Sierpinski problems

Definition

For the original Sierpinski problem, it is finding and proving the smallest k such that $k \times b^n+1$ is not prime for all integers $n \geq 1$ and GCD(k+1, b-1)=1.

Extended definiton

Finding and proving the smallest k such that $(k \times b^n+1)/\text{GCD}(k+1, b-1)$ is not prime for all integers $n \geq 1$.

Notes

All n must be >= 1.

k-values that make a full covering set with all or partial algebraic factors are excluded from the conjectures.

k-values that are a multiple of base (b) and where $(k+1)/\text{gcd}(k+1,b-1)$ is not prime are included in the conjectures but excluded from testing.

Such k-values will have the same prime as k / b.

Table

Base	Conjectured smallest Sierpinski *k*	Covering set	*k*'s that make a full covering set with all or partial algebraic factors	Remaining *k* to find prime (*n* testing limit)	Top 10 *k*'s with largest first primes: *k* (*n*) (sorted by *n* only)	Comments

2	78557	3, 5, 7, 13, 19, 37, 73		21181, 22699, 24737, 55459, 65536, 67607 (k = 65536 at n=8.589G, other k at n=34M)	10223 (31172165) 19249 (13018586) 27653 (9167433) 28433 (7830457) 33661 (7031232) 5359 (5054502) 4847 (3321063) 54767 (1337287) 69109 (1157446) 65567 (1013803)	
3	11047	2, 5, 7, 13, 73		1187, 1801, 3007, 3047, 3307, 5321, 5743, 5893, 6427, 6569, 6575, 7927, 8161, 8227, 8467, 8609, 8863, 8987, 9263, 9449 (all at n=16.3K)	621 (20820) 3061 (15772) 10243 (9731) 2747 (7097) 10207 (6089) 823 (6087) 10741 (6028) 821 (5512) 5147 (5153) 9721 (5040)	
4	419	3, 5, 7, 13		none - proven	186 (10458) 94 (291) 176 (228) 129 (207) 89 (167) 86 (108) 174 (103) 369 (71) 101 (66) 293 (58)	

5	7	2, 3		none - proven	4 (2) 3 (2) 6 (1) 5 (1) 2 (1) 1 (1)	
6	174308	7, 13, 31, 37, 97		1296, 1814, 9589, 12179, 13215, 14505, 22139, 23864, 29014, 43429, 49874, 50252, 57189, 62614, 67894, 73814, 76441, 80389, 87284, 87289, 87800, 97131, 100899, 112783, 117454, 122704, 124874, 127688, 132614, 135199, 139959, 145984, 151719, 152209, 166753, 168610 (k = 1296 at n=268.4M, k = 1814 at n=200K, other k = 4 mod 5 at n=33.5K, other k at n=4M)	124125 (2018254) 139413 (1279992) 33706 (910462) 125098 (896696) 31340 (833096) 59506 (780877) 10107 (559967) 113966 (511831) 172257 (349166) 121736 (298935)	

7	209	2, 3, 5, 13, 43		none - proven	141 (1044) 121 (252) 101 (216) 21 (124) 181 (80) 173 (48) 87 (47) 145 (46) 77 (44) 187 (35)	
8	47	3, 5, 13	All k = m^3 for all n; factors to: (m*2^n + 1) * (m^2*4^n - m*2^n + 1)	none - proven	31 (20) 46 (4) 40 (4) 37 (4) 28 (4) 16 (4) 13 (4) 45 (3) 38 (3) 36 (3)	k = 1, 8, and 27 proven composite by full algebraic factors.
9	31	2, 5		none - proven	26 (6) 21 (4) 24 (3) 17 (3) 28 (2) 23 (2) 16 (2) 11 (2) 10 (2) 7 (2)	
10	989	3, 7, 11, 13		100, 269 (k = 100 at n=2.147G, k = 269 at n=100K)	804 (5470) 342 (338) 485 (230) 912 (215) 815 (190) 378 (188) 494 (135) 640 (120) 737 (117) 603 (107)	
11	5	2, 3		none - proven	4 (2) 1 (2) 3 (1) 2 (1)	

