Prime, Composite, Formula, and Goldbach Conjecture

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Observations:

(1) Let c be a composite number. By definition, there exist integers a, b such that $1 < a < c$, $1 < b < c$, and $c = a \times b$. At least one of a, b must be greater than 1 and less than c, hence we can express c as a sum of two positive integers.

(2) Let p be a prime number and assume for contradiction that $p = h + g$ where $1 \leq h, g < p$.

(3) Since $h, g < p$ and p is prime, neither h nor g can equal 1 without the other being $p - 1$, which would imply a non-prime nature for p.

(4) Therefore, a prime p cannot be rigorously formulated as $p = h + g$.

(5) A composite numbers c, expressed as $c = h \times g$, inherently possess this "multiplicative form". In other words, c possess a multiplicative arithmetic formula $h \times g$ where $h, g \neq 1$.

(6) Therefore, c have divisors h or g.

(7) In contrast, a prime number p is an integers greater than 1 that is divisible only by 1 and p.

(8) Consequently, p are not divisible by some h or g like a composite number and thus p lack "multiplicative form". If p has a "multiplicative form", then p is divisible by some h or g.

(9) Generally, composite numbers have "addictive and multiplicative forms", thus composite numbers have "form". Prime numbers have no "addictive or multiplicative form", thus prime numbers are "formless".

(10) Consider any even number $2n$ which inherently has "form" due to its composite structure.

(11) For the Goldbach Conjecture, this even number $2n$ is the sum of two primes, p_1 and p_2.

(12) Following the concept of "form", the integer n is the mean of the "formless" primes p_1 and p_2; $\frac{p_1+p_2}{2} = n$. Probabilistically, n is the uniform distribution of two "formless" entities p_1 and p_2; $n = p_1\frac{1}{2} + p_2\frac{1}{2}$.

(13) $p_1\frac{1}{2} + p_2\frac{1}{2}$ is the simplest and most unbiased distribution of two formless entities to form a new entity n. Hence, $2n = p_1 + p_2$ is true.

(14) This insight from observation (13) confirm the Goldbach Conjecture. It showcases how numbers with "form" is composed of numbers lacking "form".