Sum Of Forces In A Force - *A work in the conclusion of Fermat's last theorem and in Beal's conjecture.*

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Abstract: If $A^X+B^Y=C^Z$, where A, B, C, X, Y, Z. positive integers and X, Y, Z are all greater than 2, then A, B and C must have a common factor.
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"<u>The Beal Conjecture</u>"

If $A^X+B^Y=C^Z$, where A, B, C, X, Y, Z. positive integers and X, Y, Z are all greater than 2, then A, B and C must have a common factor.

<u>The proposal is true.</u>

Carefully, in its expression, the field of definition was narrowed, for values of X, Y, Z greater than 2.

Due to the indisputable presence of the the Pythagorean Theorem to the extension of the definition, the proposal is sufficient but not necessary.

The "Denotes and vice versa", the "Suffices and only then" the "sufficient and necessary condition", the "then and only then", with the extension to the set of integers, including 2 and 1 default values, doesn't render the sentence correct as necessary, but only as sufficient.

This paper will discuss two key parts.

Firstly the proof of Fermat's theorem, a proof which was not discussed in length in its first report consisting of two pages. Notably the simple mathematical proof of Fermat's last theorem, as notified in a mathematical association in Thessaloniki on 1-9-2005.

Secondly the possibility of expressing the sum of forces in a force. (Beal conjecture)

<u>The PROOF for n odd number</u>

The impossible of $X^n+Y^n=Z^n$

Where X, Y, Z are positive integers $n > 2$

This proof was the result of many efforts and relevant observations for about seven years, when and where the theoretical proof stopped in a erroneous (not possible) manner, expression of relation.

The last was overcome as follows.

The proof of the impossible of $X^n+Y^n=Z^n$ as a response to the phrase of HERACLITUS: *"How can one escape that which never sets ?"*

The n odd number first. (suffices for every n)

The $X+Y/X^n+Y^n$ (The X + Y divides the $X^n + Y^n$)

The $Z>Y>X$ X,Y,Z are positive integers.

$Z = X + a$

$Z = Y + b$ a, b positive integers.

$X^n+Y^n=Z^n=(X+a)^n$ **(1)**

$X^n+Y^n=Z^n=(Y+b)^n$ **(2)**

The U**(1)** remainder of dividing X^n+Y^n by X + Y is zero.

The U**(2)** remainder of dividing X^n+Y^n by X + Y is zero.

U**(1)**$=(-Y)^n+(Y)^n=(-Y+a)^n=0 \Rightarrow -Y+a=0 \Rightarrow Y=a$

U**(2)**$=(-Y)^n+(Y)^n=(Y+b)^n=0 \Rightarrow Y+b=0 \Rightarrow a+b=0$ (atopic)

Thus it should be a + b = 0. But because a, b > 0 this is inappropriate-atopic.

<u>Thus $X^n+Y^n=Z^n$ is not possible in positive integers. (n odd number)</u>

<u>The PROOF for n even number</u>

The proof of the impossible existence of positive integer solutions in the equality $X^n+Y^n=Z^n$ when n > 2 is an even number and is done as follows:

When n>2 is even n = 2k and k = 2^μ (a power of 2) μ = 1, 2, 3, 4, ... l

Then $(X^k)^2+(Y^k)^2=(Z^k)^2$

The positive integer solutions of this is given by:

(1) $Z^k=m^2+n^2$ m>n

(2) $X^k=2mn$ first between them

(3) $Y^k=m^2-n^2$ odd-even numbers

When $K=2^\mu$ becomes:

(1) $(Z^{2^\wedge\mu/2})^2=m^2+n^2$ → **(1)** $(Z^{2^\wedge\mu-1})=m^2+n^2$

(2) $(X^{2^\wedge\mu/2})^2=2mn$ → **(2)** $(X^{2^\wedge\mu-1})=2mn$

(3) $(Y^{2^\wedge\mu/2})^2=m^2-n^2$ → **(3)** $(\Psi^{2^\wedge\mu-1})=m^2-n^2$

The **(1)** and **(3)** they are written after simplification :

(1) $Z_1^2=m^2+n^2 \Rightarrow m^2=z_1^2-n^2$

(2)

(3) $Y_1^2=m^2-n^2 \Rightarrow m^2=\Psi_1^2+n^2$

We will prove that the **(1)** and **(3)** it is impossible to be both true.

Because if $m^2=Z_1^2-n^2$

The Z_1-n divides the m^2 because dividing $Z_1=n$ $m^2=Z_1^2-Z_1^2=0$

To Z_1-n divides its equal m^2 of the $Y_1^2+n^2$, so it must be $Z_1=n$ the $m^2=Y_1^2+n^2$ δηλαδή το $m^2=Y_1^2+Z_1^2=0$ (atopic). Thus denotes that $Z_1^2=m^2+n^2$ και $Y_1^2=m^2-n^2$ cannot be equally valid.