12	521	5, 13, 29		12 (33.55M)	404 (714558) 378 (2388) 261 (644) 407 (367) 354 (291) 37 (199) 30 (144) 88 (113) 17 (78) 274 (74)	
13	15	2, 7		none - proven	11 (564) 8 (4) 13 (3) 3 (2) 2 (2) 14 (1) 12 (1) 10 (1) 9 (1) 7 (1)	
14	4	3, 5		none - proven	1 (2) 3 (1) 2 (1)	

15	673029	2, 17, 113, 1489		225, 341, 343, 641, 965, 1205, 1827, 2263, 2323, 2403, 2445, 2461, 2471, 2531, 2813, 3347, 3625, 3797, 3935, 3959, 4045, 4169, 4355, 4665, 4733, 5169, 5793, 5891, 5983, 6061, 6331, 6476, 6553, 6598, 6661, 6775, 6849, 7087, 7693, 7711, 7773, 7975, 7979, 8017, 8161, 8181, 8271, 8603, 8881, 9215, 9643, 9767, 9783, 9857 (for k <= 10K) (k = 225 at n=524K, other k at n=1.5K)	6598 (11715) 6476 (1522) 5529 (1446) 6313 (1276) 7763 (1179) 4787 (1129) 219 (1129) 5975 (1099) 7957 (1082) 5653 (1064)	
16	38	3, 7, 13	All k=4*q^4 for all n: let k=4*q^4 and let m=q*2^n; factors to: (2*m^2 + 2m + 1) * (2*m^2 - 2m + 1)	none - proven	23 (1074) 33 (7) 35 (4) 18 (4) 10 (3) 5 (3) 32 (2) 31 (2) 30 (2) 24 (2)	k = 4 proven composite by full algebraic factors.

17	31	2, 3		none - proven	10 (1356) 7 (190) 2 (47) 29 (41) 20 (13) 23 (9) 4 (6) 16 (4) 1 (4) 30 (3)	
18	398	5, 13, 19		18 (33.55M)	122 (292318) 381 (24108) 291 (2415) 37 (457) 362 (258) 123 (236) 183 (171) 363 (163) 209 (79) 318 (78)	
19	9	2, 5		none - proven	5 (78) 6 (14) 4 (3) 1 (2) 8 (1) 7 (1) 3 (1) 2 (1)	
20	8	3, 7		none - proven	6 (15) 7 (2) 4 (2) 1 (2) 5 (1) 3 (1) 2 (1)	

21	23	2, 11		none - proven	12 (10) 21 (3) 19 (2) 11 (2) 8 (2) 3 (2) 22 (1) 20 (1) 18 (1) 17 (1)	
22	2253	5, 23, 97		22, 1754, 1772, 1862, 2186, 2232 (k = 22 at n=16.77M, other k at n=16.8K)	1611 (738988) 1908 (355313) 942 (18359) 740 (18137) 1496 (17480) 461 (16620) 953 (5596) 1793 (4121) 1161 (3720) 346 (3180)	
23	5	2, 3		none - proven	4 (342) 1 (4) 3 (3) 2 (1)	

24	30651	5, 7, 13, 73, 79		656, 1099, 1816, 1851, 1864, 2164, 2351, 2529, 2586, 3404, 3526, 3609, 4346, 4606, 4894, 5129, 5316, 5324, 5386, 5889, 5974, 7276, 7746, 7844, 8054, 8091, 8161, 9279, 9304, 9701, 9721, 10026, 10156, 10326, 10531, 11346, 12626, 12969, 12991, 13716, 14006, 14604, 15921, 17334, 17819, 17876, 18006, 18204, 18911, 19031, 19094, 20219, 20676, 20731, 21459, 21849, 22289, 22356, 22479, 23844, 23874, 24784, 25964, 25966, 26279, 27344, 29091, 29349, 29464, 29566, 29601 (k = 22 mod 23 at n=11.3K, other k at n=400K)	13984 (397259) 3846 (383526) 23981 (360062) 8369 (359371) 3706 (353908) 12799 (353083) 29009 (338099) 28099 (332519) 21526 (329368) 26804 (266195)	

