Three conjectures on Novák-Carmichael numbers

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Abstract. In this paper I make the following three conjectures on Novák-Carmichael numbers: (1) There exist an infinity of Novák-Carmichael numbers of the form (6k + 1)*(12k + 1)*(18k + 1) – 1; (2) There exist an infinity of Novák-Carmichael numbers of the form (6k - 1)*(12k - 1)*(18k - 1) + 1; (3) There exist an infinity of Novák-Carmichael numbers C such that C + 1 is a Poulet number. See the sequence A124240 in OEIS for Novák-Carmichael numbers (numbers n such that a^n ≡ 1 (mod n) for every a coprime to n).

Conjecture 1:

There exist an infinity of Novák-Carmichael numbers of the form (6k + 1)*(12k + 1)*(18k + 1) – 1.

Note:

Up to k = 100 the Novák-Carmichael numbers of the form (6k + 1)*(12k + 1)*(18k + 1) – 1 are 1728, 2049400 and 56052360, corresponding to k = 1, k = 25, k = 35.

Conjecture 2:

There exist an infinity of Novák-Carmichael numbers of the form (6k - 1)*(12k - 1)*(18k - 1) + 1.

Note:

Up to k = 100 the Novák-Carmichael numbers of the form (6k - 1)*(12k - 1)*(18k - 1) + 1 are 936, 31536 and 4285440, corresponding to k = 1, k = 3, k = 15.

Conjecture 3:

There exist an infinity of Novák-Carmichael numbers C such that C + 1 is a Poulet number.

Note:

The first 17 such numbers C are 1728, 2700, 3276, 4032, 4368, 4680, 5460, 6600, 10260, 10584, 12800, 18720, 34944, 41040, 46656, 49140, 65280.