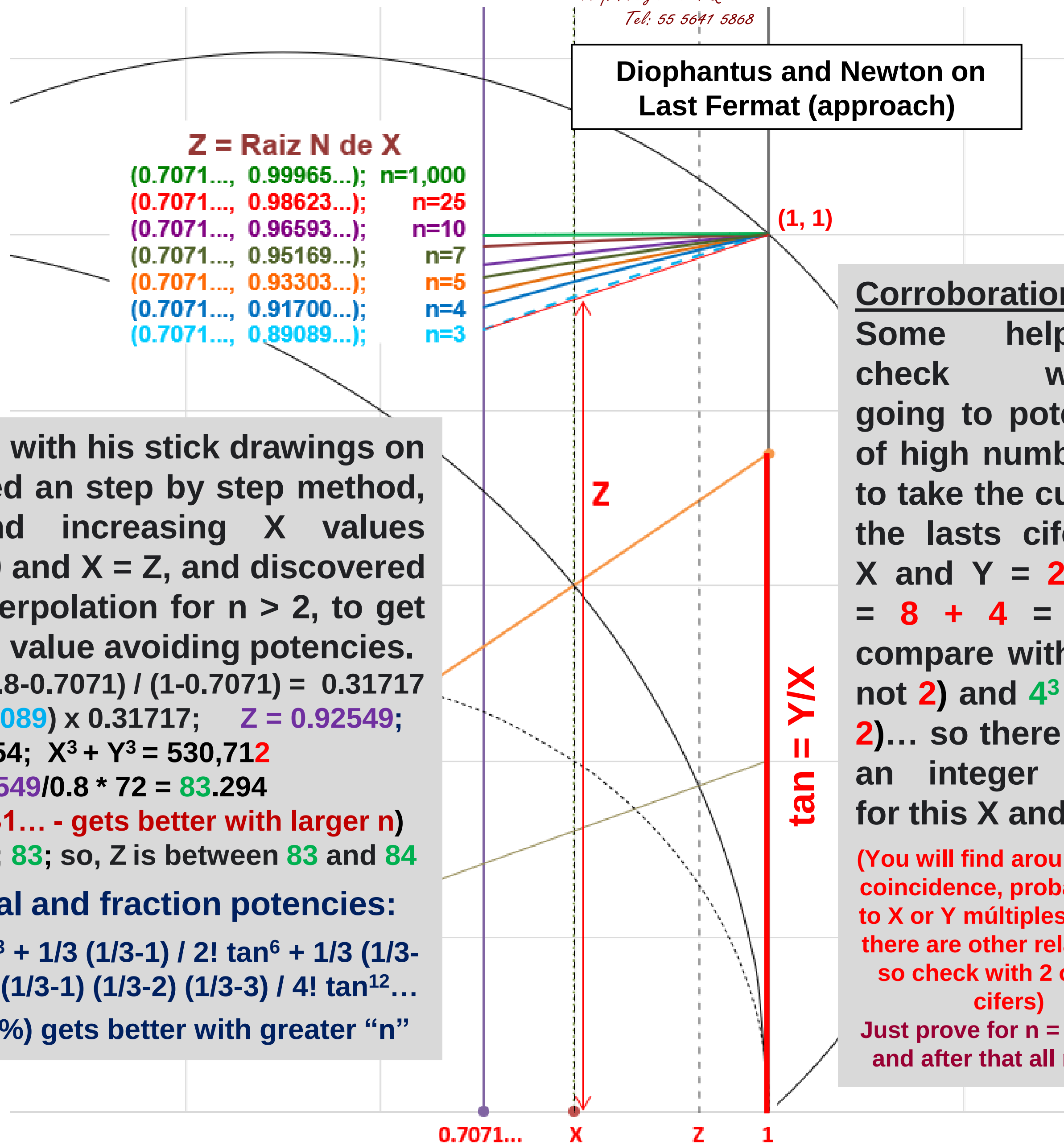
This solution resembles the classical examples to determine irrationality, with roots of not perfect potencies.

abc Conjecture can be simplified but is not so clean cut as this Fermat.

FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Diophantus and Newton on Last Fermat (approach)



- Maybe Diophantus with his stick drawings on the sand, considered an step by step method, diminishing Y and increasing X values gradually until Y = 0 and X = Z, and discovered an almost linear interpolation for n > 2, to get to an approximate Z value avoiding potencies.

If, n = 3; and X = 0.8; (0.8-0.7071) / (1-0.7071) = 0.31717

Z = 0.89089 + (1 - 0.89089) x 0.31717; Z = 0.92549;

X = 72, Y = 54; $X^3 + Y^3 = 530{,}712$

Z_{aprox}= 0.92549/0.8 * 72 = 83.294

(99.69% of real 0.92831… - gets better with larger n)

taking the integer part; 83; so, Z is between 83 and 84

or Newton binomial and fraction potencies:

$(1+\tan^3)^{1/3} = 1 + 1/3 \tan^3 + 1/3\ (1/3-1) / 2!\ \tan^6 + 1/3\ (1/3-1)\ (1/3-2) / 3!\ \tan^9 + 1/3\ (1/3-1)\ (1/3-2)\ (1/3-3) / 4!\ \tan^{12}\ldots$

limit $(1+\tan^n)^{1/n}$ (99.97%) gets better with greater “n”

Corroboration: Some help to check without going to potencies of high numbers is to take the cubic of the lasts cifers of X and Y = $2^3 + 4^3$ = 8 + 4 = 2; to compare with 3^3 (7 not 2) and 4^3 (4 not 2)… so there is not an integer result for this X and Y.

(You will find around 4% of coincidence, probably due to X or Y múltiples of 5,but there are other relations… so check with 2 o 3 last cifers)

Just prove for n = 3, 4, 5, 6 and after that all repeats

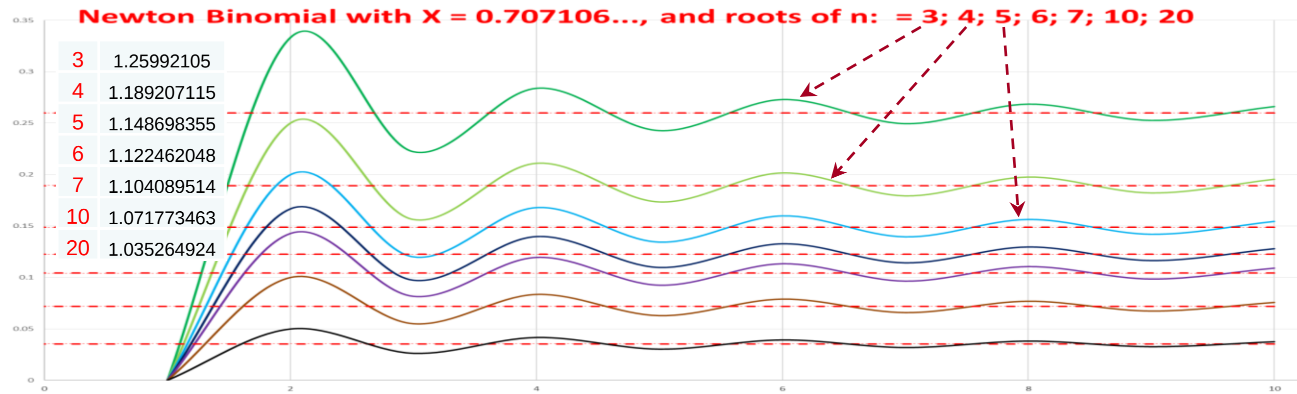
FORMA MUNDIS

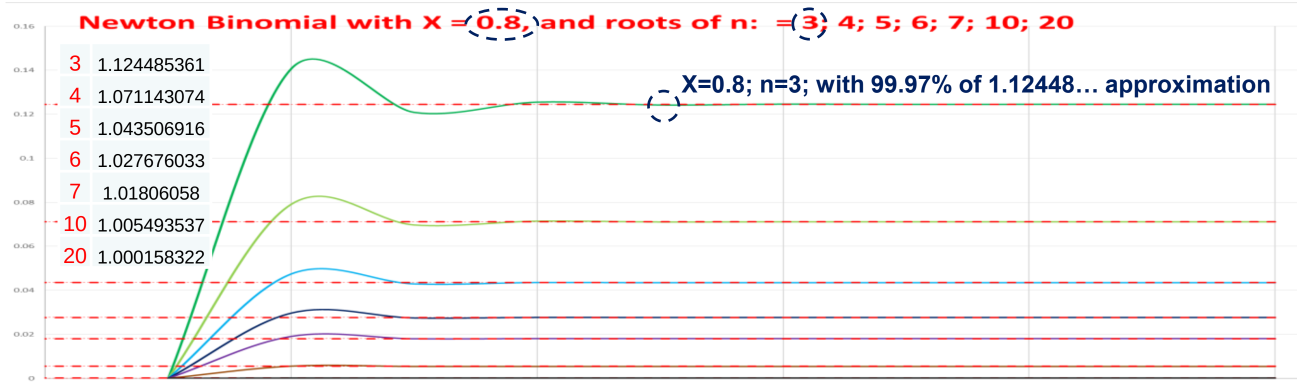
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

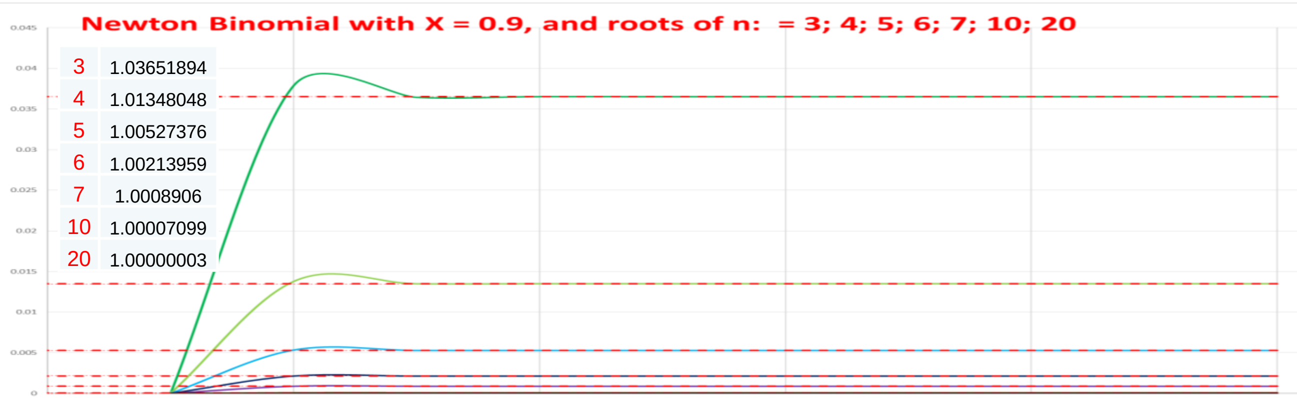
Graphs for diferent "n" and "X" values for Newton Binomial of fraction potencies:

