Algebraic Conception of the Five Common Notions of Euclid

Juan Elías Millas Vera. Zaragoza (Spain). 9/2024

Abstract:

Following Hilbert's path to make algebraic the classical texts I express literal notions of Euclid in simple equations.

1- Common notions.

(1.a) Things which are equal to the same thing are also equal to one another.

(1.b) If $a=c$ and $b=c$ then $a=b$.

(2.a) If equals be added to equals, the wholes are equal.

(2.b) $a+b=a+b=d$

(3.a) If equals be subtracted from equals, the remainders are equal.

(3.b) $a-b=a-b=e$

(4.a) Things which coincide with one another are equal to one another.

(4.b) $a=a$

(5.a) The whole is greater than the part.

(5.b) $1>0.a$ being $a\in Z^+$

REFERENCE:

[1] Euclid's Elements. All Thirteen Books in One Volume. *Edited by Dana Densmore. Translation by T.L. Heath (Green Lion Press 2022)*