Conjecture on Poulet numbers of the form 8mn^3+40n^3+38n^2+6mn^2+mn+11n+1

Marius Coman
email: mariuscoman13@gmail.com

Abstract. In this paper I observe that the formula 8*m*n^3 + 40*n^3 + 38*n^2 + 6*m*n^2 + m*n + 11*n + 1 produces Poulet numbers, and I conjecture that this formula produces an infinite sequence of Poulet numbers for any m non-null positive integer.

Conjecture:

The formula 8*m*n^3 + 40*n^3 + 38*n^2 + 6*m*n^2 + m*n + 11*n + 1 produces an infinite sequence of Poulet numbers for any m non-null positive integer.

Examples:

Formula becomes 48*n^3 + 44*n^2 + 12*n + 1 for m = 1 and we have the following sequence of Poulet numbers P = 48*n^3 + 44*n^2 + 12*n + 1 (obtained for n = 3, 7, 15, 18, 33, 45, 66 ...):
: 1729, 18705, 172081, 294409, 1773289, 4463641, 13992265 (...)

Formula becomes 56*n^3 + 50*n^2 + 13*n + 1 for m = 2 and we have the following sequence of Poulet numbers P = 56*n^3 + 50*n^2 + 13*n + 1 (obtained for n = 64, ...):
: 14885697 (...)

Formula becomes 64*n^3 + 56*n^2 + 14*n + 1 for m = 3 and we have the following sequence of Poulet numbers P = 64*n^3 + 56*n^2 + 14*n + 1 (obtained for n = 44, ...):
: 5560809 (...)

Formula becomes 80*n^3 + 68*n^2 + 16*n + 1 for m = 5 and we have the following sequence of Poulet numbers P = 80*n^3 + 68*n^2 + 16*n + 1 (obtained for n = 3, 9, 15, 18, 45 ...):
: 2821, 63973, 285541, 488881, 7428421 (...)

Note that all the solutions obtained for n so far (up to n = 45) are of the form 3k.

Formula becomes 112*n^3 + 92*n^2 + 20*n + 1 for m = 9 and we have the following sequence of Poulet numbers P = 112*n^3 + 92*n^2 + 20*n + 1 (obtained for n = 15, 45, ...):
:   399001, 10393201 (...)