$(1+\tan^3)^{1/3} = 1 + 1/3 \tan^{3x1} + 1/3\ (1/3-1)\ /\ 2!\ \tan^{3x2} + 1/3\ (1/3-1)\ (1/3-2)\ /\ 3!\ \tan^{3x3} + 1/3\ (1/3-1)\ (1/3-2)\ (1/3-3)\ /\ 4!\ \tan^{3x4} \ldots$

This series gets infinite componentes and converges to a limit of $(1+\tan^n)^{1/n}$ and examples of convergence with few components that gets better with greater "n" and "X"



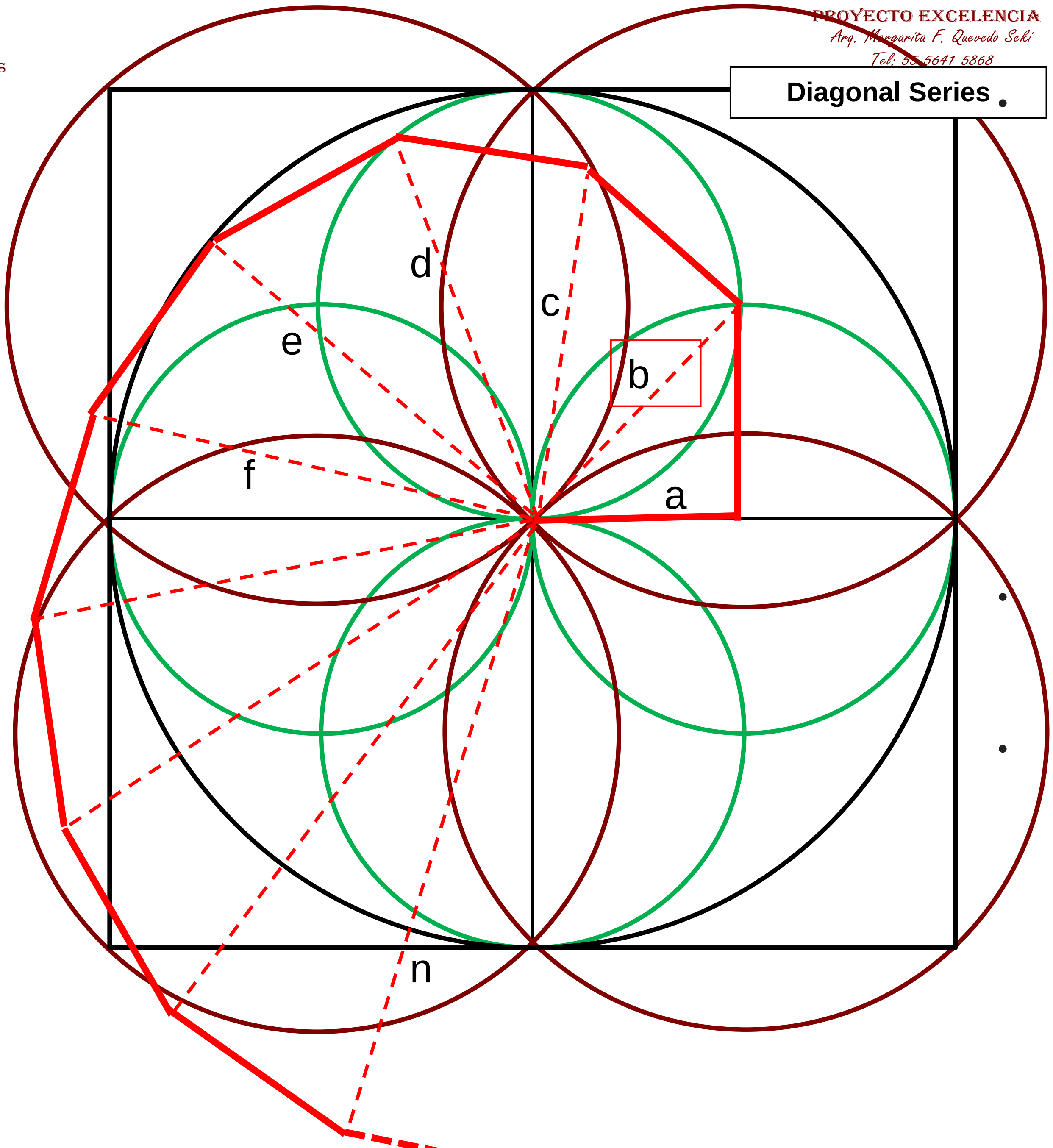




FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Diagonal Series



Diagonals series (working model from Pythagoras +)

A body (line, surface, cube, 4th dimension ...) normally represented by "n" independent orthogonal dimensions, could be equivalent to its considering as its "diagonal", so the "substance" (length; area; volume, etc.) for a cube would be equal to the "diagonal" to the 3 divided to square root of 3.

- **This simplifies by taking the "diagonal" as the new axis and then adding up other "diagonals".**
- **Extending the concept to higher dimensions with diagonal and 1, 2, 3, 4, 5, 6, ... roots.**

