NOTES ON PRIMES SMARANDACHE PROGRESSIONS

Maohua Le

Department of Mathematics, Zhanjiang Normal College
Zhanjiang, Guangdong, P.R.China.

Abstract. In this note we discuss the primes in Smarandache progressions.

For any positive integer n, let p_n denote the n^{th} prime.

For the fixed coprime positive integers a,b, let $P(a,b)=\{ap_n+b\}_{n=1}^{\infty}$. Then P(a,b) is called a Smarandache progression.
In [1, Problem 17], Smarandache possed the following questions:

Questions. How many primes belonng to P(a,b)?

It would seen that the answers of Smarandache's question is different from pairs (a,b). We now give some observable examples as follows:

Example 1. If a,b are odd integers, then ap_n+b is an even integer for n>1. It implies that P(a,b)contains at most one prime. In particular, P(1,1) contains only the prime 3.

Exemple 2. Under the assumption of twin prime conjecture that there exist infinitely many primes p such that p+2 is also a prime, then the progression P(1,2) contains infinitely many primes.

Example 3. Under the assumption of Germain prime conjecture that there exist infinitely many primes p such that 2p+1 is also a prime, then the progression P(2,1) contains infinitely many primes.

Reference

1. F.Smarandache, Only Problems, not Solutions!, Xiquan Pub. House, Phoenix, Chicago, 1990.