Primes obtained concatenating p*q*r-p with p*q*r-q with p*q*r-r then with p*q*r where p, q, r primes of the form 6k+1

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Abstract. This paper is inspired by one of my previous papers, namely "Large primes obtained concatenating the numbers P - d(k) where d(k) are the prime factors of the Poulet number P", where I conjectured 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. Because some of these Poulet numbers are 3-Poulet numbers of the form (6k + 1)*(6h + 1)*(6j + 1) I extend in this paper that ideea conjecturing that for any prime p of the form 6k + 1 there exist an infinity of pairs of primes [q, r], of the form 6h + 1 and 6j + 1, such that the number obtained concatenating p*q*r – p with p*q*r – q with p*q*r – r then with p*q*r is prime.

Conjecture:

For any prime p of the form 6k + 1 there exist an infinity of pairs of primes [q, r], of the form 6h + 1 and 6j + 1, such that the number n obtained concatenating p*q*r – p with p*q*r – q with p*q*r – r then with p*q*r is prime.

Example: using the sign "//" with the meaning "concatenated to", for p = 7 there exist [q, r] = [13, 31] such that the number n = (7*13*31 – 7)//(7*13*31 – 13)//(7*13*31 – 31)//7*13*31 = 2814280827902821 is prime.

The least primes n obtained for p = 7:
(while q takes consecutive values)

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

:   13692136801359613699 = (7*19*103 – 7)//(7*19*103 – 19)//(7*19*103 – 103)//7*19*103;

:   13230132301317613237   =   (7*31*61   –   7)//(7*31*61   –   31)//(7*31*61 – 61)//7*31*61;

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:    35994359643586236001  =  (7*37*109  -  7)//(7*37*109  -
     37)//(7*37*109 - 109)//7*37*109;

:    3906387039003913    =    (7*43*13    -    7)//(7*43*13    -
     43)//(7*43*13 - 13)//7*43*13;

:    15792157381576215799  =  (7*61*37  -  7)//(7*61*37  -
     61)//(7*61*37 - 37)//7*61*37;

:    45486454264539645493  =  (7*67*97  -  7)//(7*67*97  -
     67)//(7*67*97 - 97)//7*67*97;

:    101682101616101490101689 = (7*73*199 - 7)//(7*73*199 -
     73)//(7*73*199 - 199)//7*73*199;

:    71827110711071767189  =  (7*79*13  -  7)//(7*79*13  -
     79)//(7*79*13 - 13)//7*79*13;

:    102522102432102378102529 = (7*97*151 - 7)//(7*97*151 -
     97)//(7*97*151 - 151)//7*97*151;
     (...)
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