THE SMARANDACHE NEAR-TO-PRIMORIAL (S.N.T.P.) FUNCTION

by

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Definition A.

The PRIMORIAL Function, p*, of a prime number, p, is defined be the product of the prime numbers less than or equal to p. e.g. $7^* = 2 \cdot 3 \cdot 5 \cdot 7 = 210$ similarly $11^* = 2310$. A number, q, is said to be near to prime if and only if *either* q+1 *or* q-1 are primes it is said to be the mean-of-a-prime-pair if and only if *both* q+1 *and* q-1 are prime.

p such that p* is near to prime: 2, 7, 13, 37, 41, 53, 59, 67, 71, 79, 83, 89, ...

p such that p* is mean-of-a-prime-pair: 3, 5, 11, 31, ...

TABLE I

p	2	3	5	7	11	13
p*-1	1	5	29p	$209=11\cdot19$	2309p	30029p
p*	2	6	30	210	2310	30030
p*+1	3	7	31p	211p	2311p	$30031=59\cdot509$

Definition B.

The SMARANDACHE Near-To-Primorial Function, SPr(n), is defined as the smallest prime p such that either p* or $p^* \pm 1$ is divisible by n.

n	1	2	3	4	5	6	7	8	9	10	11	...59...
SPr(n)	2	2	2	5	3	3	3	5	?	5	11	13

Questions relating to this function include:

1. Is SPr(n) defined for all positive integers n ?
2. What is the distribution of values of SPr(n) ?
3. Is this problem fundamentally altereted by replacing $p^* \pm 1$ by $p^* \pm 3, 5, \ldots$

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