Conjecture on the Poulet numbers of the form (4^n + 1)/5 where n is prime

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Abstract. In this paper I conjecture that any Poulet number of the form (4^n + 1)/5 where n is prime is either 2-Poulet number either a product of primes p(1)*p(2)*...*p(k) such that all the semiprimes p(i)*p(j), where 1 ≤ i < j ≤ k, are 2-Poulet numbers.

Conjecture:

Any Poulet number of the form (4^n + 1)/5 where n is prime is either 2-Poulet number either a product of primes p(1)*p(2)*...*p(k) such that all the semiprimes p(i)*p(j), where 1 ≤ i < j ≤ k, are 2-Poulet numbers.

Verifying the conjecture:
(for the first few such numbers)

: a(3) = 13 and a(5) = 205 are not Poulet numbers;

: a(7) = 3277 = 29*113 is a 2-Poulet number;

: a(11) = 838861 = 397*2113 is a 2-Poulet number;

: a(13) = 13421773 = 53*157*1613 is a Poulet number and indeed 8321 = 53*157, 85489 = 53*1613 and 253241 = 157*1613 are all three 2-Poulet numbers;

: a(17) = 3435973837 = 137*953*26317 is a Poulet number and indeed 130561 = 137*953, 3605429 = 137*26317 and 25080101 = 953*26317 are all three 2-Poulet numbers;

: a(19) = 54975581389 = 229*457*525313 is a Poulet number and indeed 104653 = 229*457, 120296677 = 229*525313 and 240068041 = 457*525313 are all three 2-Poulet numbers;

: a(23) = 14073748835533 = 277*1013*1657*30269 and indeed 280601 = 277*1013, 458989 = 277*1657, 8384513 = 277*30269, 1678541 = 1013*1657, 30662497 = 1013*30269 and 50155733 = 1657*30269 are all six 2-Poulet numbers.