$a = \sqrt{1}$

$b = \sqrt{2}$

$c = \sqrt{3}$

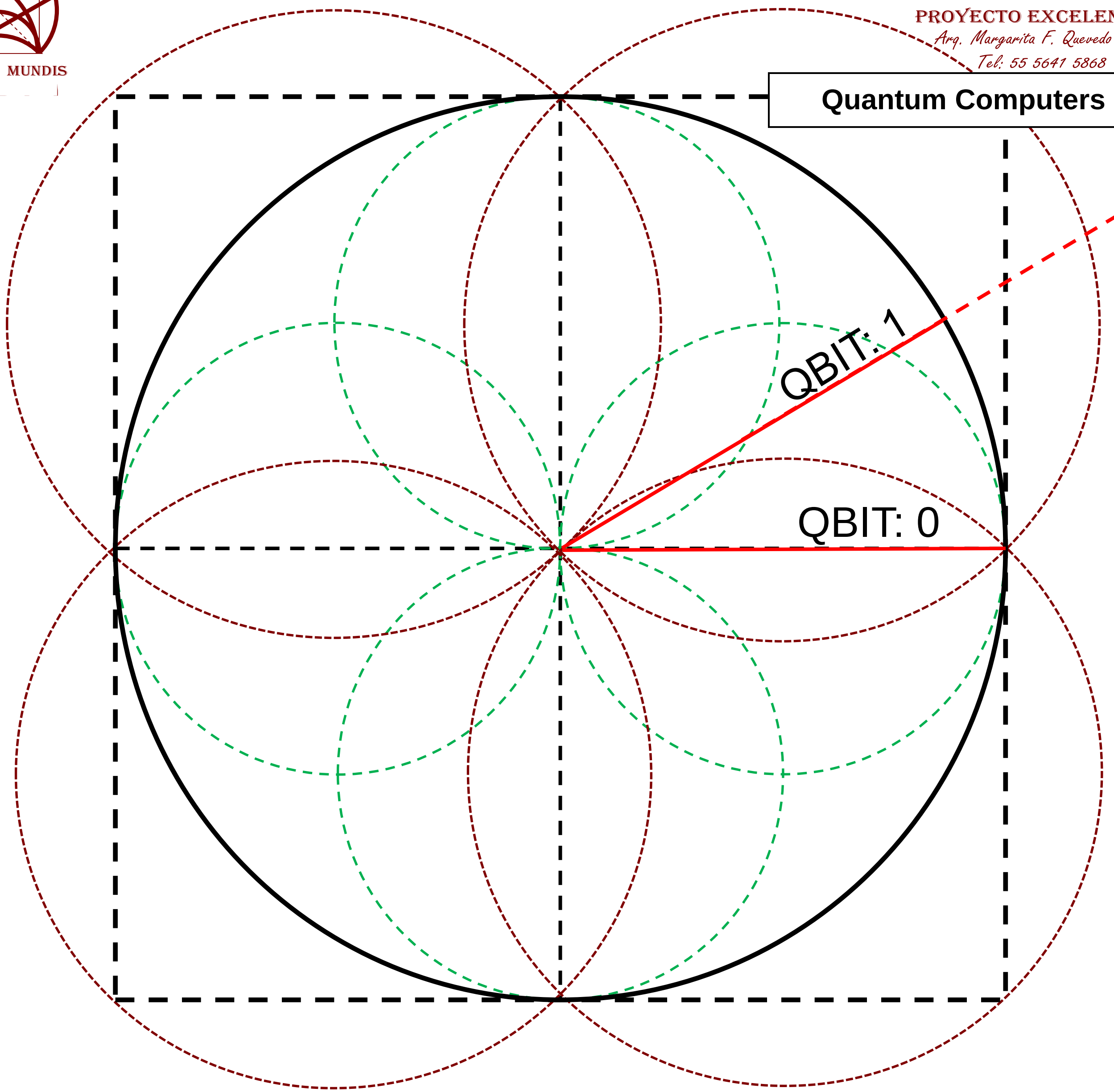
$d = \sqrt{4}$ …

$n = \sqrt{n}$

FORMA MUNDIS

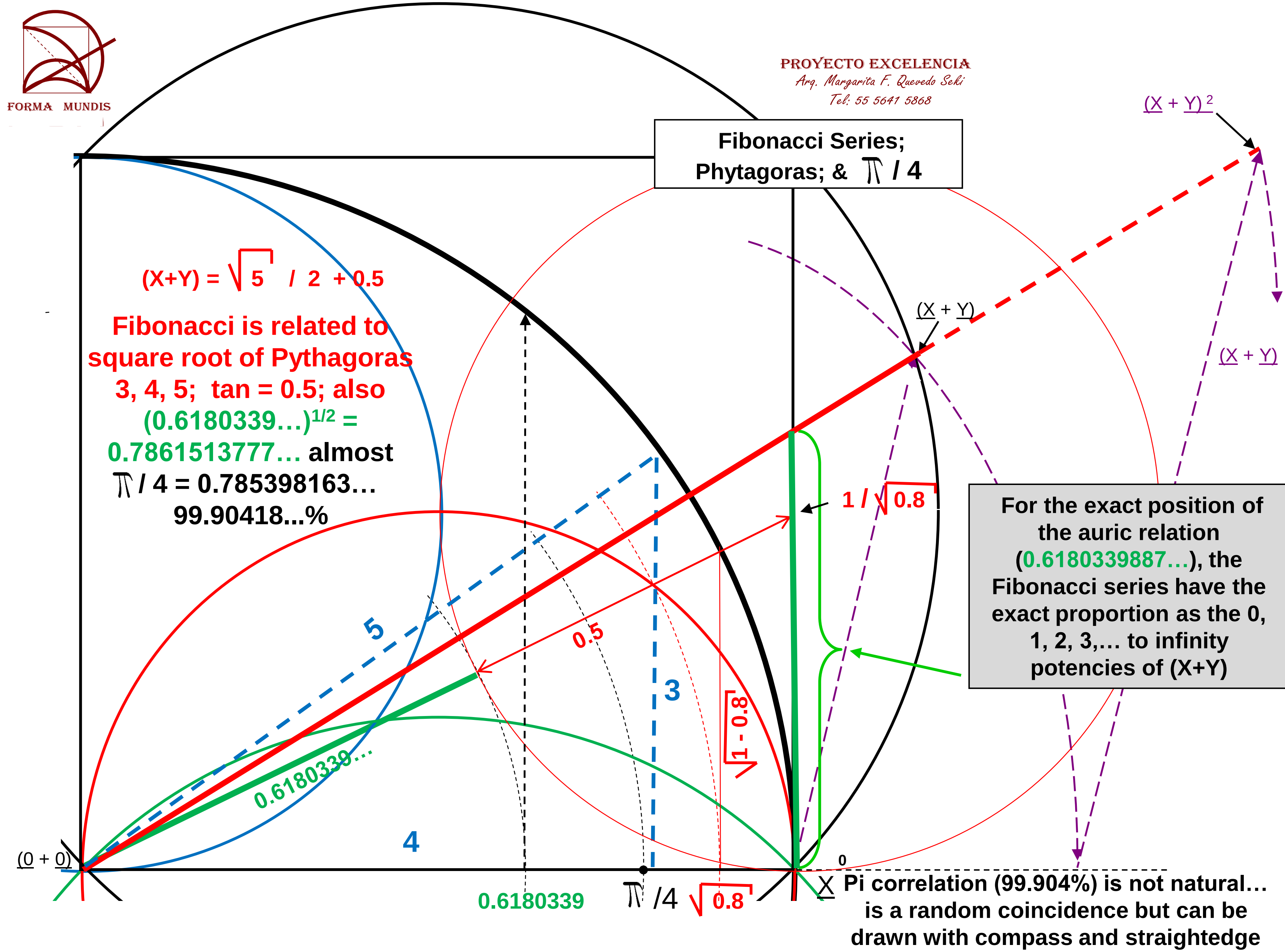
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Quantum Computers



Complement of Quantum Qubits. In this graph you can see a multiplicity of results that appears when you define a position and a scale, managing to multiply the interpretations of phases and probabilities.

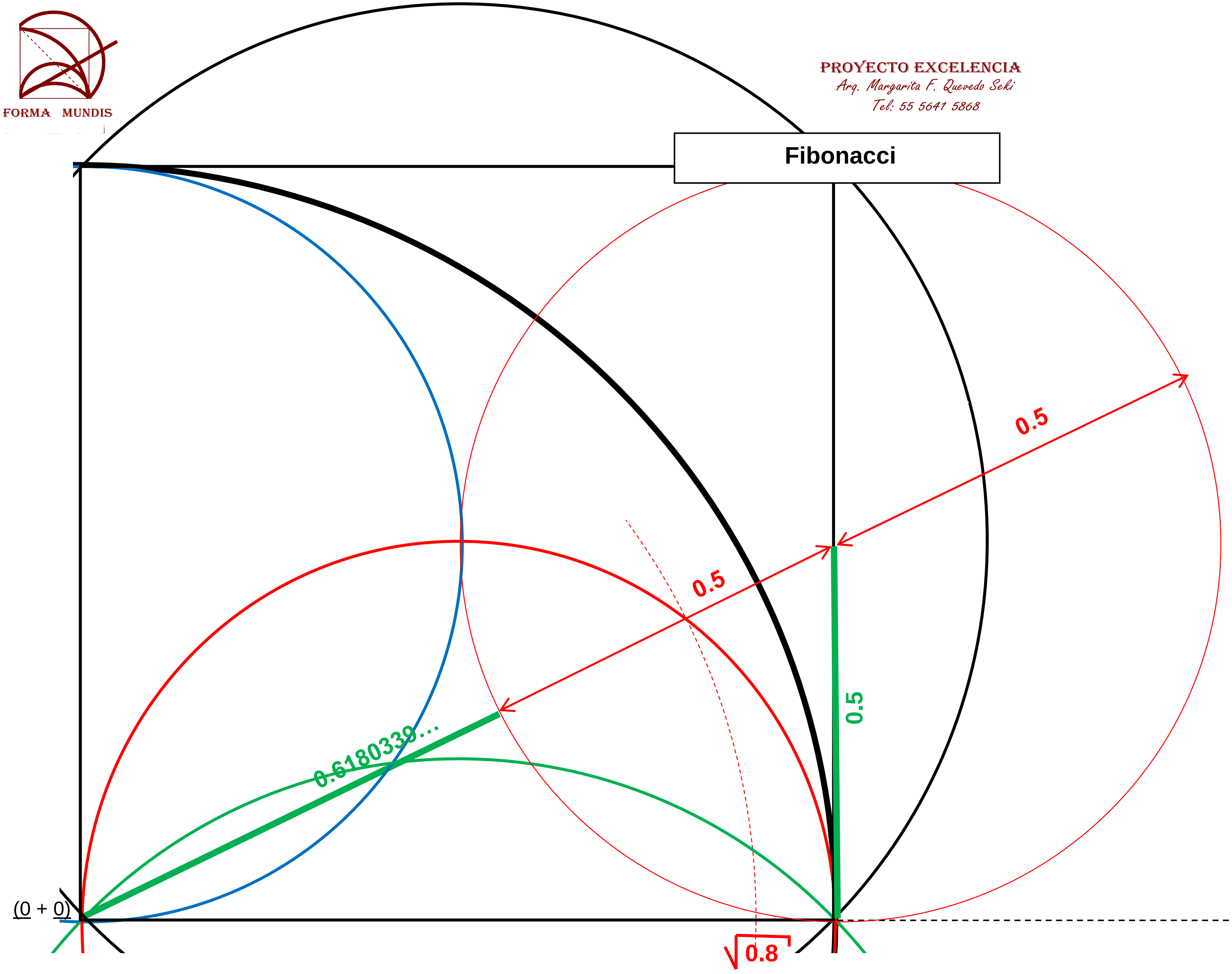
This Forma is a analog quantum computer where circles "knows all" and yields lightning results of all relations the moment the line crosses the circles, and maybe apply to Shor and Grover algorithms.



FORMA MUNDIS
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868
Fibonacci Series;
Phytagoras; & π / 4
(X+Y) = √5 / 2 + 0.5
Fibonacci is related to
square root of Pythagoras
3, 4, 5; tan = 0.5; also
(0.6180339…)^1/2 =
0.7861513777… almost
π / 4 = 0.785398163…
99.90418...%
(X + Y) 2
(X + Y)
(X + Y)
3
1 / √0.8
For the exact position of the auric relation (0.6180339887…), the Fibonacci series have the exact proportion as the 0, 1, 2, 3,… to infinity potencies of (X+Y)
5
0.5
3
√1 - 0.8
0.6180339…
4
(0 + 0)
0
0.6180339
π /4 √0.8
X
Pi correlation (99.904%) is not natural… is a random coincidence but can be drawn with compass and straightedge

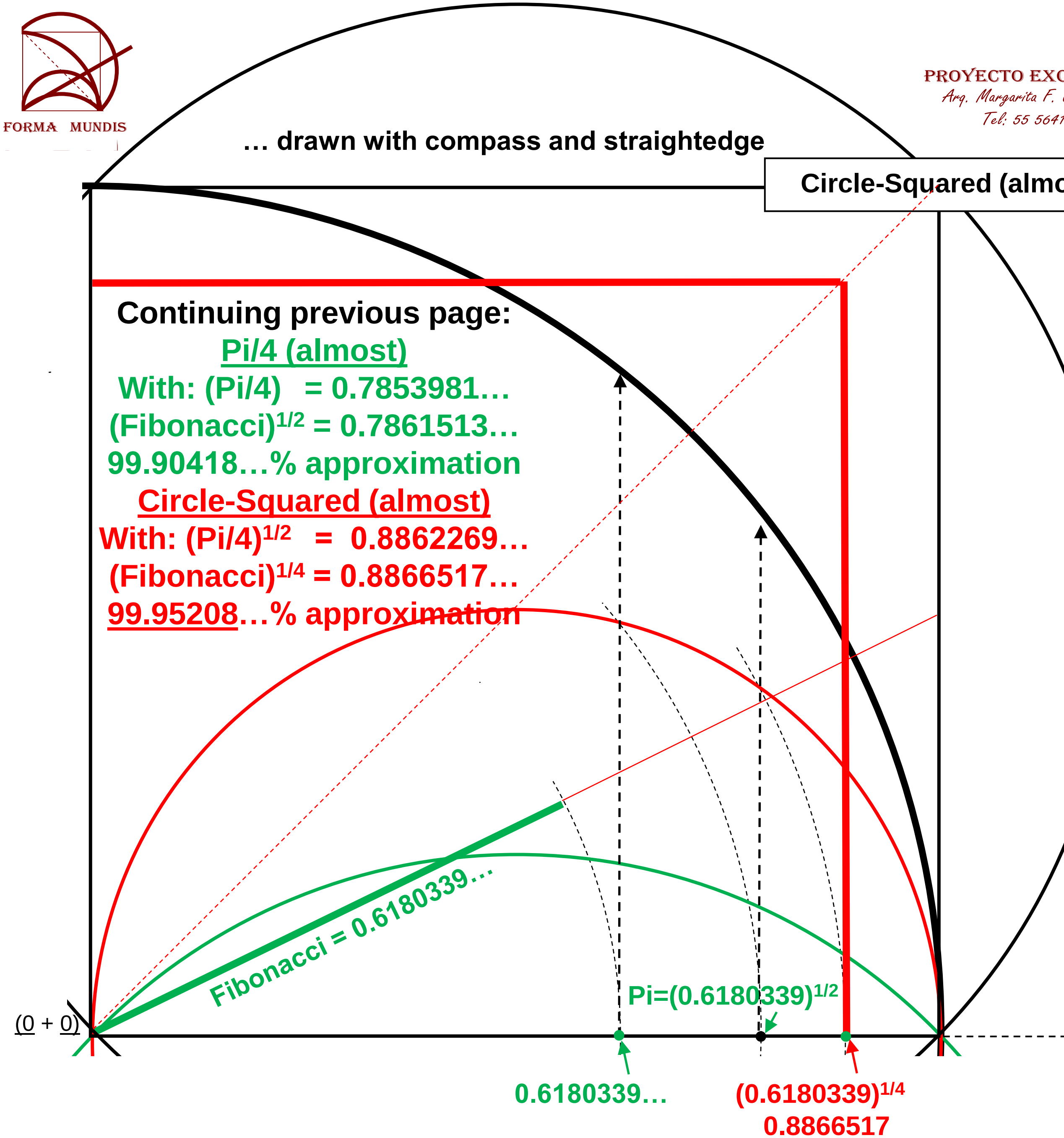
PROYECTO EXCELENCIA

Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868



FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868



Other not natural but random correlations that could be usefull to draw:

