Four conjectures on the numbers created concatenating the product of twin primes with 11

Abstract. In this paper I make four conjectures on the numbers n created concatenating to the right the product p*q with number 11, where [p, q] is a pair of twin primes: (I) there exist an infinity of n primes; (II) there exist an infinity of n semiprimes of the form (10k + 1)*(10h + 1); (II) there exist an infinity of n semiprimes of the form (10k + 9)*(10h + 9); (II) there exist an infinity of n semiprimes of the form (10k + 3)*(10h + 7). Note that for 40 from the first 43 pairs of twin primes the number n belongs to one of the four sequences considered by the conjectures above.

Conjecture I:

There exist an infinity of primes created concatenating to the right the product p*q with number 11, where [p, q] is a pair of twin primes.

Example: for the pair of twin primes [p, q] = [59, 61] the product p*q = 3599; concatenating this number to the right with 11 is obtained the number 359911, prime.

The sequence of these primes:

: 1511, 3511, 359911, 518311, 1040311, 1166311, 1904311, 2249911, 3920311, 5759911, 7289911, 12110311, 17639911, 21344311, 27248311, 32489911, 38192311, 43559911, 65768311, 68558311, 77792311, 132710311
(...)
obtained for [p, q] = [3, 5], [5, 7], [59, 61], [71, 73],[101, 103], [107, 109], [137, 139], [149, 151], [197, 199], [239, 241], [269, 271], [347, 349], [419, 421], [461, 463], [521, 523], [569, 571], [617, 619], [659, 661], [821, 823], [827, 829], [881, 883], [1151, 1153].

Note the chain of six primes obtained for six consecutive pairs of twin primes: 359911, 518311, 1040311, 1166311, 1904311, 2249911.

Conjecture II:

There exist an infinity of semiprimes n of the form (10k + 1)*(10h + 1) created concatenating to the right the product p*q with number 11, where [p, q] is a pair of twin primes.

The sequence of these semiprimes:

: n = 14311 = 11*1301 for [p, q] = [11, 13];
: n = 65768311 = 1291*50821 for [p, q] = [809, 811];
: n = 104039911 = 631*164881 for [p, q] = [1019, 1021];
: n = 119246311 = 5741*20771 for [p, q] = [1091, 1093].

Conjecture III:

There exist an infinity of semiprimes n of the form (10k + 9)*(10h + 9) created concatenating to the right the product p*q with number 11, where [p, q] is a pair of twin primes.

The sequence of these semiprimes:

: n = 32311 = 79*409 for [p, q] = [17, 19];
: n = 106502311 = 3989*26699 for [p, q] = [1031, 1033];
: n = 151289911 = 1019*148469 for [p, q] = [1229, 1231];
: n = 1634432311 = 229*7137259 for [p, q] = [1277, 1279].

Conjecture IV:

There exist an infinity of semiprimes n of the form (10k + 3)*(10h + 7) created concatenating to the right the product p*q with number 11, where [p, q] is a pair of twin primes.

The sequence of these semiprimes:

: n = 89911 = 47*1913 for [p, q] = [29, 31];
: n = 176311 = 157*1123 for [p, q] = [41, 43];
: n = 3239911 = 17*190583 for [p, q] = [179, 181];
: n = 3686311 = 607*6073 for [p, q] = [191, 193];
: n = 5198311 = 17*305783 for [p, q] = [227, 229];
: n = 7952311 = 17*467783 for [p, q] = [281, 283];
: n = 9734311 = 47*207113 for [p, q] = [311, 313];
: n = 18662311 = 17*1097783 for [p, q] = [431, 433];
: n = 41216311 = 73*564607 for [p, q] = [641, 643];
: n = 112784311 = 2803*40237 for [p, q] = [1061, 1063].

Note:
For 40 from the first 43 pairs of twin primes the number n belongs to one of the four sequences considered by the conjectures above.