

Conjecture on the primes $S(n)+S(n+1)-1$ where $S(n)$ is a term in Smarandache-Wellin sequence

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Abstract. In this paper I make the following conjecture: There exist an infinity of primes $S(n) + S(n + 1) - 1$, where $S(n)$ is a term in Smarandache-Wellin sequence (which is defined as the sequence obtained through the concatenation of the first n primes).

Conjecture :

There exist an infinity of primes $S(n) + S(n + 1) - 1$, where $S(n)$ is a term in Smarandache-Wellin sequence (which is defined as the sequence obtained through the concatenation of the first n primes). I will name this primes "Smarandache-Wellin-Marius primes" or SWM.

The Smarandache-Wellin numbers:

(A019518 in OEIS)

: 2, 23, 235, 2357, 235711, 23571113, 2357111317,
235711131719, 23571113171923, 2357111317192329,
235711131719232931, 23571113171923293137,
2357111317192329313741, 235711131719232931374143,
23571113171923293137414347 (...)

Note: the Smarandache-Wellin numbers which are primes are named Smarandache-Wellin primes. The first three such numbers are 2, 23 și 2357; the fourth is a number with 355 digits and there are known only 8 such primes. The 8 known values of n for which through the concatenation of the first n primes we obtain a prime number are 1, 2, 4, 128, 174, 342, 435, 1429. The computer programs not yet found, until $n = 10^4$, another such a prime. Florentin Smarandache conjectured that there exist an infinity of prime terms of this sequence.

The Smarandache-Wellin-Marius primes:

(A019518 in OEIS)

: $SWM1 = S(2) + S(3) - 1 = 23 + 235 - 1 = 257;$
: $SWM2 = S(3) + S(4) - 1 = 235 + 2357 - 1 = 2591;$
: $SWM3 = S(5) + S(6) - 1 = 235711 + 23571113 - 1 = 23806823;$
: $SWM4 = S(11) + S(12) - 1 = 235711131719232931 + 23571113171923293137 - 1 = 23806824303642526067;$
: $SWM5 = S(12) + S(13) - 1 = 23571113171923293137 + 2357111317192329313741 - 1 = 23806824303642526068877;$
(...)