You can get the value of Avogadro (0.600214076 x 10^{32}) as a product of $x=(e/4)^{1/2}$ (0.824360635350064) and $y=1/Pi$ (0.318309886183791) and find $Y^{1/2}$ of "shape" and get an approximation of 99.993367409257 %

You can get the value of gravity G/10 (0.980665) as a product of $x=3/Pi$ (0.954929658551372) and $y=e$ (2.71828182845905) and find $Y^{1/3}$ of "shape" and get an approximation of 99.9870571490277 %

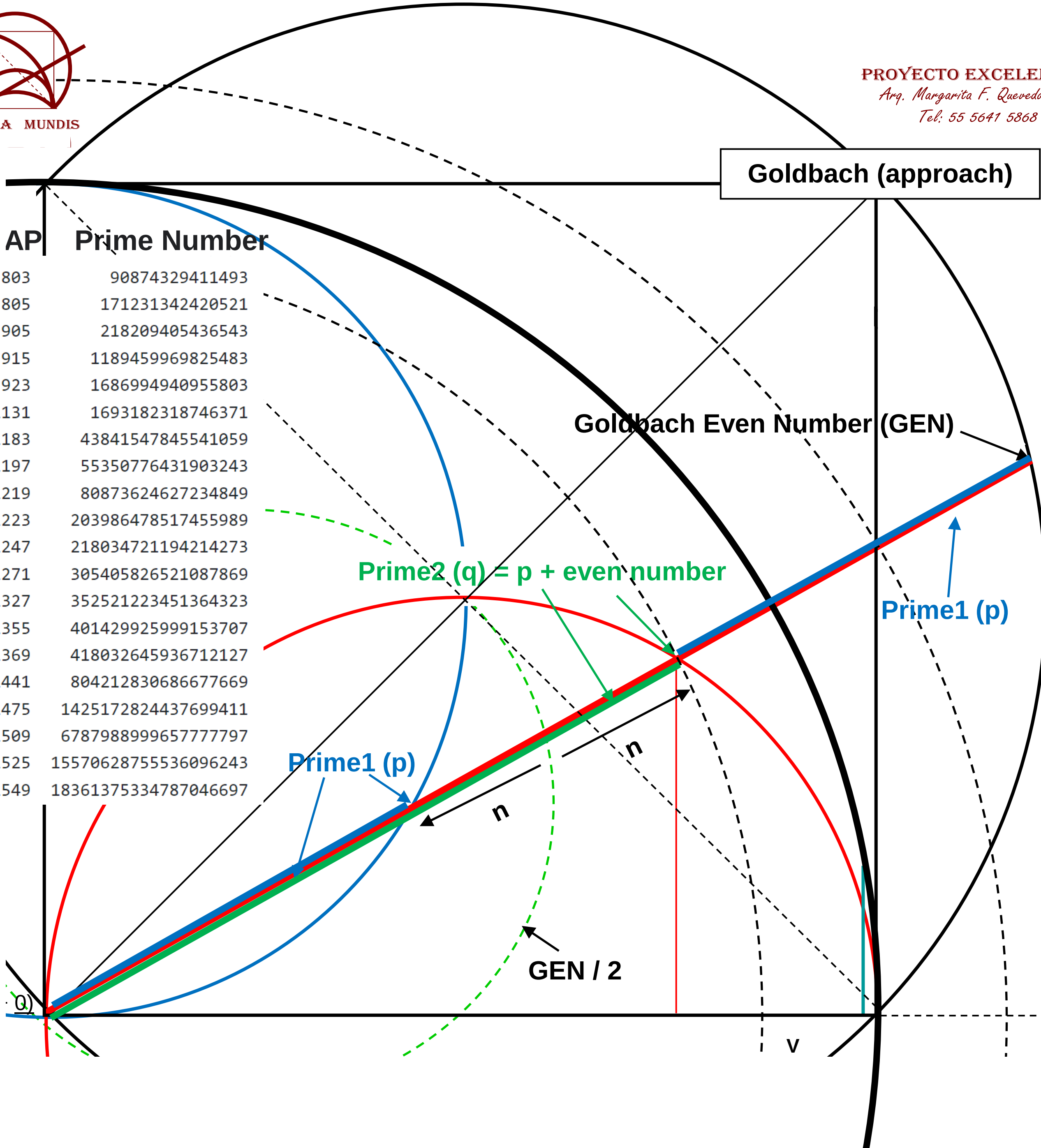
You can get the value of $(e/4)^{1/2}$ (0.824360635350064) as a product of $x=Pi/6$ (0.523598775598299) and $y=2^{1/2}$ (1.4142135623731) and find Y^3 of "shape" and get an approximation of 99.954543127242 %

Work of correlations in progress…

FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Goldbach (approach)



AP	Prime Number
803	90874329411493
805	171231342420521
905	218209405436543
915	1189459969825483
923	1686994940955803
1131	1693182318746371
1183	43841547845541059
1197	55350776431903243
1219	80873624627234849
1223	203986478517455989
1247	218034721194214273
1271	305405826521087869
1327	352521223451364323
1355	401429925999153707
1369	418032645936712127
1441	804212830686677669
1475	1425172824437699411
1509	6787988999657777797
1525	15570628755536096243
1549	18361375334787046697

The Goldbach statement Every even counting number (GEN) greater than 2 is equal to the sum of two prime numbers, has a previous one: Every prime number is the sum of any of the previous prime numbers with an even number.

For q = 31 (GEN in parentheses): 3+28 (34); 5+26 (36); 7+24 (38); 11+20 (42); 13+18 (44)

The only way that Goldbach Conjecture is incorrect is that the gap between two consecutive primes is greater than GEN/2… and as the average gap size is a lot smaller than GEN, this assurres to get at least one Goldbach Conjecture solution for each GEN.

Work in progress

FORMA MUNDIS

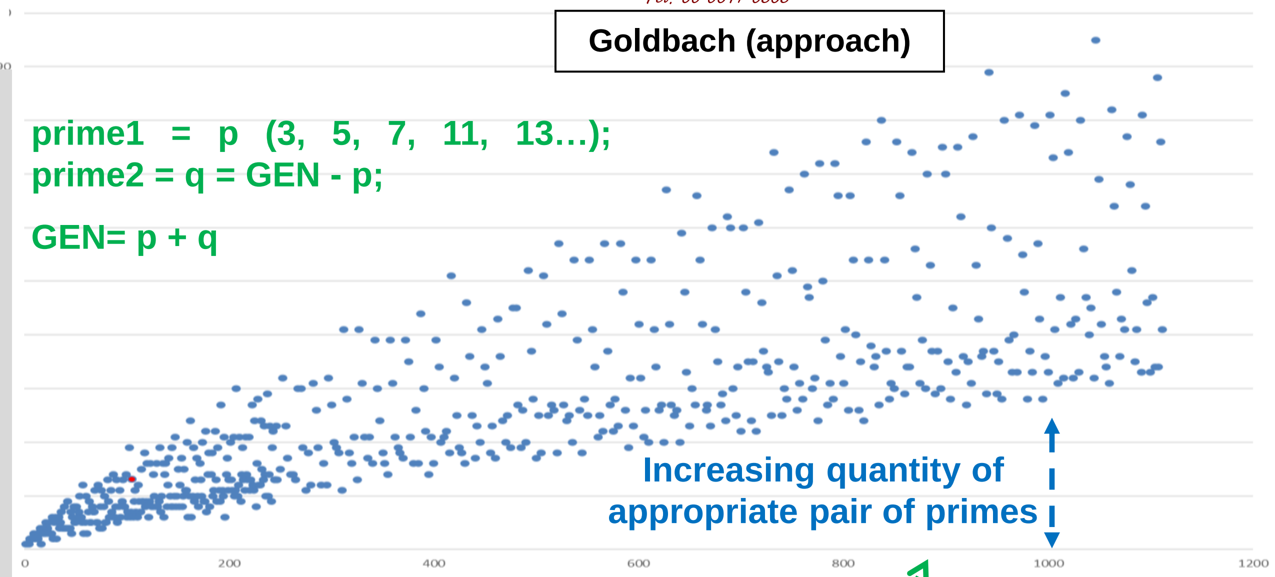
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Goldbach (approach)

Thinking about the Goldbach Conjecture with a swiss cheese barrier model in mind, we compute the number of combinations of prime numbers that form all Even Numbers (GEN).
The quantity of solutions increases following the lowest boundary.

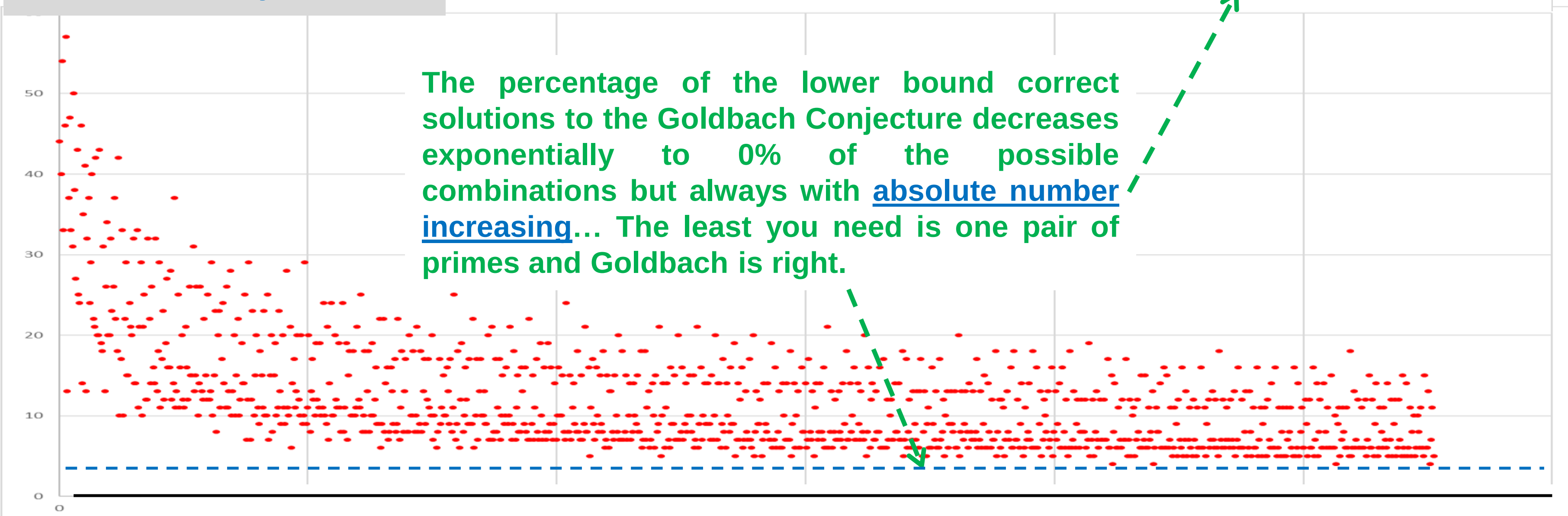
prime1 = p (3, 5, 7, 11, 13…);
prime2 = q = GEN - p;

