A list of 15 sequences of Poulet numbers based on the multiples of the number 6

Abstract. In previous papers, I presented few applications of the multiples of the number 30 in the study of Carmichael numbers, i.e. in finding possible infinite sequences of such numbers; in this paper I shall list 15 probably infinite sequences of Poulet numbers that I discovered based on the multiples of the number 6.

(1) Poulet numbers of the form
P = (6*n + 7)*(12*n + 13).

First 4 terms: 2701 (= 37*73), 8911 (= 7*19*67), 10585 (= 5*29*73), 18721 (= 97*193),
obtained for n = 5, 10, 11.

(2) Poulet numbers of the form
P = (6*n + 7)*(30*n + 31).

First 6 terms: 1729 (= 7*13*19), 4681 (= 31*151), 30889 (= 17*23*157), 41041 (= 7*11*13*41), 46657 (= 13*37*97), 52633 (= 7*73*103),
obtained for n = 2, 4, 12, 16.

(3) Poulet numbers of the form
P = (12*n + 13)*(30*n + 31).

First term: 23377 (= 97*241),
obtained for n = 7.

(4) Poulet numbers of the form
P = (6*n + 7)*(12*n + 13)*(30*n + 31).

First 5 terms: 2821 (= 7*13*31), 63973 (= 7*13*19*37), 285541 (= 31*61*151), 488881 (= 37*73*181), 7428421 (= 7*11*13*41*181),
obtained for n = 0, 2, 4, 5, 14.

Conjecture: The number (6*n + 7)*(12*n + 13)*(30*n + 31) is a Poulet number if (but not only if) 6*n + 7, 12*n + 13 and 30*n + 31 are all three prime numbers.

(5) Poulet numbers of the form
P = (6*n + 1)*(12*n + 1).

First 4 terms: 2701 (= 37*73), 8911 (= 7*19*67), 10585 (= 5*29*73), 18721 (= 97*193),
obtained for n = 6, 11, 12, 16.

(6) Poulet numbers of the form
P = (6*n + 1)*(18*n + 1).

First 4 terms: 2821 (= 7*13*31), 4033 (= 37*109), 5461 (43*127), 15841 (= 7*31*73),
obtained for n = 5, 6, 7, 12.

(7) Poulet numbers of the form
P = (12*n + 1)*(18*n + 1).

First term: 7957 (73*109),
obtained for n = 6.

(8) Poulet numbers of the form
P = (6*n + 1)*(12*n + 1)*(18*n + 1).

First 6 terms: 1729 (= 7*13*19), 172081 (= 7*13*31*61), 294409 (= 37*73*109), 464185 (= 5*17*43*127), 1773289 (= 67*133*199), 4463641 (= 7*13*181*271),
obtained for n = 1, 5, 6, 7, 11, 15.

Note: The numbers (6*n + 1)*(12*n + 1)*(18*n + 1), when 6*n + 1, 12*n + 1 and 18*n + 1 are all three primes, are the well known Chernick numbers, so of course they are consequently Poulet numbers, but note that there exist such numbers which are Poulet numbers though 6*n + 1, 12*n + 1 and 18*n + 1 are not all three primes.

(9) Poulet numbers of the form
P = (6*n + 1)*(12*n + 1)*(18*n + 1)*(36*n + 1).

First 4 terms: 63973 (= 7*13*19*37), 31146661 (= 7*13*31*61*181), 703995733 (= 7*19*67*199*397), 2414829781 (= 7*13*181*271*541),
obtained for n = 1, 5, 11, 15.

Note: The numbers (6*n + 1)*(12*n + 1)*(18*n + 1)*(36*n + 1), when 6*n + 1, 12*n + 1, 18*n + 1 and 36*n + 1 are all four primes, are known that are Carmichael numbers, so of course they are consequently Poulet numbers, but note that there exist such numbers which are Poulet numbers though 6*n + 1, 12*n + 1, 18*n + 1 and 36*n + 1 are not all four primes.

(10) Poulet numbers of the form
P = (6*n + 1)*(24*n + 1).

First 5 terms: 1387 (= 19*73), 83665 (= 5*29*577), 90751 (= 151*601), 390937 (= 313*1249), 748657 (= 7*13*19*433),
obtained for n = 3, 24, 25, 52, 72.

(11) Poulet numbers of the form
P = (6*n - 1)*(12*n - 3).

First 2 terms: 561 (= 3*11*17), 4371 (= 3*31*47), obtained for n = 3, 8.

(12) Poulet numbers of the form
P = (6*n - 1)*(18*n - 5).

First 3 terms: 341 (= 11*31), 2465 (5*17*29), 8321 (53*157), obtained for n = 2, 5, 9.

(13) Poulet numbers of the form
P = (6*n - 1)*(24*n - 7).

First 5 terms: 1105 (= 5*13*17), 2047 (= 23*89), 3277 (= 29*113), 6601 (= 7*23*41), 13747 (= 59*233), obtained for n = 3, 4, 5, 7, 10.

(14) Poulet numbers of the form
P = (6*n - 1)*(18*n - 5)*(60*n – 19).

First 2 terms: 340561 (= 13*17*23*67), 4335241 (= 53*157*521), obtained for n = 4, 9.

(15) Poulet numbers of the form
P = (6*n + 1)*(18*n + 1)*(30*n + 1).

First 2 terms: 29341 (= 13*37*61), 1152271 (= 43*127*211), obtained for n = 2, 7.