A method of obtaining large primes based on Carmichael numbers

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Abstract. Playing with Carmichael numbers, a set of numbers I’ve always been fond of (I’ve “discovered” Fermat’s “Little” Theorem and the first few Carmichael numbers before I know they had already been discovered), I noticed that the formula C + 81*2^(4*d), where C is a Carmichael number and d one of its prime factors, gives often primes or products of very few primes. For instance, for C = 1493812621027441 are obtained in this manner three primes: 2918779690625137, 67292167286611366065770170552902718 57 and 644530914387083488233375393598279808770191171433362641802841314053534708129737067311868017 (a 90-digit prime!), respectively for d = 11, d = 29 and d = 73.

Observation:

The formula C + 81*2^(4*d), where C is a Carmichael number and d one of its prime factors, gives often primes or products of very few primes.

The set of such Carmichael numbers:
(that generates primes through the formula mentioned)

: C = 1105 = 5*13*17 generates for d = 17:
: 2390698031952757889544 1, prime;

: C = 2465 = 5*17*29 generates for d = 17:
: 23906980319527578896801, prime;

: C = 6601 = 7*23*41 generates for d = 7 and d = 23:
: 21743278537, prime;
: 4010925727284632090673162551 77, prime;

: C = 101101 = 7*11*13*101 generates for d = 7, 13:
: 21743373037, prime;
: 364791569817111277, prime;

: C = 188461 = 7*13*19*109 generates for d = 7, 13, 19:
: 21743460397, prime;
: 364791569817198637, prime;
: 6120186961799060197138477, prime;
(...)

Four such 16-digit Carmichael numbers:
(that generates primes through the formula mentioned)

: C1 = 1436697831295441 generates for d = 13, 31:

: 366228267648305617, prime;
: 1722679482537250971283335386821157865937, prime;

: C2 = 1493812621027441 generates for d = 11, 29, 73:

: 2918779690625137, prime;
: 6729216728661136606577017055290271857, prime;
:644530914387083488233375393598279808770191171433362
641802841314053534708129737067311868017, prime;

: C3 = 2842648863161185 generates for d = 13:

: 367634218680171361, prime;

: C4 = 5778659093725441 generates for d = 7:

: 5778680836997377, prime.

Note: only checked for prime factors d lesser than or equal to 73.

Note: for all four Carmichael numbers above the formula C + 81*2^d also generates primes:

: 1436871777470929 for [C, d] = [C1, 31];
: 1493812621193329 for [C, d] = [C2, 11];
: 2842692349705057 for [C, d] = [C3, 29];
: 5778659136192769 for [C, d] = [C4, 19];
: 5789791648956673 for [C, d] = [C4, 37].