The Pythagorean theorem and the integer triads are and affirm this necessary condition where two integral triads cannot be presented with two identical values in both as perpendicular, vertical and perpendicular hypotenuse. This condition is the cause for which Fermat's theorem cannot have validity, (cannot have solutions), for an exponent even and force of 2. For any other even exponents that has an odd factor, the proof goes back to the case of the unnecessary exponent, because: If there is a factor of ω so as 2κ=ω×φ then $X^{2\kappa}+Y^{2\kappa}=Z^{2\kappa}$ becomes $(X^\varphi)^\omega+(Y^\varphi)^\omega=(Z^\varphi)^\omega$ where ω is an odd number.

The Beal Conjecture

$A^X+B^Y=C^Z$ A,B,C have common factor.

Assuming $A=\alpha_1\times\alpha_2\times\alpha_3\times\ldots.\alpha_\mu$ $\alpha_1,\alpha_2,\alpha_3\ldots.\alpha_\mu$ first numbers

$B=\beta_1\times\beta_2\times\beta_3\times\ldots.\beta_\nu$ $\beta_1,\beta_2,\beta_3\ldots.\beta_\lambda$ first numbers

$\Gamma=\gamma_1\times\gamma_2\times\gamma_3\times\ldots.\gamma_\omega$ $\gamma_1,\gamma_2,\gamma_3\ldots.\gamma_\omega$ first numbers

Then $\alpha_1^X\times\alpha_2^X\times\ldots.\alpha_\mu^X+\beta_1^Y\times\beta_2^Y\times\ldots.\beta_\lambda^Y=\gamma_1^Z\times\gamma_2^Z\times\ldots.\gamma_\omega^Z$ **(1)**

If they have a common factor then **(1)** becomes :

$\alpha_1^X\times\alpha_2^X\times\ldots.\alpha_\mu^X+\beta_1^Y\times\beta_2^Y\times\ldots.\alpha_\mu^X=\gamma_1^Z\times\gamma_2^Z\times\ldots.\alpha_\mu^X$ (α_μ^X common factor)

Assuming that a relation exists so as X,Y,Z Y<X<Z

Z=Y+K και X=Y+P

Then $\alpha_1^{Y+P}\times\alpha_2^{Y+P}\times\ldots.\alpha_{\mu-1}^{Y+P}\times\alpha_\mu^X+\beta_1^Y\times\beta_2^Y\times\ldots.\beta_{\lambda-1}^Y\times\alpha_\mu^X=$

$=\gamma_1^{Y+K}\times\gamma_2^{Y+K}\times\ldots.\gamma_{\omega-1}^{Y+K}\times\alpha_\mu^X$

$\alpha_1^{Y+P}\times\alpha_2^{Y+P}\times\ldots.\alpha_{\mu-1}^{Y+P}+\beta_1^Y\times\beta_2^Y\times\ldots.\beta_{\lambda-1}^Y=\gamma_1^{Y+K}\times\gamma_2^{Y+K}\times\ldots.\gamma_{\omega-1}^{Y+K}$

Meaning that $A^{Y+P}+B^Y=\Gamma^{Y+K}$ **(2)** is true.

Meaning that $A^Y+B^Y\neq\Gamma^Y$ **(3)**

Therefore the relation (3) is true, it is Fermat relationship $A^Y+B^Y\neq\Gamma^Y$ Y>2

The same for any relation X,Y, Z ecxept X = Y = Z= 1 (relative simple integers)

And X = Y = Z = 2 (Pythagorean theorem)

The following are examples of the Beal conjecture, as explained by the necessity of a common factor. These are manufactured with the capability of common factor and so we get the sum of forces in a force.

1) $1+2^3=3^2$

$3^3+3^3\times2^3=3^2\times3^3$

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

$7^6+7^7=7^3\times14^3$

$7^6+7^7=(7\times14)^3$

$7^6+7^7=98^3$

2) $1+7=8=2^3$

$7^3+7^4=2^3\times7^3$

$7^3+7^4=14^3$

3) Examples :

$563^3=178453547$ and $561^3=176558481$

$563^3-561^3=B=1895066$

$B^3=6805703422714147496$

$(561\times B)^3+B^4=(563\times B)^3$

Generally

$A^\alpha - B^\alpha = c, \quad c^\alpha$

$(Ac)^\alpha - (Bc)^\alpha = c^{\alpha+1}$

$\boldsymbol{(Ac)^\alpha = (Bc)^\alpha + c^{\alpha+1}}$

Sum of forces in a force with a common factor.

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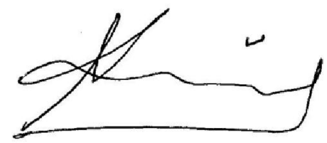

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