Two conjectures involving the numbers obtained concatenating repeatedly odd multiples of 3 with 111

Abstract. In this paper I make the following two conjectures: (I) there exist an infinity of primes obtained concatenating, once or repeatedly, an odd multiple n of 3 with 111, then raising the number obtained to the power 2, adding to it n and subtracting 1 (Examples: 3111^2 + 3 – 1 = 9678323, prime; 27111111^2 + 27 – 1 = 735012339654347, prime); (I) there exist an infinity of semiprimes obtained concatenating, once or repeatedly, an odd multiple n of 3 with 111, then raising the number obtained to the power 2, adding to it n and subtracting 1.

Conjecture 1:

There exist an infinity of primes p obtained concatenating, once or repeatedly, an odd multiple n of 3 with 111, then raising the number obtained to the power 2, adding to it n and subtracting 1.

Examples:
: p = 3111^2 + 3 – 1 = 9678323, prime;
: p = 27111111^2 + 27 – 1 = 735012339654347, prime.

The sequence of primes p when n is concatenated with 111:

: p = 3111^2 + 3 – 1 = 9678323, for n = 3;
: p = 27111^2 + 27 – 1 = 9678323, for n = 9;
: p = 51111^2 + 27 – 1 = 2612334371, for n = 51;
: p = 57111^2 + 57 – 1 = 3261666377, for n = 57;
: p = 87111^2 + 87 – 1 = 7588326407, for n = 87;
: p = 129111^2 + 129 – 1 = 16669650449, for n = 129;
(...)

The sequence of primes p when n is concatenated with 111111:

: p = 9111111^2 + 9 – 1 = 83012343654329, for n = 9;
: p = 21111111^2 + 21 – 1 = 445679007654341, for n = 21;
: p = 27111111^2 + 27 – 1 = 735012339654347, for n = 27;
: p = 81111111^2 + 81 – 1 = 6579012327654401, for n = 81;
: p = 87111111^2 + 87 – 1 = 7588345659654407, for n = 87;
(...)

The sequence of primes p when n is concatenated with 111111111:

: p = 93111111111^2 + 93 – 1 = 329928072999695115409, for n = 93;
(...)

The sequence of primes p when n is concatenated with 111111111111:

: p = 9111111111111^2 + 9 – 1 = 83012345679010320987654329, for n = 9;
: p = 27111111111111^2 + 27 – 1 = 735012345679006320987654347, for n = 27;
: p = 57111111111111^2 + 57 – 1 = 3261679012345666320987654377, for n = 57;
(...)

The sequence of primes p when n is concatenated with 111111111111111:

: p = 51111111111111111^2 + 51 – 1 = 2612345679012345667654320987654371, for n = 51;
(...)

Conjecture 2:

There exist an infinity of primes p obtained concatenating, once or repeatedly, an odd multiple n of 3 with 111, then raising the number obtained to the power 2, adding to it n and subtracting 1.

The sequence of semiprimes p when n is concatenated with 111:

: p = 9111^2 + 9 – 1 = 83010329 = 2003*41443, for n = 9;
: p = 39111^2 + 39 – 1 = 1529670359 = 7*218524337, for n = 39;
: p = 69111^2 + 69 – 1 = 4776330389 = 71*67272259, for n = 69;
: p = 81111^2 + 81 – 1 = 6578994401 = 7*939856343, for n = 81;
: p = 93111^2 + 93 – 1 = 8669658413 = 13*666896801, for n = 93;
: p = 141111^2 + 141 – 1 = 19912314461 = 141*1531716497, for n = 141;
(...)

The sequence of semiprimes p when n is concatenated with 111111:

: p = 15111111^2 + 15 − 1 = 228345675654335 = 5*45669135130867, for n = 5;
: p = 75111111^2 + 75 − 1 = 5641678995654395 = 5*1128335799130879, for n = 75;
: p = 93111111^2 + 93 − 1 = 8669678991654413 = 151*57415092659963, for n = 93;
: p = 99111111^2 + 99 − 1 = 9823012323654419 = 212633*46197026443, for n = 99;
(...)

The sequence of semiprimes p when n is concatenated with 111111111:

: p = 3111111111^2 + 3 − 1 = 9679012344987654323 = 40889963*236708757721, for n = 3;
: p = 9111111111^2 + 9 − 1 = 83012345676987654329 = 601*138123703289496929, for n = 9;
: p = 51111111111^2 + 51 − 1 = 2612345679000987654371 = 20641*126561003778934531, for n = 51;
: p = 69111111111^2 + 69 − 1 = 4776345678996987654389= 4013*126561003778934531, for n = 69;
: p = 87111111111^2 + 87 − 1 = 7588345678992987654407 = 23*329928072999695115409, for n = 87;
: p = 111111111111^2 + 111 − 1 = 12345679012320987654431 = 11*1122334455665544332221, for n = 111;
: p = 117111111111^2 + 117 − 1 = 13715012345652987654437 = 38593*355375647025444709, for n = 117;
: p = 135111111111^2 + 135 − 1 = 18255012345648987654455 = 5*3651002469129797530891, for n = 135;
(...)

The sequence of semiprimes p when n is concatenated with 111111111111:

: p = 63111111111111^2 + 63 − 1 = 3983012345678998320987654383 = 484181*8226287990811284046643, for n = 63;
: p = 93111111111111^2 + 93 − 1 = 8669679012345658320987654413 = 6029*1437996187153036709402497, for n = 93;
(...)

The sequence of semiprimes p when n is concatenated with 111111111111111:

: p = 91111111111111111^2 + 9 − 1 = 8301234567901234365432098765 4329 = 61051*13597213097084788726527163 79, for n = 9;
(...)

The sequence of semiprimes p when n is concatenated with 111111111111111:

: p = 9111111111111111111^2 + 9 − 1 = 96790123456790123449876543209876 54323 = 11*87991021324354657681705948372615 0393, for n = 9;
: p = 27111111111111111111^2 + 27 − 1 = 73501234567901234567298765432098 7654347 = 754109*97467653307282149619350472454378 3, for n = 27;
: p = 57111111111111111111^2 + 57 − 1 = 32616790123456790123329876543209 87654377 = 18843063578219*1730970656022148223399738 83, for n = 63;
(...)

The sequence of semiprimes p when n is concatenated with 11111111111111111:

: p = 311111111111111111111^2 + 3 − 1 = 967901234567901234567832098765432 0987654323 = 313*309233621267700074941799392576815 36701771, for n = 3;
(...)