Three conjectures on the numbers obtained concatenating the multiples of 30 with the squares of primes

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Abstract. In this paper I conjecture that there exist an infinity of numbers ab formed by concatenation from a multiple of 30, a, and a square of a prime, b, which are primes or powers of primes, respectively semiprimes p*q such that q – p + 1 is prime or power of prime, respectively semiprimes p1*q1 such that q1 – p1 + 1 is semiprime p2*q2 such that q2 – p2 + 1 is prime or power of prime.

Conjecture 1:

There exist an infinity of numbers ab formed by concatenation from a multiple of 30, a, and a square of a prime, b, which are primes or powers of primes.

Such triplets [a, b, ab] are:

: [30, 49, 3049]; [30, 169, 30169]; [30, 529, 30529]; [30, 841, 30841]; [30, 1681, 301681]; [30, 4489, 304489]; [30, 5329, 305329]; [60, 169, 60169]; [60, 289, 60289]; [60, 961, 60961]; [60, 1849, 601849]; [60, 5329, 605329]; [60, 6241, 606241]; [60, 7921, 607921]; [90, 49, 9049]; [90, 121, 90121]; [90, 289, 90289]; [90, 529, 90529]; [90, 841, 90841]; [90, 4489, 904489]; [90, 5329, 905329]; [90, 9409, 909409]; [120, 49, 12049]; [120, 121, 120121]; [150, 169, 150169]; [180, 49, 18049]; [180, 289, 180289]; [210, 361, 210361]; [240, 49, 24049]; [270, 121, 270121]; [300, 961, 300961]; [330, 49, 33049]...

Note:

Two interesting sequences can be made:

(1) The least prime p for which the numbers formed by concatenation mp^2, where m = 30*n, n taking positive integer values, are primes:
: 7, 13, 11, 11, 13, 7, 19, 7, 11, 31, 7 {...)

(2) The least positive integer n for which the numbers formed by concatenation mp^2, where m = 30*n, p taking the values of primes greater than or equal to 7, are primes:
: 1, 3, 1, 2, 6, 1, 1, 2, 5, 1, 2, 5, 7 (...)

Conjecture 2:

There exist an infinity of numbers ab formed by concatenation from a multiple of 30, a, and a square of a prime, b, which are semiprimes p*q such that q – p + 1 is prime or power of prime.

Such triplets [a, b, ab] are:

: [30, 1849, 301849 = 151*1999 and 1999 – 151 + 1 = 1849 = 43^2];
: [30, 3481, 303481 = 157*1933 and 1933 – 157 + 1 = 1777];
: [30, 9409, 309409 = 277*1117 and 1117 – 277 + 1 = 841 = 29^2];
: [60, 49, 6049 = 23*263 and 263 – 23 + 1 = 241];
: [60, 121, 60121 = 59*1019 and 1019 – 59 + 1 = 961 = 31^2];
: [60, 529, 60529 = 7*8647 and 8647 – 7 + 1 = 8641];
: [60, 841, 60841 = 11*5531 and 5531 – 11 + 1 = 5521];
: [60, 2209, 602209 = 23*26183 and 26183 – 23 + 1 = 26161];
: [60, 2809, 602809 = 617*977 and 977 – 617 + 1 = 361 = 19^2];
: [60, 3481, 603481 = 79*7639 and 7639 – 79 + 1 = 7561];
: [60, 5041, 605041 = 167*3623 and 3623 – 167 + 1 = 3457];
: [60, 9409, 609409 = 113*5393 and 5393 – 113 + 1 = 5281];
: [90, 169, 90169 = 37*2437 and 2437 – 37 + 1 = 2401 = 7^4];
: [90, 1369, 901369 = 7*128767 and 128767 – 7 + 1 = 128761];
: [90, 2809, 902809 = 859*1051 and 1051 – 859 + 1 = 193];
: [120, 169, 120169 = 7*17167 and 17167 – 7 + 1 = 17161 = 131^2];
: [150, 49, 15049 = 101*149 and 149 – 101 + 1 = 49 = 7^2];
: [150, 289, 150289 = 137*1097 and 1097 – 137 + 1 = 961 = 31^2];
: [180, 121, 180121 = 281*641 and 641 – 281 + 1 = 361 = 19^2];
: [180, 529, 180529 = 73*2473 and 2473 – 73 + 1 = 2401 = 7^4];
[...]

Conjecture 3:

There exist an infinity of numbers ab formed by concatenation from a multiple of 30, a, and a square of a prime, b, which are semiprimes p1*q1 such that q1 – p1 + 1 is semiprime p2*q2 such that q2 – p2 + 1 is prime or power of prime.

Such triplets [a, b, ab] are:

: [30, 289, 30289 = 7*4327 and 4327 – 7 + 1 = 4321 = 29*149 and 149 – 29 + 1 = 121 = 11^2];
: [30, 361, 30361 = 97*313 and 313 – 97 + 1 = 217 = 7*31 and 31 – 7 + 1 = 25 = 5^2];
: [30, 961, 30961 = 7*4423 and 4423 – 7 + 1 = 4417 = 7*631 and 631 – 7 + 1 = 625 = 5^4];
: [30, 1369, 301369 = 23*13103 and 13103 – 23 + 1 = 13081 = 103*127 and 127 – 103 + 1 = 25 = 5^2];
: [60, 4489, 604489 = 83*7283 and 7283 – 83 + 1 = 7201 = 19*379 and 379 – 19 + 1 = 361 = 19^2];
: [90, 5041, 905041 = 89*10169 and 10169 – 89 + 1 = 10081 = 17*593 and 593 – 17 + 1 = 577];
: [120, 529, 120529 = 43*2803 and 2803 – 43 + 1 = 2761 = 11*251 and 251 – 11 + 1 = 241];
[...]