25	79	2, 13		71 (10K)	61 (3104) 40 (518) 59 (48) 77 (27) 68 (15) 47 (9) 12 (9) 51 (7) 66 (6) 57 (5)	
26	221	3, 7, 19, 37		65, 155 (both at n=1M)	32 (318071) 217 (11454) 95 (1683) 178 (1154) 138 (827) 157 (308) 175 (276) 211 (98) 149 (87) 197 (71)	
27	13	2, 7	All k = m^3 for all n; factors to: (m*3^n + 1) * (m^2*9^n - m*3^n + 1)	none - proven	9 (10) 7 (3) 12 (2) 5 (2) 2 (2) 11 (1) 10 (1) 6 (1) 4 (1) 3 (1)	k = 1 and 8 proven composite by full algebraic factors.
28	4554	5, 29, 157		871, 3104, 4552 (k = 3104 at n=25.5K, k = 871 and 4552 at n=1M)	3394 (427262) 4233 (331135) 2377 (104621) 146 (47316) 1291 (22811) 2203 (13911) 1565 (8607) 1797 (5681) 1043 (5459) 2467 (4956)	

29	4	3, 5		none - proven	3 (2) 1 (2) 2 (1)	
30	867	7, 13, 19, 31		278, 588 (both at n=1M)	699 (11837) 242 (5064) 659 (4936) 311 (1760) 559 (1654) 557 (1463) 740 (1135) 12 (1023) 83 (644) 293 (361)	
31	239	2, 3, 7, 19		1, 43, 51, 73, 77, 107, 117, 149, 181, 209 (k = 1 at n=524K, other k at n=6K)	189 (5570) 191 (1553) 5 (1026) 113 (178) 121 (118) 145 (78) 37 (64) 33 (62) 205 (60) 97 (58)	
32	10	3, 11	All k = m^5 for all n; factors to: (m*2^n + 1) * (m^4*16^n - m^3*8^n + m^2*4^n - m*2^n + 1)	4 (1.717G)	9 (13) 7 (4) 5 (3) 2 (3) 8 (1) 6 (1) 3 (1)	k = 1 proven composite by full algebraic factors.
33	511	2, 17		67, 203 (both at n=12K)	36 (23615) 407 (10961) 154 (6846) 319 (5043) 288 (4583) 418 (780) 11 (593) 305 (561) 251 (495) 63 (347)	

34	6	5, 7		none - proven	5 (12) 1 (4) 4 (1) 3 (1) 2 (1)	
35	5	2, 3		none - proven	4 (42) 1 (2) 3 (1) 2 (1)	
36	1886	13, 31, 37, 43		1296, 1814 (k = 1296 at n=134.2M, k = 1814 at n=100K)	960 (1571) 716 (1554) 526 (698) 1000 (542) 223 (480) 1096 (407) 1570 (352) 667 (302) 1115 (280) 1669 (240)	
37	39	2, 19		37 (524K)	19 (5310) 18 (461) 17 (12) 36 (9) 35 (6) 33 (6) 3 (6) 31 (5) 32 (4) 11 (4)	
38	14	3, 13		1 (16.77M)	2 (2729) 9 (21) 4 (10) 8 (7) 10 (4) 7 (4) 3 (3) 13 (2) 12 (1) 11 (1)	

