A list of 13 sequences of Carmichael numbers based on the multiples of the number 30

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Abstract. The applications of the multiples of the number 30 in the study of Fermat pseudoprimes was for a long time one of my favourite subject of study; in this paper I shall list 13 sequences that I discovered, many of them, if not all of them, having probably an infinity of terms that are Carmichael numbers. I posted many of them on OEIS, where I analized more of their attributes; here I'll just list them, enumerate their first few terms and present few conjectures.

(1) Carmichael numbers of the form
C = (30n+7)*(60n+13)*(150n+31).

First 6 terms: 2821, 488881, 288120421, 492559141, 776176261, 1632785701 (sequence A182085 in OEIS).

Conjecture: The number (30n+7)*(60n+13)*(150n+31) is a Carmichael number if (but not only if) 30n+7, 60n+13 and 150n+31 are all three prime numbers.

(2) Carmichael numbers of the form
C = (30n-p)*(60n-(2p+1))*(90n-(3p+2)),
where p, 2p+1, 3p+2 are all three prime numbers.

First 6 terms: 1729, 172081, 294409, 1773289, 4463641, 56052361 (sequence A182087 in OEIS).

Comment: These numbers can be reduced to only two possible forms: C = (30n-23)*(60n-47)*(90n-71) or C = (30n-29)*(60n-59)*(90n-89).

(3) Carmichael numbers of the form
C = (30n-29)*(60n-59)*(90n-89)*(180n-179).

First 4 terms: 31146661, 2414829781, 192739365541, 197531244744661 (sequence A182088 in OEIS).

Conjecture: The number (30n-29)*(60n-59)*(90n-89)*(180n-179) is a Carmichael number if (but not only if) 30n-29, 60n-59, 90n-89 and 180n-179 are all four prime numbers.

(4) Carmichael numbers of the form
C = (330n+7)*(660n+13)*(990n+19)*(1980n+37).

First 2 terms: 63973, 461574735553 (sequence A182089 in OEIS).

Conjecture: The number (330n+7)*(660n+13)*(990n+19)*(1980n+37) is a Carmichael number if 330n+7, 660n+13, 990n+19 and 1980n+37 are all four prime numbers.

(5) Carmichael numbers of the form
C = (30n-7)*(90n-23)*(300n-79).

First 5 terms: 340561, 4335241, 153927961, 542497201, 1678569121 (sequence A182132 in OEIS).

Conjecture: The number (30n-7)*(90n-23)*(300n-79) is a Carmichael number if (but not only if) 30n-7, 90n-23 and 300n-79 are all three prime numbers.

(6) Carmichael numbers of the form
C = (30n-17)*(90n-53)*(150n-89).

First 5 terms: 29341, 1152271, 34901461, 64377991, 775368901 (sequence A182133 in OEIS).

Conjecture: The number (30n+13)*(90n+37)*(150n+61) is a Carmichael number if (but not only if) 30n+13, 90n+37 and 150n+61 are all three prime numbers.

(7) Carmichael numbers of the form
C = (60n+13)*(180n+37)*(300n+61).

First 5 terms: 29341, 34901461, 775368901, 1213619761, 4562359201 (sequence A182416 in OEIS).

Conjecture: The number (60n+13)*(180n+37)*(300n+61) is a Carmichael number if (but not only if) 60n+13, 180n+37 and 300n+61 are all three prime numbers.

(8) Carmichael numbers of the form
C = (90n+1)*(180n+1)*(270n+1)*(540n+1).

First 2 terms: 2414829781, 192739365541.

Comment: For n = n/15 the formula becomes (6n+1)*(12n+1)*(18n+1)*(36n+1).

(9) Carmichael numbers of the form
C = (p+30)*(q+60)*(p*q+90),
where p and q are primes.

First 2 terms: 488881, 1033669.

Comment: We obtained Carmichael numbers for [p,q] = [7,13] and [p,q] = [7,31]

(10) Carmichael numbers of the form
C = (30p+1)*(60p+1)*(90p+1),
where p is prime.

First 4 terms: 56052361, 216821881, 798770161, 1976295241.

Comment: We obtained Carmichael numbers for the following values of p: 7, 11, 17, 23.

(11) Carmichael numbers of the form
C = 1710*3^m+60*n+451.

First 3 terms: 2821, 6601, 15841.

Comment: We obtained Carmichael numbers for the following values of [m,n]: [0,11], [1,17], [2,0].

(12) Carmichael numbers of the form
C = 1710*m+30*n+1.

First 7 terms: 2821, 6601, 8911, 15841, 29341, 41041, 75361.

Comment: We obtained Carmichael numbers for the following values of [m,n]: [1,37], [3,49], [5,12], [9,15], [17,9], [24,0], [44,4].

(13) Carmichael numbers of the form
C = 60*n+2281.

First 17 terms: 2821, 6601, 15841, 29341, 41041, 101101, 115921, 172081, 188461, 252601, 314821, 340561, 399001, 410041, 488881, 512461, 530881.

Comment: We obtained Carmichael numbers for the following values of n: 9, 72, 226, 451, 646, 1647, 1894, 2830, 3103, 4172, 5209, 5638, 6612, 6796, 8110, 8503, 8810.

Conjecture: All Carmichael numbers C of the form 10k+1 that have digital root equal to 1, 4 or 7 can be written as C = 60n+2281.