Large primes obtained concatenating the numbers P-d(k) where d(k) are the prime factors of the Poulet number P

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Abstract. In this paper I conjecture that there are an infinity of primes which can be obtained concatenating the numbers P - d(1); P - d(2); ...; P – d(k); P, where d(1), ..., d(k) are the prime factors of the Poulet number P. Example: using the sign "//" with the meaning "concatenated to", for the Poulet number 129921 (= 3*11*31*127), the number (129921 – 3)//(129921 – 11)//(129921 – 31)//(129921 – 127)//129921 = 129918129910129890129794129921 is prime. Note that such primes are obtained for 10 from the first 90 Poulet numbers!

Conjecture:

There are an infinity of primes which can be obtained concatenating the numbers P - d(1); P - d(2); ...; P – d(k); P, where d(1), ..., d(k) are the prime factors of the Poulet number P.

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The first ten such primes:
(ordered by the size of the Poulet number)

: 558550544561 = (561 – 3)//(561 – 11)//(561 – 17)//561;

: 266426282701 = (2701 – 37)//(2701 – 73)//2701;

: 2814280827902821 = (2821 – 7)//(2821 – 13)//(2821 – 31)//2821;

: 324831643277 = (3277 – 29)//(3277 – 113)//3277;

: 10230993010261 = (10261 – 31)//(10261 – 331)//(10261);

: 198801967019951 = (19951 – 71)//(19951 – 281)//19951;

: 805207926080581 = (80581 – 61)//(80581 – 1321)//80581;

: 87246871228702087249 = (87249 – 3)//(87249 – 127)//(87249 – 229)//87249;

: 104424104196104653 = (104653 – 229)//(104653 – 457)//104653;

: 129918129910129890129794129921 = (129921 – 3)//(129921 – 11)//(129921 – 31)//(129921 – 127)//129921.

Note:

Such primes are obtained for 10 from the first 90 Poulet numbers!

Observation:

By this method are also obtained semiprimes with the property that one prime factor is much larger than the other one. Such semiprimes are:

: 136813141387 = 13*10524087799 obtained for P = 1387;

: 465045304681 = 29*16036044989 obtained for P = 4681;

: 6594657865606601 = 7*942093980800943 obtained for P = 6601;

: 489844882849141 = 19*25781309623639 obtained for P = 49141.