39	9	2, 5		none - proven	6 (2) 5 (2) 1 (2) 8 (1) 7 (1) 4 (1) 3 (1) 2 (1)	
40	47723	3, 7, 41, 223		344, 1098, 1169, 1229, 1415, 1600, 2012, 2215, 2294, 2338, 2543, 2768, 2789, 2951, 2957, 3050, 3281, 3656, 3689, 3812, 3935, 4127, 4224, 4388, 4468, 4514, 4565, 4586, 4675, 4742, 4757, 4820, 4835, 4883, 4943, 5003, 5042, 5126, 5165, 5372, 5414, 5477, 5698, 5700, 5944, 6014, 6095, 6376, 6413, 6563, 6689, 7051, 7076, 7092, 7172, 7299, 7319, 7404, 7552, 7586, 7707, 7934, 8117, 8165, 8255, 8273, 8283, 8324, 8362, 8363, 8552, 8624, 8792, 8978, 8980, 9090, 9101, 9221	8870 (1000) 43254 (995) 44862 (981) 39533 (972) 40661 (967) 47069 (964) 8381 (963) 36983 (956) 2489 (946) 15118 (934)	

41	8	3, 7		none - proven	1 (16) 4 (6) 6 (3) 7 (2) 5 (1) 3 (1) 2 (1)	
42	13372	5, 43, 353		42, 988, 1117, 1421, 3226, 4127, 5503, 6707, 8298, 8601, 9074, 11093, 11717, 11738, 11912, 12256, 13283 (k = 42 at n=16.77M, k = 13283 at n=10K, other k at n=600K)	8343 (560662) 12001 (312245) 12042 (277646) 4643 (143933) 4297 (142044) 4731 (141968) 3897 (136780) 10009 (132629) 2794 (126595) 8300 (116404)	
43	21	2, 11		none - proven	13 (580) 9 (498) 3 (171) 5 (38) 17 (34) 15 (23) 1 (8) 18 (3) 16 (3) 14 (2)	
44	4	3, 5		none - proven	1 (16) 3 (9) 2 (1)	

45	47	2, 23		none - proven	24 (18522) 15 (55) 42 (36) 3 (28) 35 (22) 8 (8) 30 (5) 38 (3) 23 (3) 20 (3)	
46	881	3, 7, 103		563, 845 (both at n=35K)	283 (21198) 17 (4920) 140 (2105) 619 (2005) 278 (1788) 347 (1287) 729 (1006) 95 (446) 229 (443) 871 (405)	
47	5	2, 3		none - proven	2 (175) 1 (8) 4 (2) 3 (1)	
48	1219	7, 13, 61, 181		36, 62, 153, 561, 622, 1114, 1168 (all at n=500K)	937 (309725) 701 (284564) 1077 (216501) 1086 (136352) 1121 (133656) 29 (133042) 841 (84732) 1099 (81106) 359 (35671) 1028 (22619)	

49	31	2, 5		none - proven	24 (165) 21 (62) 22 (39) 11 (26) 16 (10) 29 (9) 9 (3) 26 (2) 20 (2) 15 (2)	
50	16	3, 17		1 (16.77M)	7 (516) 4 (10) 11 (9) 10 (4) 13 (2) 9 (2) 15 (1) 14 (1) 12 (1) 8 (1)	
51	25	2, 13		none - proven	5 (6) 24 (5) 21 (4) 13 (4) 10 (3) 3 (3) 17 (2) 16 (2) 14 (2) 9 (2)	

52	28674	5, 53, 541		42, 52, 106, 113, 158, 216, 266, 278, 311, 317, 366, 383, 419, 584, 608, 661, 674, 689, 743, 863, 902, 938, 941, 956, 973, 1043, 1100, 1241, 1247, 1292, 1324, 1326, 1376, 1378, 1433, 1463, 1483, 1502, 1538, 1591, 1642, 1658, 1689, 1727, 1730, 1778, 1808, 1907, 2150, 2174, 2297, 2378, 2384, 2386, 2396, 2516, 2570, 2598, 2624, 2632, 2711, 2813, 2894, 2978, 3107, 3114, 3181, 3232, 3254, 3386, 3418, 3426, 3434, 3474, 3497, 3602, 3659, 3671, 3746, 3749, 3767, 3827, 3868, 4007, 4073, 4112, 4133, 4135, 4241, 4292, 4373, 4706, 4804, 4901, 4928, 4967, 4970, 4981, 5087, 5281, 5282, 5343, 5354, 5399, 5405, 5567,	2474 (995) 20462 (992) 4285 (988) 10883 (985) 12968 (973) 15954 (962) 26722 (955) 4372 (954) 14444 (953) 13656 (953)	

