Three conjectures on the primes obtained concatenating 30k with 30k+p where p prime

Abstract. In this paper I make the following three conjectures: (I) there exist positive integers k such that the number (30*k)\\(30*k + p) is prime for an infinity of primes p. I used the operator "\\" with the meaning "concatenated to"; (II) there exist primes p such that the number (30*k)\\(30*k + p) is prime for an infinity of values of k; (III) there exist an infinity of primes of the form (30*k)\\(30*k + 1), where k positive integer.

Note: I use, in this paper, the operator "\\" with the meaning "concatenated to".

Conjecture 1:

There exist positive integers k such that the number (30*k)\\(30*k + p) is prime for an infinity of primes p. I conjecture that such a k is 1.

The sequence of primes q for k = 1:

: 3037, 3041, 3049, 3061, 3067, 3083, 3089, 30103, 30109, 30113, 30119, 30133, 30137, 30139, 30161, 30169, 30181, 30187, 30197, 30203 (...),
obtained for p = 7, 11, 19, 31, 37, 53, 59, 73, 79, 83, 89, 103, 107, 109, 131, 139, 151, 157, 167, 173 (...)

Note the chain of four primes obtained for four consecutive values of k (73, 79, 83, 89).

Conjecture 2:

There exist exist primes p such that the number q = (30*k)\\(30*k + p) is prime for an infinity of values of k. I conjecture that such a prime is 23.

The sequence of primes q for p = 23:

: 210233, 240263, 300323, 390413, 450473, 480503, 600623, 660683, 720743 (...),
obtained for 7, 8, 10, 13, 15, 16, 20, 22, 24 (...)

The sequence of primes q for p = 23 and k = 4*h:

: 240263, 480503, 600623, 720743, 840863, 960983 (...),
obtained for h = 2, 4, 5, 6, 7, 8 (...)

Note the chain of five primes obtained for five consecutive values of k (5, 6, 7, 8, 9).

Conjecture 3:

There exist an infinity of primes of the form q = (30*k)\\(30*k + 1), where k positive integer (this is a subsequence of the sequence "primes formed concatenating n with n + 1" (A030458 in OEIS).

The sequence of primes q:
: 9091, 120121, 150151, 180181, 270271, 300301, 330331, 390391, 420421, 450451, 540541, 600601, 660661, 840841, 870871, 930931, 960961 (...), obtained for k = 3, 4, 5, 6, 9, 10, 11, 13, 14, 15, 17 (...)

Note the chain of four primes obtained for four consecutive values of k (3, 4, 5, 6).

It might be also true (I conjecture that it is) that for any k non-null positive integer there exist an infinity of h such that q = (30*k)\\(30*h + 1), where h positive integer, is prime. Such primes q, for k = 1, for example, are: 3061, 30181, 30211, 30241, 30271, 30391, 30631 (...)