Two conjectures on the numbers of the form 4p^4-800p^2+5 where p is prime

Abstract. In this paper I state two conjectures on the numbers of the form 4*p^4 - 800*p^2 + 5, where p is prime, i.e. that there exist an infinity of primes of such form respectively that there exist an infinity of sempiprimes q*r of such form, where r = q + 40*n, where n positive integer.

Conjecture 1

There exist an infinity of primes q of the form q = 4*p^4 - 800*p^2 + 5, where p is prime.

Examples:

: for p = 3, q = 7529, prime;
: for p = 7, q = 48809, prime;
: for p = 13, q = 249449, prime;
: for p = 17, q = 565289, prime;
: for p = 31, q = 4462889, prime;
: for p = 41, q = 12647849, prime;
: for p = 43, q = 15154409, prime;
: for p = 53, q = 33809129, prime;
: for p = 67, q = 84195689, prime;
: for p = 71, q = 105679529, prime;
: for p = 83, q = 195344489, prime;
: for p = 101, q = 424402409, prime;
: for p = 127, q = 1053481769, prime;
: for p = 167, q = 3133496489, prime;
: for p = 239, q = 13096931369, prime;
: for p = 251, q = 15926904809, prime;
: for p = 307, q = 35606895209, prime;
[...]
: for p = 104723, q = 481092181583867300969, prime.

Conjecture 2

There exist an infinity of semiprimes q*r of the form q*r = 4*p^4 - 800*p^2 + 5, where p is prime, such that r = q + 40*n, where n positive integer.

Examples:

: for p = 19, q*r = 7*115727 and 115727 = 7 + 40*2893;
: for p = 29, q*r = 227*15427 and 15427 = 227 + 40*380;

: for p = 37, q*r = 7*1227407 and 1227407 = 7 + 40*30685;
: for p = 59, q*r = 73*702113 and 702113 = 73 + 40*17551;
: for p = 61, q*r = 7*8337167 and 8337167 = 7 + 40*208429;
: for p = 97, q*r = 797*453757 and 453757 = 797 + 40*11324;
: for p = 109, q*r = 487*1178927 and 1178927 = 487 + 40*29461;
: for p = 113, q*r = 2203*300683 and 300683 = 2203 + 40*7462;
: for p = 137, q*r = 433*3288953 and 3288953 = 433 + 40*82213;
: for p = 151, q*r = 31237*67157 and 67157 = 31237 + 40*898;
: for p = 157, q*r = 233*10515073 and 10515073 = 233 + 40*262871;
: for p = 179, q*r = 10973*376573 and 376573 = 10973 + 40*9140;
: for p = 181, q*r = 14783*292183 and 292183 = 14783 + 40*6935;
: for p = 191, q*r = 7*764662607 and 764662607 = 7 + 40*19116565;
: for p = 197, q*r = 3607*1678847 and 1678847 = 3607 + 40*41881;
: for p = 223, q*r = 967*10270607 and 10270607 = 967 + 40*256741;
: for p = 227, q*r = 66863*159463 and 159463 = 66863 + 40*2315;
: for p = 229, q*r = 7*1577455247 and 1577455247 = 7 + 40*39436381;
: [...]
: for p = 104701, q*r = 7*68669720199785622287 and 68669720199785622287 = 7 + 40*1716743004994640557.