				5570, 5573, 5619, 5621, 5624, 5633, 5693, 5711, 5723, 5725, 5776, 5831, 5882, 5909, 5912, 5988, 6002, 6011, 6037, 6044, 6125, 6147, 6149, 6239, 6246, 6331, 6359, 6385, 6536, 6572, 6632, 6654, 6687, 6743, 6767, 6770, 6836, 6891, 6981, 7058, 7089, 7147, 7207, 7237, 7262, 7283, 7313, 7358, 7397, 7400, 7577, 7580, 7586, 7653, 7737, 7739, 7763, 7883, 7990, 7998, 8048, 8054, 8132, 8189, 8255, 8322, 8331, 8392, 8479, 8579, 8638, 8681, 8693, 8723, 8786, 8948, 8973, 8983, 8990, 9083, 9134, 9150, 9242, 9243, 9314, 9329, 9356, 9380, 9421, 9433, 9437, 9542, 9563, 9602, 9635, 9698, 9737, 9848,		

				9943, 9977, 9988, 10002, 10004, 10013, 10061, 10154, 10172, 10188, 10192, 10246, 10328, 10396, 10411, 10451, 10487, 10493, 10499, 10548, 10586, 10601, 10641, 10652, 10667, 10679, 10739, 10793, 10853, 10861, 10862, 10916, 10917, 10919, 10946, 10971, 10999, 11042, 11078, 11120, 11138, 11146, 11237, 11321, 11391, 11516, 11522, 11553, 11684, 11714, 11747, 11765, 11771, 11798, 11818, 12035, 12062, 12091, 12191, 12197, 12201, 12266, 12391, 12404, 12461, 12471, 12533, 12623, 12721, 12779, 12884, 12918, 12931, 13043, 13088, 13136, 13152, 13171, 13251, 13277, 13310, 13316, 13355, 13362, 13451, 13478, 13491, 13514, 13673, 13697, 13728, 13784, 13799, 13808, 13842, 13922, 13952, 13994,		

				14129, 14132, 14234, 14256, 14336, 14447, 14583, 14657, 14691, 14786, 14849, 14888, 14906, 14998, 15110, 15123, 15157, 15282, 15422, 15424, 15474, 15545, 15617, 15636, 15637, 15656, 15659, 15687, 15737, 15901, 16046, 16058, 16119, 16133, 16166, 16204, 16219, 16273, 16352, 16442, 16481, 16535, 16559, 16571, 16574, 16607, 16652, 16661, 16738, 16742, 16749, 16802, 16853, 16893, 16961, 17012, 17022, 17027, 17054, 17120, 17165, 17167, 17168, 17247, 17277, 17279, 17342, 17383, 17491, 17543, 17573, 17712, 17723, 17809, 17819, 17996, 18072, 18077, 18233, 18236, 18251, 18328, 18449, 18458, 18526, 18602, 18604, 18632, 18636, 18686, 18724, 18797, 18816, 18857, 18914, 18951, 19043, 19066,		

