http://blog.empas.com/leejaeyul5/,
http://cafe.naver.com/leejaeyul.cafe,
http://cafe.daum.net/leejaeyul5

4 Color Theorem proof of the regions on global surface

[1] 4 colors suffice for the distinguishing all regions about one region and the regions those share a common one region`s boundary line. Here, one region can contain all shapes many regions.

[Proof] The reason is this. 3 colors suffice for the distinguishing all regions those share a common one region`s boundary line.

[2] 3 colors suffice for the distinguishing all regions those share a common one region`s boundary line.

[Proof] The reason is this. When there are lined from one region`s inner one point to the points on one region`s boundary line those are met the adjacent regions boundary lines, all extension regions are the regions those share one common point. 3 colors suffice for the distinguishing all regions those share one common point.

[3] 3 colors suffice for the distinguishing all regions those share one common point.

[Proof] The reason is this. When one region is selected, 2 colors suffice for the distinguishing all regions those share a common one selected region`s boundary line.

Two each methods about FLT proof

$$X^n+Y^n=Z^n$$

$$A=Z-Y,\ B=Z-X$$

$$X=G(AB)^{1/n}+A,\ Y=G(AB)^{1/n}+B,\ Z=G(AB)^{1/n}+A+B,\ X+Y-Z=G(AB)^{1/n}$$

$$\{G(AB)^{1/n}+A\}^n+\{G(AB)^{1/n}+B\}^n=\{G(AB)^{1/n}+A+B\}^n$$

When $n=1$, $G=0$ and when $n=2$, $G=2^{1/2}>0$ and when $n=3$, $G=Function(A,B)>0$.

$$X=(2AB)^{1/2}+A,\ Y=(2AB)^{1/2}+B,\ Z=(2AB)^{1/2}+A+B$$

$$2AB=k^2(k \text{ is } 1,2,3...),$$

$$XY=k(k+A)(k+2A)/2A=k(k+B)(k+2B)/2B$$

All Pythagorean triples cannot be the power numbers.

1st method about Fermat's Last Theorem proof

$$X^n+Y^n=Z^n$$

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

$$a=Z^{n/2}-Y^{n/2},\ b=Z^{n/2}-X^{n/2}$$

$$\{G(ab)^{1/2}+a\}^2+\{G(ab)^{1/2}+b\}^2=\{G(ab)^{1/2}+a+b\}^2$$

$$G=2^{1/2}>0,\ X^{n/2}=(2ab)^{1/2}+a,\ Y^{n/2}=(2ab)^{1/2}+b,\ Z^{n/2}=(2ab)^{1/2}+a+b$$

$$(XY)^n=ab\{2a^2+2b^2+13ab+6(a+b)(2ab)^{1/2}$$

The numbers (X,Y,Z) need to be co-prime and the number (n) is the odd and prime number.

2nd method about Fermat's Last Theorem proof

$$\{G(AB)^{1/n}+A\}^n+\{G(AB)^{1/n}+B\}^n=\{G(AB)^{1/n}+A+B\}^n$$

When $A=B$, $2\{G+A^{(n-2)/n}\}^n=\{G+2A^{(n-2)/n}\}^n$.

$$G=\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}\{2A^{(n-2)}\}^{1/n}=[\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}^n\{2A^{(n-2)}\}]^{1/n}$$

We make a numerical formula. $\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}[\{2A^{(n-1)}B\}^{1/n}+\{2AB^{(n-1)}\}^{1/n}]$

$$q=2G(AB)^{1/n}/\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}[\{2A^{(n-1)}B\}^{1/n}+\{2AB^{(n-1)}\}^{1/n}]$$

$$G(AB)^{1/n}=q\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}[\{2A^{(n-1)}B\}^{1/n}+\{2AB^{(n-1)}\}^{1/n}]/2$$

when $A=B$, q must be 1.

If the figure $\{G(AB)^{1/n}\}$ can be the natural number in some natural numbers (A,B), the formula $\{2G(AB)^{1/n}\}$ cannot have the figure $\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}$. But the numerical formula that we made $\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}[\{2A^{(n-1)}B\}^{1/n}+\{2AB^{(n-1)}\}^{1/n}]$, have the figure $\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}$. And when $A=B$, $q=2G(AB)^{1/n}/\{2^{(n-2)/n}+\ldots+2^{1/n}+1\}(2^{1/n}A)$. So, when $A=B$, the figure (q) cannot be 1. This is an apparent contradiction. Therefore, the figure $\{G(AB)^{1/n}\}$ cannot be the natural number in the natural numbers (A,B).