**The New Prime theorems（45）-（70）**

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**Abstract:** Using Jiang function we prove that the new prime theorems (45)-(70) contain infinitely many prime solutions and no prime solutions.

[Chun-Xuan Jiang. **The New Prime theorems（45）-（70）.** *Researcher* 2016;8(10):74-100]. ISSN 1553-9865 (print); ISSN 2163-8950 (online). <http://www.sciencepub.net/researcher>. 13. doi:[10.7537/marsrsj081016.13](http://www.dx.doi.org/10.7537/marsrsj081016.13).

**Keywords**: prime; theorem; function; number; new

**The New Prime theorem（45）**



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**Abstract:** Using Jiang function we prove that  contain infinitely many prime solutions and no prime solutions.

**Keywords**: prime; theorem; function; number; new

**Theorem.** Let **** bea given odd prime.

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contain infinitely many prime solutions and no prime solutions.

Proof. We have Jiang function [1,2]

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If  then from (2) and (3) we have

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If  then we have asymptotic formula [1,2]

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**The New Prime theorem（46）**



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 （8）

We prove that for , (1) contain infinitely many prime solutions

**Remark.** The prime number theory is basically to count the Jiang function  and Jiang prime -tuple singular series [1,2], which can count the number of prime numbers. The prime distribution is not random. But Hardy-Littlewood prime -tuple singular series  is false [3-8], which cannot count the number of prime numbers[3].

This article has been published in 2015 as:[Chun-Xuan Jiang. **The New Prime theorems（45）-（70）.** *Academ Arena* 2015;7(1s): 85-111]. (ISSN 1553-992X). [http://www.sciencepub.net/academia. 45](http://www.sciencepub.net/academia.%2045).

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Szemerédi’s theorem does not directly to the primes, because it cannot count the number of primes. Cramér’s random model cannot prove any prime problems. The probability of  of being prime is false. Assuming that the events “ is prime”, “ is prime” and “ is prime” are independent, we conclude that , ,  are simultaneously prime with probability about . There are about  primes less than . Letting  we obtain the prime conjecture, which is false. The tool of additive prime number theory is basically the Hardy-Littlewood prime tuples conjecture, but cannot prove and count any prime problems[6].

*Mathematicians have tried in vain to discover some order in the sequence of prime numbers but we have every reason to believe that there are some mysteries which the human mind will never penetrate.*

Leonhard Euler (1707-1783)

*It will be another million years, at least, before we understand the primes.*

Paul Erdos (1913-1996)

Of course, the primes are a deterministic set of integers, not a random one, so the predictions given by random models are not rigorous (Terence Tao, Structure and randomness in the prime numbers, preprint). Erdos and Turán (1936) contributed to probabilistic number theory, where the primes are treated as if they were random, which generates Szemerédi’s theorem (1975) and Green-Tao theorem (2004). But they cannot actually prove and count any simplest prime examples: twin primes and Goldbach’s conjecture. They don’t know what prime theory means, only conjectures.

5/1/2015