GEN= p + q

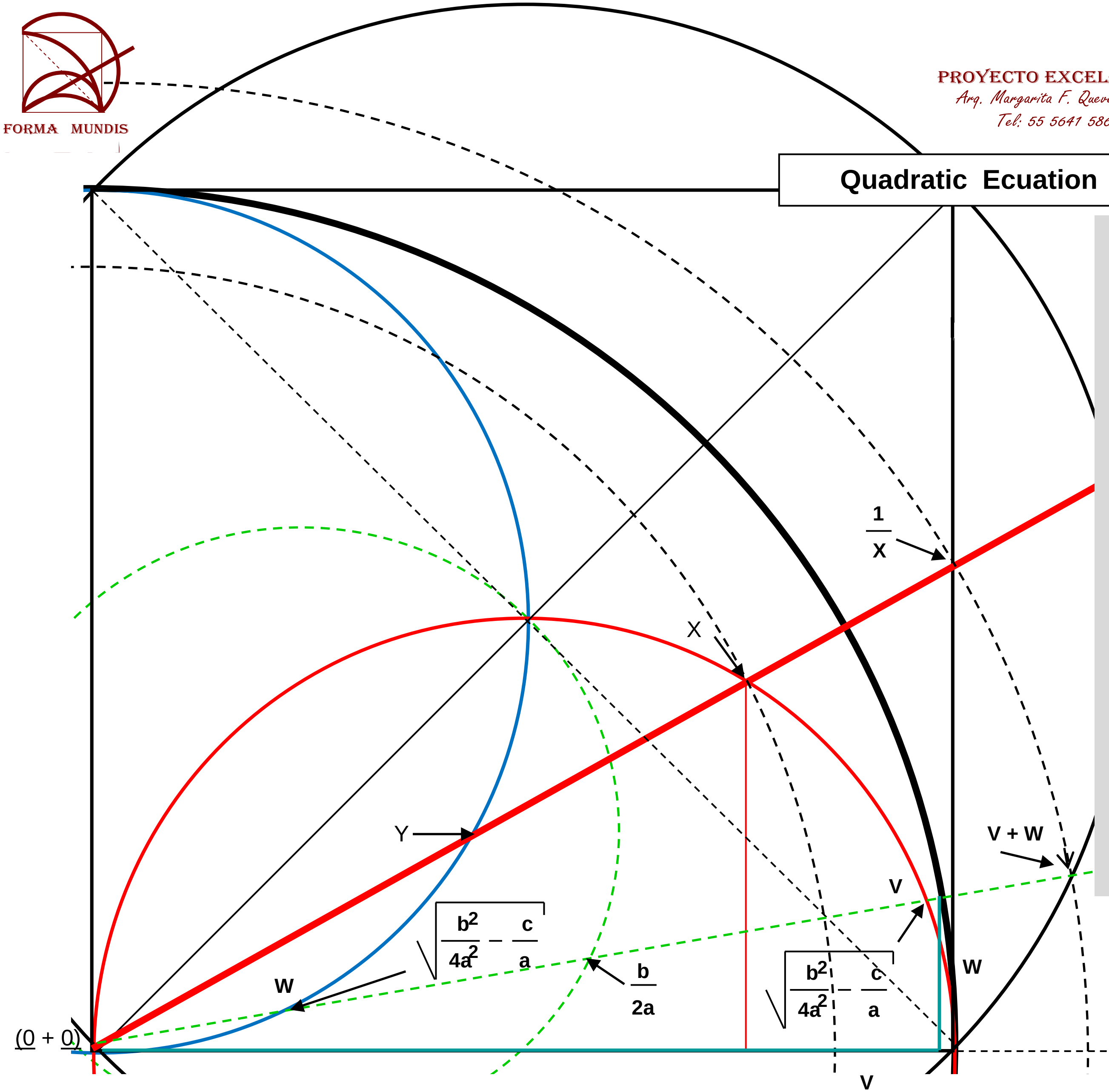


Increasing quantity of appropriate pair of primes

The percentage of the lower bound correct solutions to the Goldbach Conjecture decreases exponentially to 0% of the possible combinations but always with <u>absolute number increasing</u>… The least you need is one pair of primes and Goldbach is right.



PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868



$1/X = V + W$ y $V^2 + W^2 = 1$

Quadratic Ecuation

$2V^2 + 2/X\ V + (1/X^2 - 1) = 0$

General solution

$a V^2 + b V + c = 0$

Particular solution

$V, W = - b/2a \pm (b^2/4a^2) - c/a)_{1/2}$

(We can combine this with Golbach ideas)

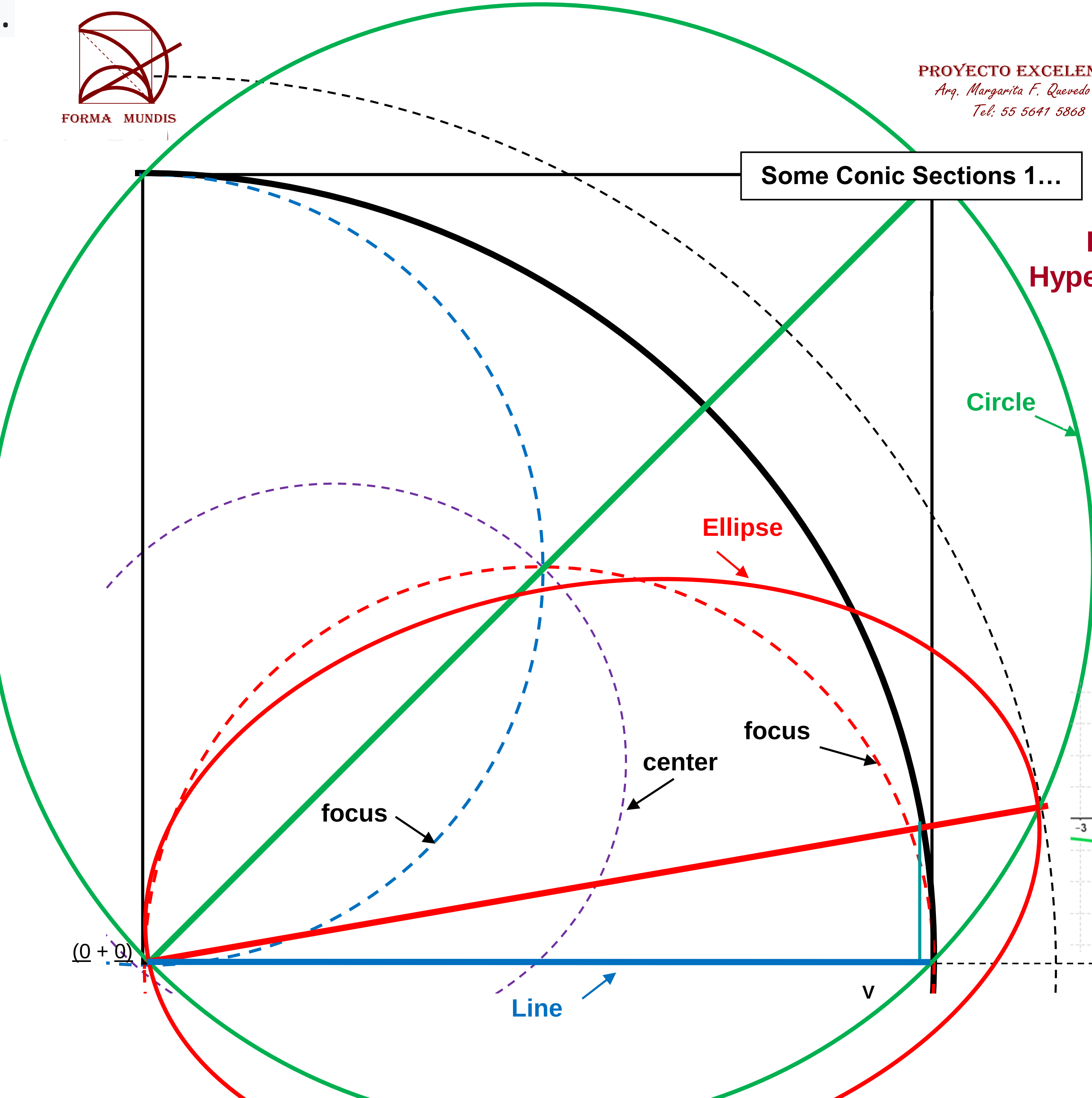
FORMA MUNDIS

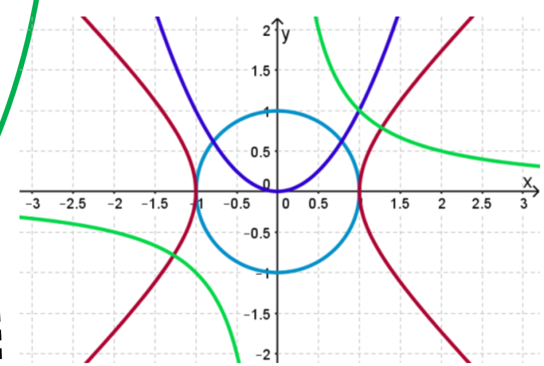
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Some Conic Sections 1…

$$aX^2 + bY^2 + cX + dY = 1$$

Círcle: a = b (same sign)
Ellipse: a = b (same sign)
Hyperbola: a and b (diferent sign)
Parabola: a or b = 0

