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3. Number Theory and Arithmetic Algebraic Geometry

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The Filling-Extending method and $\Delta - \delta$ analysis (1) — Also to prove the inequality $\pi(0, m] + \pi(0, n] \geq \pi(0, m + n]$

Up to now, number is an original concept in mathematics only as the one to one correspondence which results in that the humanity is puzzled by a lot of difficult problems. In this paper, applying the so-called dialectic of 3–dimensions and 5–elements, it is pointed out that the universality, uniqueness, vector-orderliness, measure-magnitude, infiniteness are the intrinsic qualities of the number. Some logical analysis of the natural numbers are done, the measurement functions are introduced and used in counting, and their basic properties are studied.

The author raises the filling-extending method and $\Delta - \delta$ analysis. This is an available possibility analysis and extensibility analysis. It is quite simple and reliable. As both examples the one is that must exist at least one prime in the interval $(n^2, n^2 \pm n)$ and the other is that $\pi(0, m] + \pi(0, n] \geq \pi(0, m+n]$ are proved. Some other conjectures about the prime may also be resolved. The author wishes that this paper can add the prestige to the ICM'98.