Bold conjecture on Fermat pseudoprimes

Abstract. In many of my previous papers I showed various methods, formulas and polynomials designed to generate sequences, possible infinite, of Poulet numbers or Carmichael numbers. In this paper I state that there exist a method to place almost any Fermat pseudoprime to base two (Poulet number) in such a sequence, as a further term or as a starting term.

Conjecture:

If the prime factors of a Poulet number not divisible with 3 can be expressed in the following way, i.e. the least from them P as 6*n + 1, 6*n - 1, 6*n + 5 or 6*n – 5 and the product of the rest of them Q as 6*m*n + 1, 6*m*n – 1, 6*m*n + 5 or 6*m*n – 5, then there exist an infinity of Poulet numbers of the form P*Q.

As example, the first Poulet number, 341, is equal to 11*31 and we have 11 = 6*2 – 1 (so 6*n – 1) and 31 = 18*2 – 5 (so 18*n – 5); the conjecture states that there exist an infinity of Poulet numbers of the form (6*n – 1)*(18*n – 5).

Note that not any Poulet number not divisible by 3 (though the most of them) can be written the way described above; as example, the 2-Poulet number 3277 = 29*113 (29 is equal to 6*4 + 5 and to 6*5 – 1, but 113 isn't equal either to 6*4*m ± 1 or 6*5*m ± 1 neither with 6*4*m ± 5 or 6*5*m ± 5).

Examples:
(for few from the first Poulet numbers not divisible by 3)

: 341 = 11*31 is the starting term, obtained for n = 2, in the sequence of Poulet numbers (6*n – 1)*(18*n – 5) which has the following terms: 2465, 8321, 83333, 162401 (...) obtained for n = 5, 9, 28, 39 (...);

: 1105 = 5*13*17 = 5*221 is the starting term, obtained for n = 1, in the sequence of Poulet numbers (6*n – 1)*(222*n – 1) which has the following terms: 11305 (...) obtained for n = 3 (...);

: 1387 = 19*73 is the starting term, obtained for n = 3, in the sequence of Poulet numbers (6*n + 1)*(24*n + 1) which has the following terms: 83665, 90751 (...) obtained for n = 24, 25 (...);

: 1729 = 7*13*19 = 7*247 is the starting term, obtained for n = 1, in the sequence of Poulet numbers (6*n + 1)*(246*n + 1) which has the following terms: 1082809, 1615681 (...) obtained for n = 27, 33 (...);

: 2047 = 23*89 is the starting term, obtained for n = 3, in the sequence of Poulet numbers (6*n + 5)*(30*n - 1);

: 2465 = 5*17*19 = 5*493 is the starting term, obtained for n = 1, in the sequence of Poulet numbers (6*n - 1)*(492*n + 1);

: 2701 = 37*73 is the starting term, obtained for n = 6, in the sequence of Poulet numbers (6*n + 1)*(12*n + 1) which has the following terms: 8911, 10585, 18721 (...) obtained for n = 11, 12, 16 (...);

: 2821 = 7*13*31 = 7*403 is the starting term, obtained for n = 1, in the sequence of Poulet numbers (6*n + 1)*(402*n + 1);

: 4033 = 37*109 is the second term, obtained for n = 6, in the sequence of Poulet numbers (6*n + 1)*(18*n + 1) which has as the first term, obtained for n = 5, the Poulet number 2821, and as the following terms: 5461, 15841 (...) obtained for n = 7, 12 (...);

Note that the Poulet number 2821 is a term in both of the distinct sequences (6*n + 1)*(402*n + 1) and (6*n + 1)*(18*n + 1).

: 4369 = 17*257 is the starting term, obtained for n = 2, in the sequence of Poulet numbers (6*n + 5)*(126*n + 5);

: 4681 = 31*151 is the second term, obtained for n = 5, in the sequence of Poulet numbers (6*n + 1)*(30*n + 1) which has as the first term, obtained for n = 3, the Poulet number 1729, and as the following terms: 41041, 46657, 52633 (...) obtained for n = 15, 16, 17 (...);

Note that the Poulet number 1729 is a term in both of the distinct sequences (6*n + 1)*(246*n + 1) and (6*n + 1)*(30*n + 1).

: 5461 = 43*127 is the second term, obtained for n = 7, in the sequence of Poulet numbers (6*n + 1)*(18*n + 1) which has as the first term, obtained for n = 5, the Poulet number 2821.