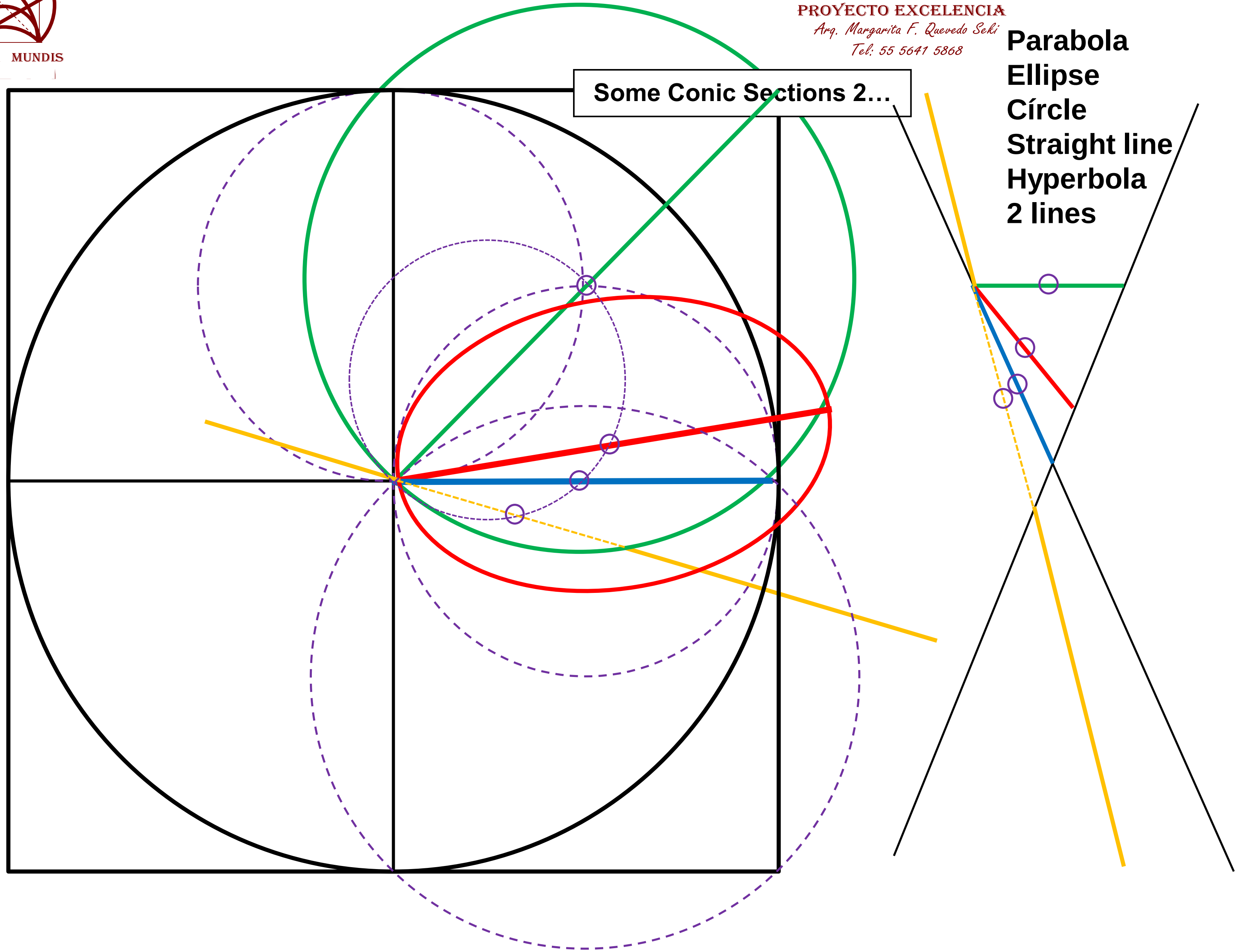




FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Some Conic Sections 2…

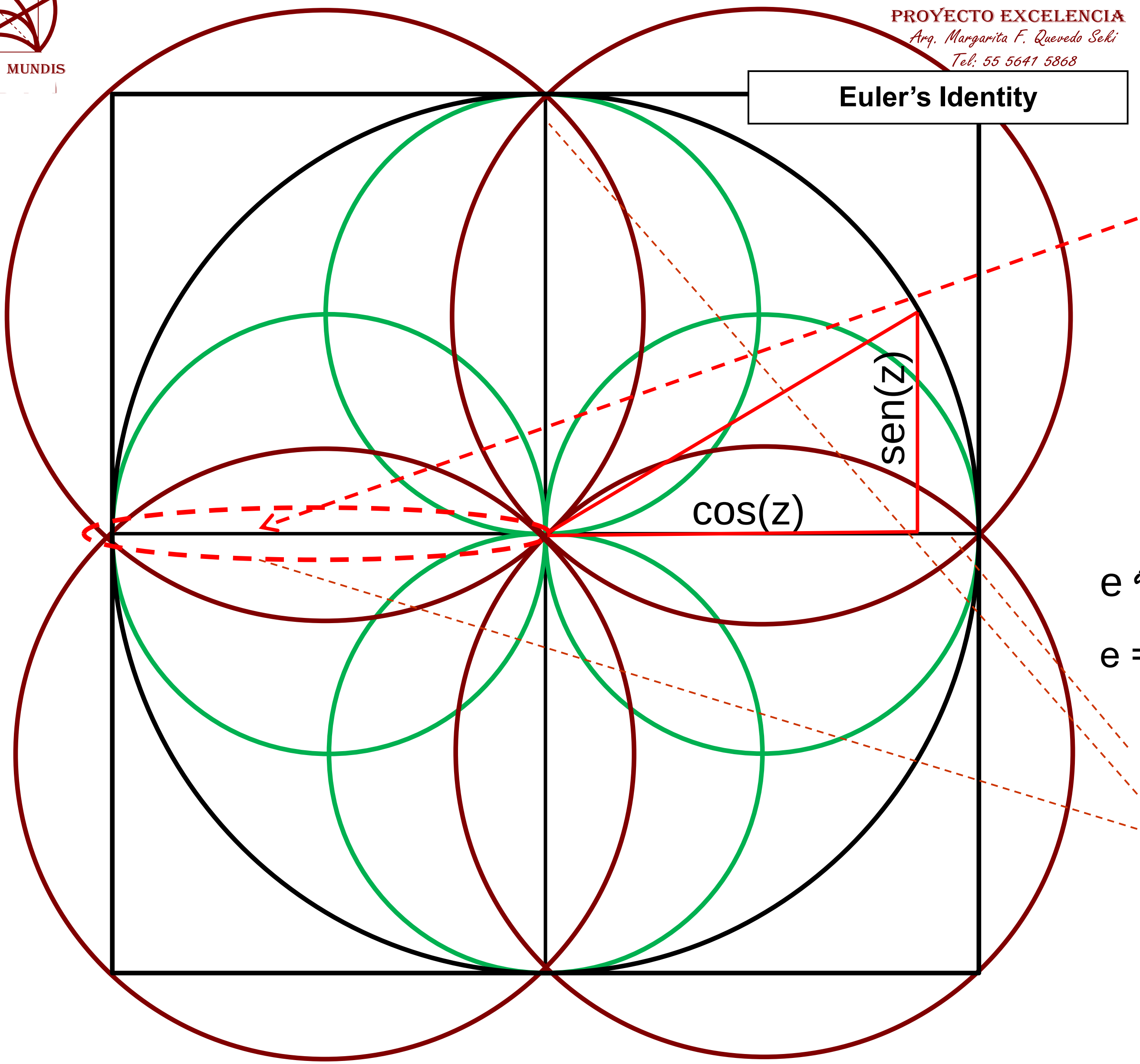


Work in progress

FORMA MUNDIS

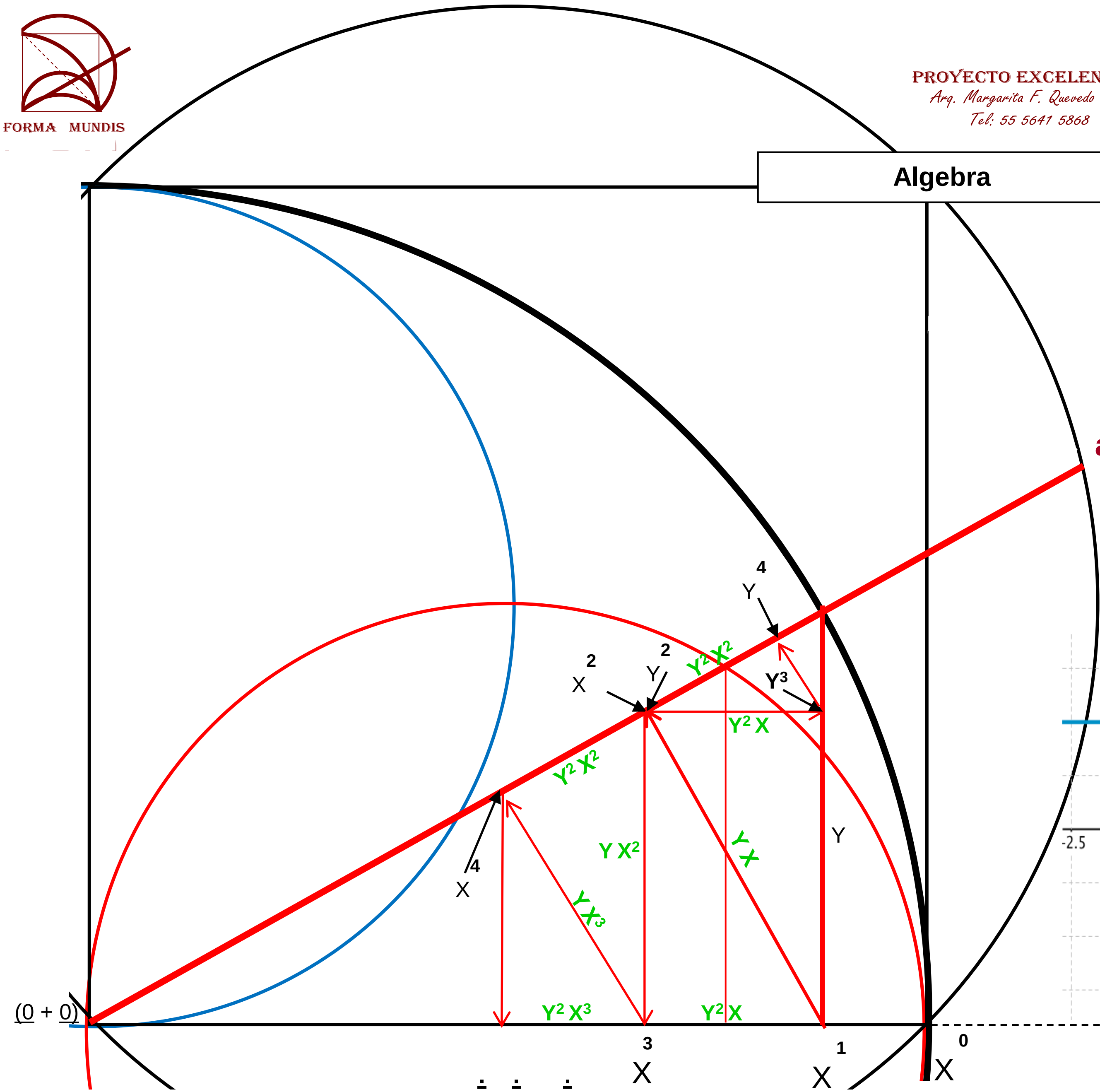
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

