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The Formula That Unlocks Every Equation And The Solution Of One Of The Milennium Prize Problems (Birch And Swinnerton Dyer Conjecture)

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Abstract:

The purpose of this paper is to introduce a new discovery and a new method that allows one to solve for x in any given equation regardless of the equation's degree or complexity. Until now, there has been no formula in determining x with algebraic calculations and furthermore, there have been many Mathematicians that were considered to prove that an equation such as $ax^{19}+bx^{3}+cx+f=0$ can not be solved with pure calculations without graphs. The paper shows a new formula that gives the possible value for x regardless of the equation type with just a simple calculation.

The paper also includes the full solution for one of the Milennium Prize Problems defined by Claymath Instituition, which is the solution of Birch and Swinnerton Dyer Conjecture.

Keywords: *formula; polynomial; equation; x; degree; function; power; solution; milennium; prize; problem*

Description and use of the formula:

The formula prooves the claims made saying that it is not possible to solve for x without graphs with pure algebra to be false. The formula will help dimensional studies in Physics to be solved quickly. But before applying the formula, any given equation given in the form of $ax^g + bx^h - f = 0$ should be converted into the form of $ax^g + bx^h = f$, and at this stage (after conversion) , if f becomes negative, the whole equation must be multiplied by -1 to make it positive, before applying the formula.The formula is the following; for any equation to solve for the unknown x ;

x = ((f/(2 [(abcdef)-(a+b+c+d+e+f)AODON] (IGNORE -) /(((2y+7)/2^(y-1))))) $_{\text{EQN}}$ $^{1/p}$) ((2 [(abcdef)-(a+b+c+d+e+f)AODON] (IGNORE -) /(((2y+7)/2^(y-1)))$\pm$ $0, 0.1, 0.2$

where a, b, c, d are the numbers in front of x's in the equation, f is the result of the equation (which was previously taken to the right side of the equation), AODON means "ADDITION OF THE DIGITS OF THE NUMERATOR'', P is the greatest power (of any x) in the equation and y is the number of digits of f. At the end of the calculation, there will be 5 probabilities for x because of the addition/subtraction of the numbers 0.1 and 0.2, and the correct value for x is determined by putting these five x values into the equation and seeing which one gives the true f value, the one that gives the true f value is the answer (x). Please note that the answer obtained will always be %99.9999 close to the exact value of x, but might not always be the 100% exact value of it. For instance, if the exact value of x is 1.167, it might be calculated as 1.1667 etc…

This Formula always work for any equation, but if addition of digits of the numerator (AODON) is negative, absolute value is taken (- sign is ignored). Also as another rule, if there is any expression such as x^{-y} it must also be brought to a form where y will be positive, and then the Formula is applied. Even if the numbers in front of x's are non-integers, this formula unlocks every equation easily and therefore is very useful in calculation of huge degree equations.

Now let me give an example of how easy it is to apply the formula.

Consider the equation $5x^3 + 2x^2 + 7x$-380 = 0. (Remember it might be any kind of equation, and the powers do not have to increase/decrease one by one as it is in this equation). The first thing we need to do before applying the formula is to say the following:

$5x^3 + 2x^2 + 7x$ = 380

Then just apply the formula (but remember if it was -380 at the right side of equation, the whole equation must have been multiplied by -1.)

Application of the formula in steps:

(5x2x7x380) – (5+2+7+380) =26206, 2+6+2+0+6 =16

Because 380 has 3 digits, y=3, and in this case the denominator in the formula becomes 3.25.

16/3.25 = 4.92, 4.92x2 = 9.84

Now put 9.84 into the equation:

$5(9.84)^3+2(9.84)^2+7(9.84)$ = 5026

380/5026 = 0.0756

P (the greatest power of x in the equation) = 3

$(0.0756)^{1/3}$ = 0.423

0.423 x 9.84 = **4.16232 = 4.2 (round off the result to one decimal point)**

Probabilities:

4. 2 $\pm$0 = 4.2

4.2 + 0.1 = 4.3

4.2+0.2 = 4.4

4.2-0.1 = 4.1

4.2-0.2 = **4.0**

Since when x=4, f= 380, the answer is **x=4 !** (The x value that gives the closest f value to the answer is the answer. F can be 500 in an actual equation and the closest x value obtained might be 436, but this will not affect the answer much, since if the real value of x in that equation is, say 1.934, the obtained value will be 1.9) .

