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Pretty Set Theory

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Abstract: By applying the addition operation of number theory, the sum of the interior angles of a number of triangles were transformed into linear algebraic equations .Four sets were transformed from the linear algebraic equations. The intersection law of set theory was applied and a negative result was found..

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Construction: Let A, B and C are the three given points. Join A and B; join B and C; and join C and A. On BC take two points D and E. Join A and D. Join A and E. Let X, Y and Z denote the sum of the interior angles of triangles ABD, ADE and AEC respectively. Also let that A', B', and C' respectively refer to the sum of the interior angles in triangles ABE, ADC and ABC.

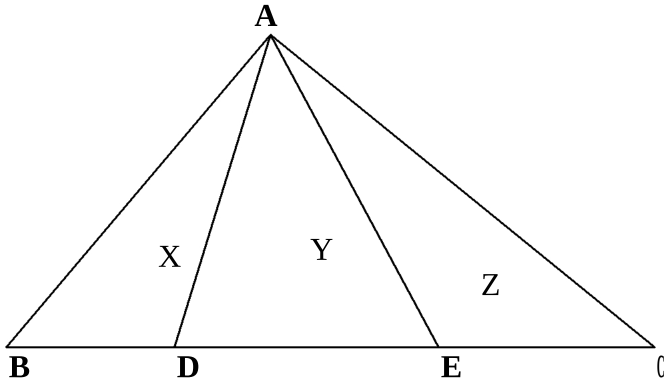

Figure 1 (Euclidean)

A’ = sum of the interior angles of triangle ABE

B’ = sum of the interior angles of triangle ADC

C’ = sum of the interior angles of triangle ABC

Results:

The angles BDE and DEC are straight angles and so their measures are equal to180 degrees.
Let V be the value of this 180 degree (1)

Using (1) , $X + Y = V + A'$ (2)

i.e. $X = \{ V + A' - Y \}$ (2a)

$X + B' = A' + Z = V + C'$ (3)

i.e. $A' = \{ X + B' - Z \}$ (3a)

Also, $A' = \{ V + C' - Z \}$ (3b)

$X + Y + Z = 2V + C'$ (4)

i.e. $X = \{ 2V + C' - Y - Z \}$ (4a)

Let us assume that eqns. (2a),(3a),(3b) and (4a) denote sets.

Intersection of the sets A and B, denoted $A \cap B$, is the set of all objects that are members of both A and B. The intersection of $\{1, 2, 3\}$ and $\{2, 3, 4\}$ is the set $\{2, 3\}$.

Let us assume that equations (2a) , (3b) and (4a) are sets.

Considering equations (2a) and (3b) and applying the intersection law of set theory we obtain that, $X \cap A' = \{ V \}$ (5)

Taking equations (3b) and (4a) and assuming interjection law of set theory we have that, $X \cap A' = \{ -Z \}$ (6)

Comparing (5) and (6) we get that $V = -Z$ (7)

It is well known that in geometry minus theta refers to the vertically opposite angles.

Since vertically opposite angles are equal, (7) implies that V = Z (8)

i.e. The sum of the interior angles of triangle AEC is a straight angle. (9)

Discussion;

According to the definition of set language, a set is a collection of well defined objects. Here X , Y , Z , A' , B' , C' and V are the well defined objects. Taking this definition into account, our assumption and applications of sets A', B' and C' are applicable and acceptable. There is no logical flaw in our assumption.

We have derived (9) without assuming Euclid's fifth postulate. So, eqn.(9) establishes the parallel postulate. But the mere existence of consistent models of non – Euclidean geometries and their physical applications demonstrate that it is impossible to deduce Euclid V from Euclid I to IV. [1 -2] So, eqn. (9) is a contradiction. But eqn.(9) is consistent. What is the reason for this result? Further studies may explore new findings.

References:

[1] en.wikipedia.org/wiki/Parallel_postulate

[2] en.wikipedia.org/wiki/Non-Euclidean_geometry