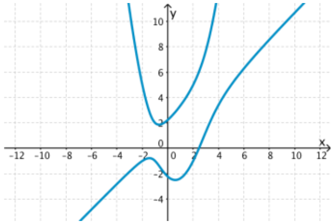
Euler's Identity



PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Algebra



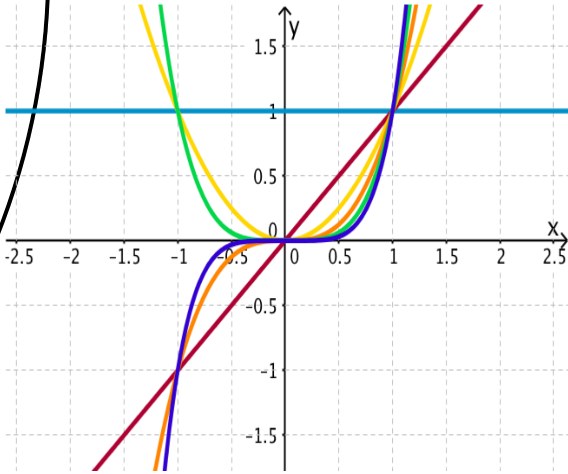


$x^3-2x^2y+y^2-4x=5$

With this elements you can construct polynomials, add constants (sizes a, b, c…) and try to solve by relating to some other measure

$aX + Y - bX^2 + Y^4 - cX^3 Y + X Y^3 - X^n Y^n \ldots$

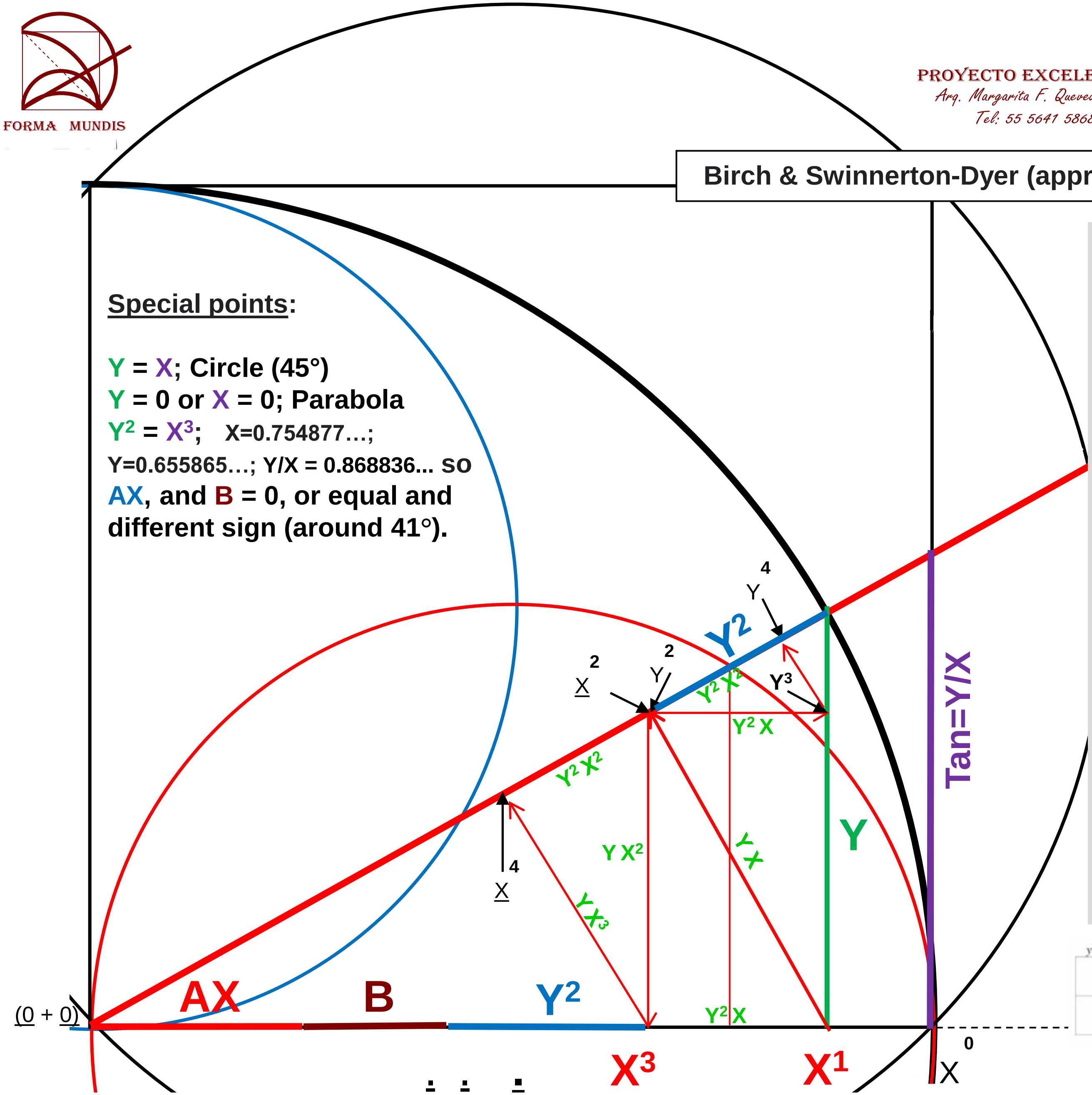
$y=x^n$ with n=0,1,2,3,4,5… positive or negative



Combine and have good luck

FORMA MUNDIS
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Birch & Swinnerton-Dyer (approach)



Special points:

$Y = X$; Circle (45°)
$Y = 0$ or $X = 0$; Parabola
$Y^2 = X^3$; X=0.754877…;
Y=0.655865…; Y/X = 0.868836… so
AX, and B = 0, or equal and different sign (around 41°).

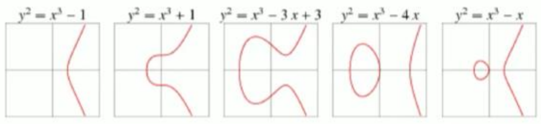
In case of Ellipticals, the shape and size tell us:

$$Y^2 = X^3 + AX + B$$

If X and Y are rational AX, B are also rational, with infinite combination possibilities.

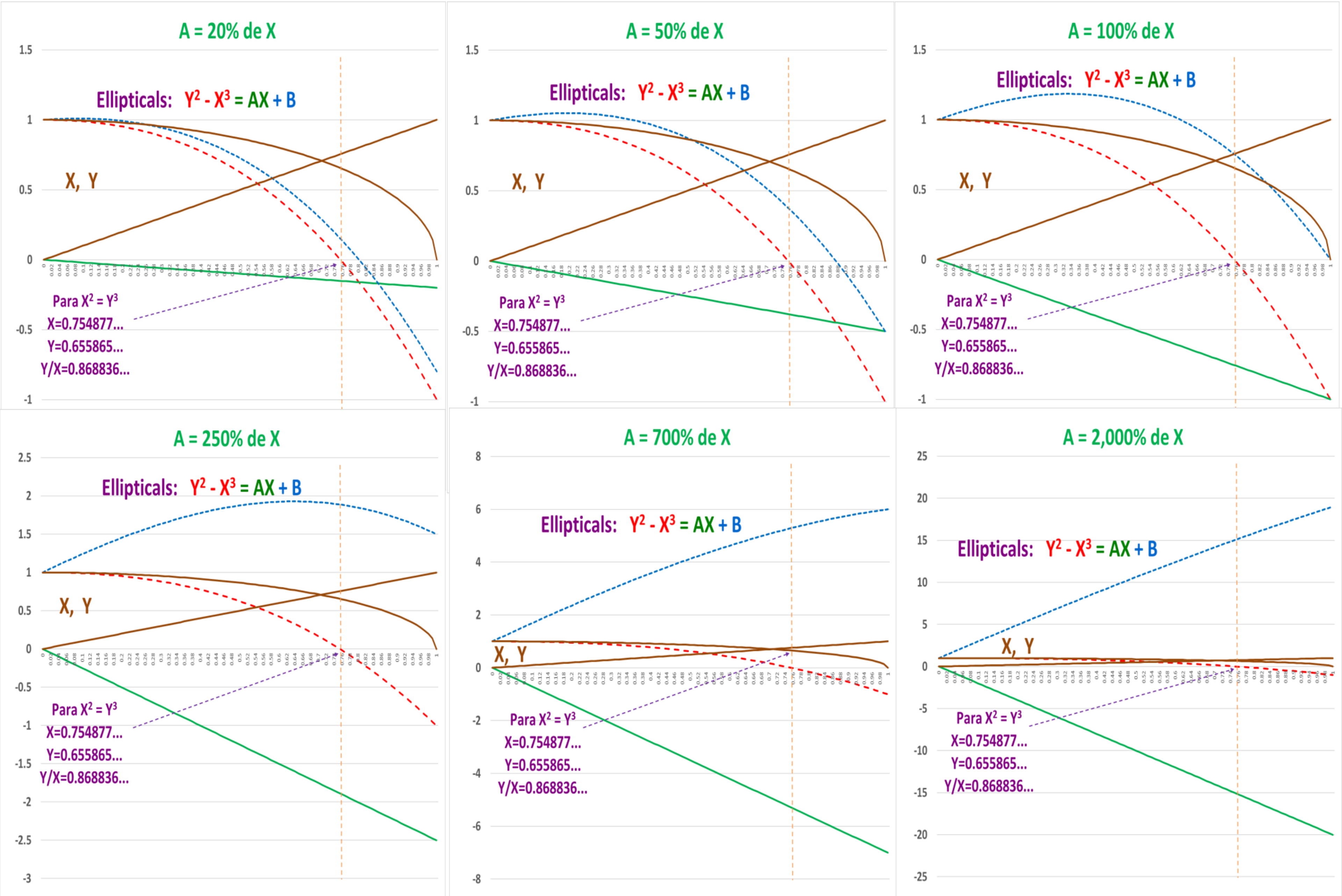
This could bring some insight into the Birch & Swinnerton-Dyer problem… and about cryptography.

Maybe this could help in answering the rank question 0, 1, and is a graphic algorithm.



Work in progress

Some dsitibutions for diferente values of A as a % of X.



