The property of squares of primes to create through concatenation semiprimes which are c-primes or m-primes

Marius Coman
email: mariuscoman13@gmail.com

Abstract. In a previous paper I presented a very interesting characteristic of Poulet numbers, namely the property that, concatenating two of such numbers, is often obtained a semiprime which is either c-prime or m-prime. Because the study of Fermat pseudoprimes is a constant passion for me, I observed that in many cases they have a behaviour which is similar with that of the squares of primes. Therefore, I checked if the property mentioned above applies to these numbers too. Indeed, concatenating two squares of primes, are often obtained semiprimes which are either c-primes, m-primes or cm-primes. Using just the squares of the first 13 primes greater than or equal to 7 are obtained not less then: 6 semiprimes which are c-primes, 31 semiprimes which are m-primes and 15 semiprimes which are cm-primes.

Observation:

Concatenating two squares of primes, is often obtained a semiprime which is either c-prime or m-prime.

The squares of primes:
(A001248 in OEIS)

4, 9, 25, 49, 121, 169, 289, 361, 529, 841, 961, 1369, 1681, 1849, 2209, 2809, 3481, 3721, 4489, 5041, 5329, 6241, 6889, 7921, 9409 (...)

There are obtained, using just the first 13 terms greater than or equal to 49 from this sequence:

Six semiprimes which are c-primes:

: 52949 = 13*4073 (c-reached prime = 101);
: 361121 = 331*1091 (c-reached prime = 761);
: 1212209 = 97*12497 (c-reached prime = 12401);
: 529169 = 19*27851 (c-reached prime = 2129);
: 1681961 = 367*4583 (c-reached prime = 4217);
: 28091849 = 853*32933 (c-reached prime = 17).

Thirty-one semiprimes which are m-primes:

: 16949 = 17*997 (m-reached prime = 1013);
: 49289 = 23*2143 (m-reached prime = 41);
: 49361 = 13*3797 (m-reached prime = 17);
: 84149 = 13*6473 (m-reached prime = 1301);
: 49961 = 47*1063 (m-reached prime = 1109);
: 491369 = 89*5521 (m-reached prime = 149);
: 491681 = 53*9277 (m-reached prime = 509);
: 492809 = 461*1069 (m-reached prime = 149);
: 1211369 = 17*71257 (m-reached prime = 53);
: 1211681 = 709*1709 (m-reached prime = 2417);
: 1211849 = 353*3433 (m-reached prime = 761);
: 169289 = 41*4129 (m-reached prime = 389);
: 169529 = 47*3607 (m-reached prime = 293);
: 169961 = 11*15451 (m-reached prime = 15461);
: 289529 = 419*691 (m-reached prime = 1109);
: 1369289 = 139*9851 (m-reached prime = 1433);
: 2891681 = 13*222437 (m-reached prime = 1409);
: 2892809 = 1217*2377 (m-reached prime = 3593);
: 841361 = 41*20521 (m-reached prime = 17);
: 961361 = 173*5557 (m-reached prime = 353);
: 1849361 = 23*80407 (m-reached prime = 80429);
: 5291681 = 317*16693 (m-reached prime = 17);
: 1681529 = 503*3343 (m-reached prime = 773);
: 5291849 = 701*7549 (m-reached prime = 41);
: 841961 = 23*36607 (m-reached prime = 36629);
: 1849841 = 7*264263 (m-reached prime = 264269);
: 1849961 = 41*45121 (m-reached prime = 45161);
: 13691849 = 89*153841 (m-reached prime = 153929);
: 22091369 = 4241*5209 (m-reached prime = 89);
: 18491681 = 13*1422437 (m-reached prime = 203213);
: 16812209 = 461*36469 (m-reached prime = 36929).

Fifteen semiprimes which are cm-primes (both c-primes and m-primes):

: 36149 = 37*977 (c-reached prime = 941 and m-reached prime = 1013);
: 168149 = 181*929 (c-reached prime = 101 and m-reached prime = 1109);
: 491849 = 149*3301 (c-reached prime = 1049 and m-reached prime = 3449);
: 492209 = 61*8069 (c-reached prime = 8009 and m-reached prime = 113);
: 121289 = 7*17327 (c-reached prime = 17321 and m-reached prime = 17333);
: 121361 = 157*773 (c-reached prime = 617 and m-reached prime = 929);

: 1692209 = 1201*1409 (c-reached prime = 1 and m-reached prime = 2609);
: 529289 = 59*8971 (c-reached prime = 2969 and m-reached prime = 9029);
: 2891849 = 421*6869 (c-reached prime = 6449 and m-reached prime = 233);
: 2892209 = 769*3761 (c-reached prime = 1 and m-reached prime = 653);
: 361841 = 487*743 (c-reached prime = 257 and m-reached prime = 1229);
: 3611681 = 37*97613 (c-reached prime = 97577 and m-reached prime = 97649);
: 8411369 = 1621*5189 (c-reached prime = 41 and m-reached prime = 53);
: 1681841 = 7*240263 (c-reached prime = 240257 and m-reached prime = 113);
: 9612809 = 1933*4973 (c-reached prime = 3041 and m-reached prime = 281);