

Primes obtained concatenating to the right with 1 the terms of concatenated n-th powers sequences

Abstract. In this paper I state the following conjecture: for any positive integer $n > 1$ there exist a sequence having an infinity of prime terms p , obtained concatenating to the right with 1 the terms of the sequence of concatenated n-th powers. For $n = 2$ the primes p are obtained concatenating with 1 to the right the terms of the *Smarandache concatenated squares sequence*; for $n = 3$ the primes p are obtained concatenating with 1 to the right the terms of the *Smarandache concatenated cubic sequence*.

Conjecture:

For any positive integer $n > 1$ there exist a sequence having an infinity of prime terms p , obtained concatenating to the right with 1 the terms of the sequence of concatenated n-th powers. For $n = 2$ the primes p are obtained concatenating with 1 to the right the terms of the *Smarandache concatenated squares sequence* (defined as the sequence obtained through the concatenation of the first m squares); for $n = 3$ the primes p are obtained concatenating with 1 to the right the terms of the *Smarandache concatenated cubic sequence* (defined as the sequence obtained through the concatenation of the first m cubes); for $n = 4$ the primes p are obtained concatenating with 1 to the right the terms of the *concatenated 4th powers sequence* and so on.

The concatenated squares sequence (A019521 in OEIS):

: 1, 14, 149, 14916, 1491625, 149162536, 14916253649,
1491625364964, 149162536496481, 149162536496481100,
149162536496481100121, 149162536496481100121144,
(...)

The sequence of primes p :

: 11, 149161, 1491625361, 1491625364964811001,
1491625364964811001211441691961 (...)

The concatenated cubic sequence (A019522 in OEIS):

: 1, 18, 1827, 182764, 182764125, 182764125216,
182764125216343, 182764125216343512,
182764125216343512729, 1827641252163435127291000
(...)

The sequence of primes p:

: 11, 181, 1827641251, 1827641252161,
1827641252163435127291,
1491625364964811001211441691961 (...)

The concatenated 4th powers sequence

(see A000583 in OEIS for the fourth powers):

: 1, 116, 11681, 11681256, 11681256625,
116812566251296, 1168125662512962401,
11681256625129624014096, 116812566251296240140966561
(...)

The sequence of primes p:

: 11, 1168125662512961 (...)

The concatenated 5th powers sequence

(see A000584 in OEIS for the fifth powers):

: 1, 132, 132243, 1322431024, 13224310243125,
132243102431257776, 13224310243125777616807,
1322431024312577761680732768 (...)

The sequence of primes p:

: 11, 1321, 132243102431257776168071,
132243102431257776168071 (...)

The concatenated 6th powers sequence

(see A001014 in OEIS for the sixth powers):

: 1, 164, 164729, 1647294096, 164729409615625,
16472940961562546656, 16472940961562546656117649,
16472940961562546656117649262144 (...)

The sequence of primes p:

: 11, 1647294096156251 (...)