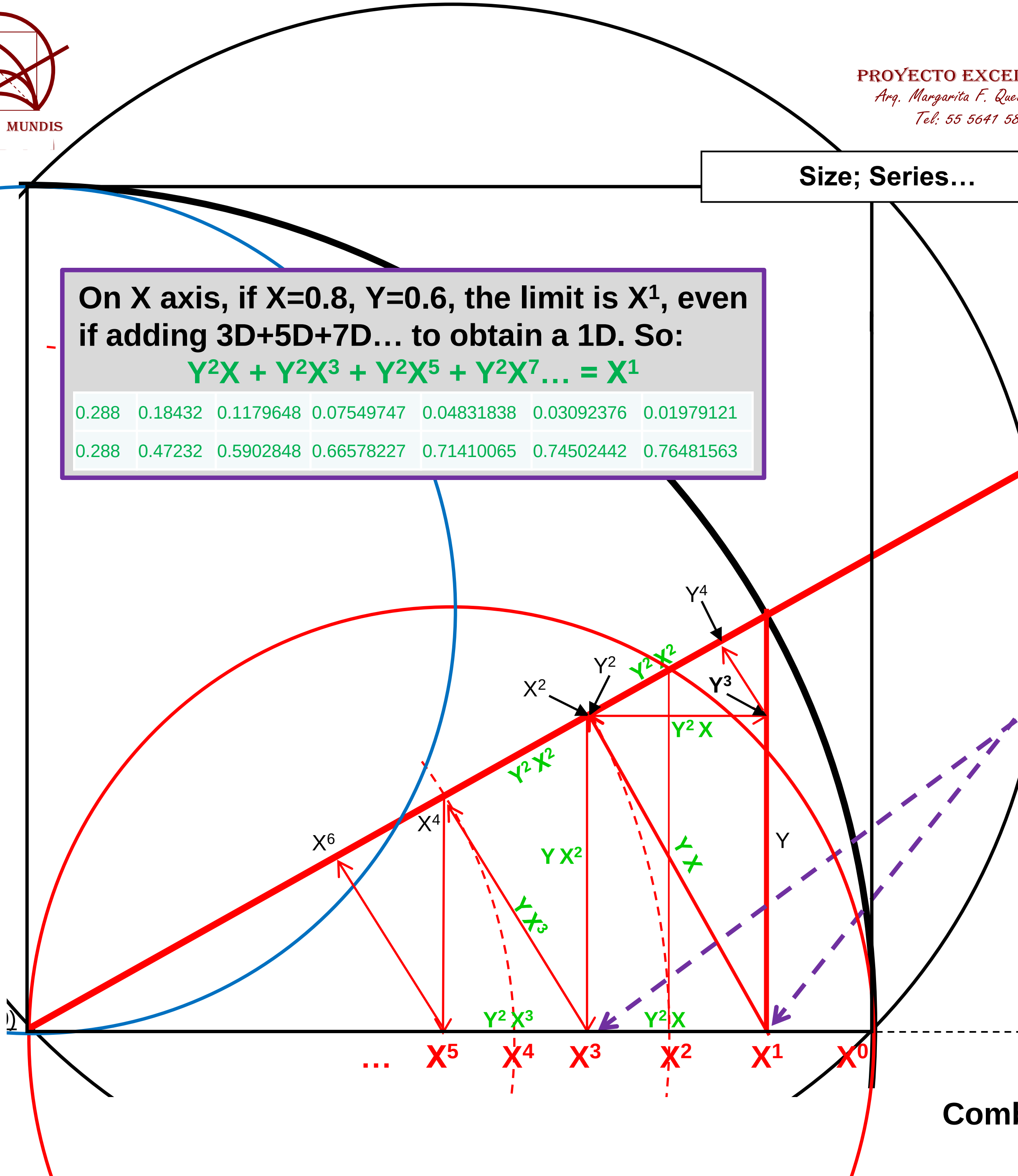
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

Size; Series…

On X axis, if X=0.8, Y=0.6, the limit is X^1, even if adding 3D+5D+7D… to obtain a 1D. So:

$$Y^2X + Y^2X^3 + Y^2X^5 + Y^2X^7 \ldots = X^1$$

0.288	0.18432	0.1179648	0.07549747	0.04831838	0.03092376	0.01979121
0.288	0.47232	0.5902848	0.66578227	0.71410065	0.74502442	0.76481563



Obtaining "Size":

$X-X^3$ Combines 1D and 3D, a line minus a volumen and can be seen as another 3D, XY^2.

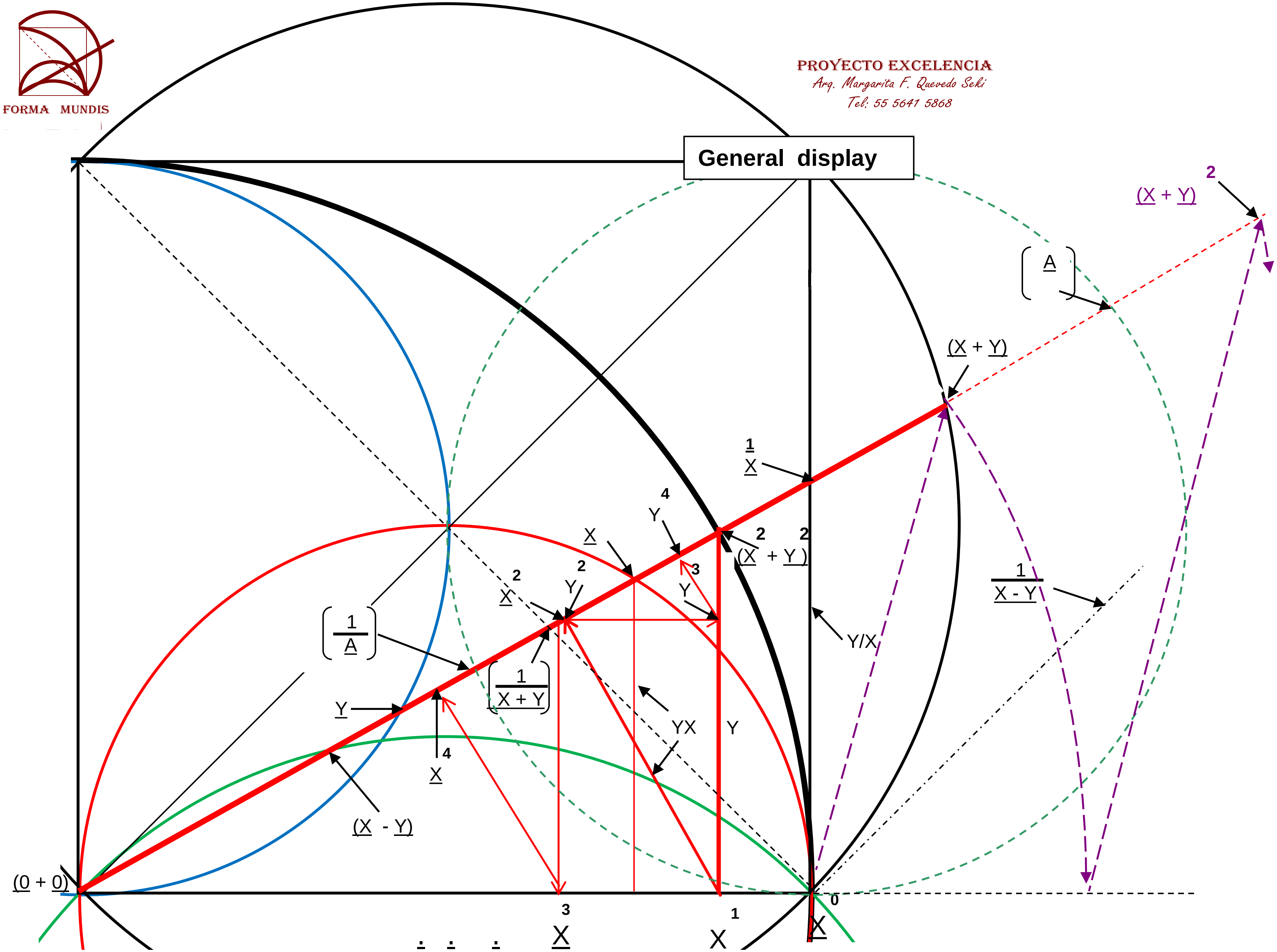
With Shape of X=0.8, Y=0.6 yields the same values: $XY^2=0.288$ and $X-X^3=0.288$. But with real values you get: x=8, y=6 yields: $xy^2=288$ and $x-y^3= -504$.

So going back to determine "Size" is a tricky business when it combines lines, areas, volumes, etc.

Combine and have good luck

FORMA MUNDIS

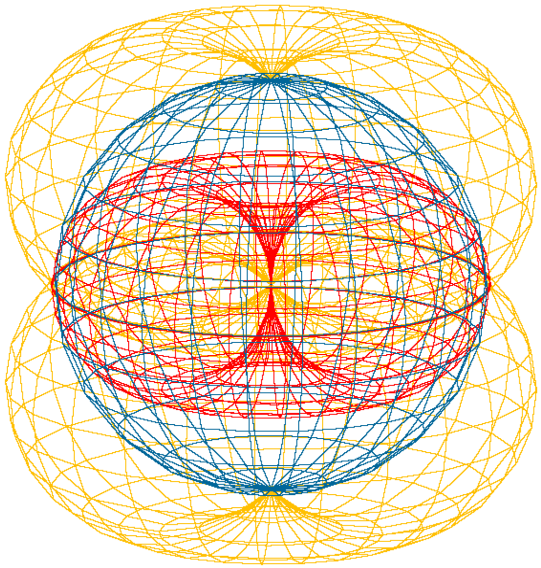
PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868

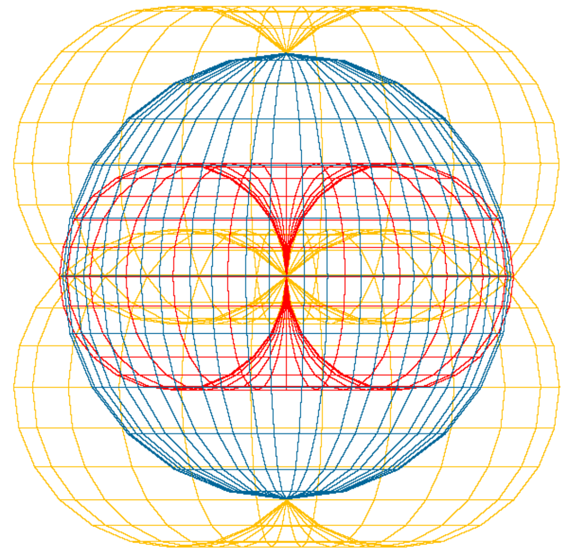


FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868
maita_q@hotmail.com

The space solution is made by rotating the plane figure on its vertical axis. It is essentially a toroidal shape inside a sphere… (with ears).





Some authors such as Johan Van Manen, CW Leadbeater, Jacob Boehme, PD Ouspensky, N Oumoff have made various comments about the higher dimensions of space, generalizing this idea as "the representation of a ring or a balloon, product of a four-dimensional conception of space that emerges from the perception of density“, whose image recalls this elementary mathematics form.

Thank you for your attention
and congratulations for a few minutes well spent

Find in YouTube: “Forma Mundis Plus”

Google: https://drive.google.com/file/d/1eypAr3BFJv_sGw2o662LYuHA-lCcQvhx/view?usp=share_link

FORMA MUNDIS

PROYECTO EXCELENCIA
Arq. Margarita F. Quevedo Seki
Tel: 55 5641 5868
maita_q@hotmail.com

Jesus begins to write something on the ground using his finger; when the woman's accusers continue their challenge, he states that the one who is without sin is the one who should cast the first stone at her.

Please keep drawing circles and lines in the sand.