Primes obtained concatenating p-1 with 3 where p prime of the form 30k+17

Abstract. In this paper I state the following conjecture: Let p be a prime of the form 30*k + 17; then there exist an infinity of primes q obtained concatenating p – 1 with 3; example: 677, 797, 827, 857, 887, 947 are primes (succesive primes of the form 30*k + 17) and the numbers 6763, 7963, 8263, 8563, 8863, 9463 are also primes. As an incidental observation, many of the semiprimes x*y obtained in the way defined have one of the following two properties: (i) y – x + 1 is a prime of the form 13 + 30*k; (ii) y – x + 1 is a prime of the form 19 + 30*k.

Conjecture:

Let p be a prime of the form 30*k + 17; then there exist an infinity of primes q obtained concatenating p – 1 with 3; example: 677, 797, 827, 857, 887, 947 are primes (succesive primes of the form 30*k + 17) and the numbers 6763, 7963, 8263, 8563, 8863, 9463 are also primes.

Primes of the form 30*k + 17:
(Sequence A039949 in OEIS)

: 17, 47, 107, 137, 167, 197, 227, 257, 317, 347, 467, 557, 587, 617, 647, 677, 797, 827, 857, 887, 947, 977, 1097, 1187, 1217, 1277, 1307, 1367, 1427, 1487, 1607, 1637, 1667, 1697, 1787, 1847, 1877, 1907, 1997, 2027, 2087, 2207, 2237, 2267, 2297, 2357, 2417, 2447, 2477, 2657, 26863, 2777, 2837, 2897, 2927, 2957, 3137, 3167, 3257, 3347, 3407, 3467, 3527 (...)

The sequence of primes q:

: 163, 463, 1063, 1663, 3163, 3463, 4663, 5563, 6163, 6763, 7963, 8263, 8563, 8863, 9463, 11863, 12163, 12763, 13063, 16063, 16363, 16963, 17863, 18763, 19963, 22063, 22663, 22963, 23563, 24163, 24763, 26863, 27763, 31663, 32563 (...)

Observation:

Many of the numbers obtained concatenating p – 1 with 3 are semiprimes: 1363, 1963, 2263, 2563, 6463, 9763, 10963, 13663, 14263, 14863, 16663, 18463, 19063, 20263, 24463, 26563, 28363, 28963, 29263, 31363, 33463, 34063, 34663, 35263 (...).

Some of these semiprimes x*y have one of the following two properties:

(i) y - x + 1 is a prime of the form 13 + 30*k:
: 2263 = 31*73 and 73 - 3 + 1 = 43;
: 2563 = 11*233 and 233 - 11 + 1 = 223;
: 14263 = 17*839 and 839 - 17 + 1 = 823;
: 18463 = 37*499 and 499 - 37 + 1 = 463;
: 19063 = 11*1733 and 1733 - 11 + 1 = 1723;
: 20863 = 31*673 and 1733 - 11 + 1 = 643;
: 22663 = 131*173 and 173 - 131 + 1 = 43;
: 24463 = 17*1439 and 173 - 131 + 1 = 1423;
: 26563 = 101*263 and 263 - 101 + 1 = 163.

(ii) y - x + 1 is a prime of the form 19 + 30*k:
: 1363 = 29*47 and 47 - 29 + 1 = 19;
: 1963 = 13*151 and 151 - 13 + 1 = 139;
: 9963 = 13*751 and 751 - 13 + 1 = 739;
: 13663 = 13*1051 and 1051 - 13 + 1 = 1039;
: 14863 = 89*167 and 167 - 89 + 1 = 79;
: 16663 = 19*877 and 877 - 19 + 1 = 859;
: 18763 = 29*647 and 647 - 29 + 1 = 619.
: 20263 = 23*881 and 881 - 23 + 1 = 859;
: 28363 = 113*251 and 251 - 113 + 1 = 139;
: 29263 = 13*2251 and 2251 - 13 + 1 = 2239;
: 33463 = 109*307 and 307 - 109 + 1 = 199;
: 34063 = 109*307 and 307 - 109 + 1 = 1459;
: 35263 = 179*197 and 197 - 179 + 1 = 19.