SOLUTION OF BIRCH AND SWINNERTON DYER CONJECTURE

In summary, the problem wants one to find the values in the form of integers, if there are any, to the x, y, z and t in the equations such as the followings:

$$x^3 + y^3 = z^3$$

$$x^4 + y^4 = z^4$$

$$x^5 + y^5 + z^5 = t^5$$

The question asks whether a formula can be improved to find x, y, z (all values) to be applied generally to find solutions.

Solution: Although there have been some Mathematicians claiming that there is no solution for all cases, this claim is false, because as I will prove here, all these equations have integer solutions for all letters (x, y and z) regardless of what kind of equation with how many unknowns one writes. The general formula I have improved on my own to unlock all these equations is the following:

Consider the following equation:

$$x^4 + y^4 + t^4 = z^4$$

If we say x = u, we must then say y = u + k , z = u + 2k where k is an integer that is not equal to zero and where u is an integer that is also not equal to zero. We can give any integer we would like to u and k except 0. Then, we need to calculate h which is the following (based on the equation):

$(u)^4 + (u + k)^4 + (u+2k)^4 = h$

And then we should calculate $h^{1/4}$. But no rounding off here! We need to take the exact number including all decimals when we calculate $h^{1/4}$.

Then what we should do is we have to multiply this exact $h^{1/4}$ value with 2 on our calculator continuously, until we get an integer number. This will be a multiplication of about 25-30 times. The first time we get an integer, we must stop and write that integer number down.

$h^{1/4} \times 2 \times 2 \times 2 \times 2 \ldots\ldots = integer$

Now if we call this integer number "Q'', we need to find F from the following equation:

$Q/h^{1/4} = F$ **(If F is not an integer at this stage, it must be rounded off to its closest integer. For example if it is 4546778.9, it must be taken as 4546779, and if it is 4546778.1, it must be taken as 4546778 !)**

The F value is equal to x ! And then y = $((1+k)f)^4$, and z = $((1+2k)f)^4$. And then all we need to do is to calculate the summation A, which will automatically be equal to $(z)^4$. Then all we need to do to find z is to say $A^{1/4} = z$, and we will find z also as an integer in this case! This is how we can unlock all these equations easily and note that an infinite number of values can be obtained for all kinds of such equations. Now let me give an example with numbers and show how the exact values can be obtained:

$x^4 + y^4 + t^4 = z^4$

We can always say u=k=1, immaterial what the equation is. Let us say u=1 and also k=1.

Remember that x = u, y = u + k and z = u + 2k. In this case:

$(u)^4 + (u+k)^4 + (u+2k)^4 = (1)^4 + (1+1)^4 + (1+2\times 1)^4 = 98 = h$

$98^{1/4} = 3.146346284$

$3.146346284 \times 2 \times 2 \times 2 \ldots\ldots.. = 1689181799$

$Q / h^{1/4} = 1689181799/3.146346284 = 536870912 = F = x$

$(536870912)^4 + ((1+1)536870912)^4 + ((1+2(1))536870912)^4 = 8.141521474\times 10^{36}$

$(8.141521474\times 10^{36})^{1/4} = 1689181799 = z$

Therefore, as an initial solution, x = **536870912**, y= $2\times 536870912 = \mathbf{1073741824}$,

t = 3×536870912 = **1610612736** and z = **1689181799**

As another example, consider the following equation:

$x^3 + y^3 = z^3$

Again, say k = u = 1

$(1)^3 + (2)^3 = 9$

$9^{1/3} = 2.080083823$

$2.080083823\times 2 \times 2 \times 2 \ldots.. = \mathbf{11167366499} = z$

11167366499 / 2.080083823 = **536870912** = F= x

y = 2x = $536870912\times 2 = \mathbf{1073741824}$

In conclusion, we have obtained the following:

$(536870912)^3 + (1073741824)^3 = (11167366499)^3$

All other equations can be solved the same way.