Formula that uses primes as input values for obtaining larger primes as output, based on the numbers 7 and 186

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Abstract. In this paper I present a formula, based on the numbers 7 and 186, that, using primes as input values, often leads, as output values, to larger primes, also to squares of primes and semiprimes. I found this formula by chance, playing with two of my favourite numbers, 13 and 31, and observing that 7*13^2 + 6*31 = 37^2 (to be noted, without necessarily connection with this paper, that the difference between the two known Wieferich primes, 1093 and 3511, is equal to 6*13*31).

Observation:

The formula 7*p^2 + 186, where p is prime, often conducts to primes, squares of primes and semiprimes.

Exemplification:
(taking as input values p the first 27 primes; note that were obtained 13 primes, 6 squares of primes and 8 semiprimes)

: 7*3^2 + 186 = 3*83, semiprime;
: 7*5^2 + 186 = 19^2, square of prime;
: 7*7^2 + 186 = 23^2, square of prime;
: 7*11^2 + 186 = 1033, prime;
: 7*13^2 + 186 = 37^2, square of prime;
: 7*17^2 + 186 = 47^2, square of prime;
: 7*19^2 + 186 = 2713, prime;
: 7*23^2 + 186 = 3889, prime;
: 7*29^2 + 186 = 6073, prime;
: 7*31^2 + 186 = 31*223, semiprime;
: 7*37^2 + 186 = 9769, prime;
: 7*41^2 + 186 = 11953, prime;
: 7*43^2 + 186 = 19*691, semiprime;
: 7*47^2 + 186 = 15649, prime;
: 7*53^2 + 186 = 23*863, semiprime;
: 7*59^2 + 186 = 43*571, semiprime;
: 7*61^2 + 186 = 37*709, semiprime;
: 7*67^2 + 186 = 73*433, semiprime;
: 7*71^2 + 186 = 43^2, square of prime;
: 7*73^2 + 186 = 37489, prime;
: 7*79^2 + 186 = 73*601, semiprime

: 7*83^2 + 186 = 48409, prime;
: 7*89^2 + 186 = 55633, prime;
: 7*97^2 + 186 = 257^2, square of prime;
: 7*101^2 + 186 = 71593, prime;
: 7*103^2 + 186 = 74449, prime;
: 7*107^2 + 186 = 80329, prime.

Exemplification:
(taking as input values 10 from the 17 larger consecutive primes); note that were obtained 8 semiprimes and 2 primes, and that for the other 7 primes were obtained numbers with maximum four prime factors)

: 7*941083907^2 + 186 = 2205707657*2810650097, semiprime;
: 7*941083921^2 + 186 = 6199472624553139873, prime.
: 7*941083951^2 + 186 = 19*326288053674125947, semiprime;
: 7*941083967^2 + 186 = 743*8343840148871063, semiprime;
: 7*941083987^2 + 186 = 37*167553337678776037, semiprime;
: 7*941084021^2 + 186 = 880691281*7039327033, semiprime;
: 7*941084047^2 + 186 = 23*269542360201099463, semiprime;
: 7*941084083^2 + 186 = 17137*361759628810857, semiprime;
: 7*941084167^2 + 186 = 30631*202392212648839, semiprime;
: 7*941084173^2 + 186 = 6199475944697657689, prime.

Conjecture 1:

There exist an infinity of primes p such that the number 7*p^2 + 186 is prime.

Conjecture 2:

There exist an infinity of primes p such that the number 7*p^2 + 186 is square of prime.

Conjecture 3:

There exist an infinity of primes p such that the number 7*p^2 + 186 is semiprime.