				19081, 19094, 19121, 19132, 19157, 19178, 19241, 19319, 19328, 19337, 19352, 19397, 19403, 19451, 19493, 19556, 19592, 19634, 19646, 19721, 19751, 19768, 19872, 19959, 19967, 19980, 19982, 20035, 20163, 20192, 20300, 20351, 20459, 20475, 20487, 20516, 20526, 20624, 20722, 20830, 20840, 20897, 20936, 20975, 20987, 20996, 21041, 21136, 21167, 21212, 21246, 21272, 21347, 21353, 21354, 21359, 21517, 21653, 21701, 21806, 21835, 21851, 21902, 22024, 22053, 22055, 22071, 22169, 22233, 22332, 22418, 22430, 22457, 22479, 22526, 22685, 22701, 22709, 22719, 22727, 22739, 22787, 22791, 23007, 23062, 23222, 23374, 23531, 23558, 23586, 23612, 23641, 23659, 23663, 23705, 23743, 23774, 23805,		

				23844, 23871, 23886, 23902, 23906, 23929, 23947, 23984, 23987, 24169, 24257, 24273, 24328, 24347, 24374, 24448, 24452, 24456, 24464, 24497, 24547, 24563, 24697, 24708, 24722, 24866, 24911, 25070, 25123, 25176, 25227, 25229, 25236, 25439, 25471, 25492, 25494, 25558, 25616, 25619, 25653, 25704, 25757, 25847, 25865, 25874, 25876, 25932, 25943, 26009, 26067, 26072, 26078, 26128, 26210, 26222, 26261, 26287, 26300, 26322, 26498, 26513, 26548, 26614, 26658, 26660, 26744, 26771, 26813, 26858, 26923, 26966, 27031, 27082, 27122, 27296, 27327, 27479, 27516, 27519, 27527, 27572, 27623, 27642, 27718, 27720, 27743, 27764, 27779, 27837, 27877, 27879, 27983, 27985, 28079, 28142, 28193, 28198,		

				28208, 28211, 28229, 28277, 28333, 28462, 28493, 28658, 28661 (all at n=1K)		
53	7	2, 3		4 (1.7M)	6 (143) 5 (9) 1 (8) 3 (4) 2 (1)	
54	21	5, 11		none - proven	19 (103) 16 (30) 13 (7) 12 (4) 4 (3) 20 (2) 18 (2) 11 (2) 6 (2) 1 (2)	

55	13	2, 7		1 (524K)	10 (9) 9 (2) 8 (2) 5 (2) 4 (2) 12 (1) 11 (1) 7 (1) 6 (1) 3 (1)	
56	20	3, 19		none - proven	4 (78) 19 (70) 13 (6) 7 (6) 3 (5) 16 (2) 15 (2) 10 (2) 1 (2) 18 (1)	
57	47	2, 5, 13		none - proven	14 (14955) 39 (74) 27 (44) 46 (20) 30 (14) 31 (7) 38 (5) 25 (5) 16 (5) 6 (5)	
58	488	3, 7, 163		58, 122, 176, 222, 431, 437, 461 (k = 58 at n=16.77M, k = 222 at n=125K, other k at n=14.9K)	178 (25524) 297 (11508) 266 (9040) 241 (1964) 296 (1892) 393 (1831) 106 (1795) 228 (1603) 20 (1340) 392 (1222)	
59	4	3, 5		none - proven	2 (3) 1 (2) 3 (1)	

60	16957	13, 61, 277		60, 853, 1646, 2075, 4025, 4406, 4441, 5064, 6772, 7262, 7931, 10226, 11406, 12323, 13785, 14958, 15007, 15452, 15676, 16050 (k = 60 at n=16.77M, other k at n=500K)	14066 (324990) 16014 (227010) 5767 (201439) 12927 (191870) 11441 (180105) 8923 (109088) 13846 (90979) 2497 (88149) 10405 (77541) 6465 (37209)	
61	63	2, 31		none - proven	62 (3698) 43 (2788) 23 (1659) 10 (165) 19 (70) 32 (18) 25 (16) 36 (12) 57 (11) 26 (11)	
62	8	3, 7		1 (16.77M)	7 (308) 2 (43) 3 (12) 4 (2) 6 (1) 5 (1)	

63	1589	2, 5, 397		1, 83, 101, 103, 113, 133, 143, 185, 223, 237, 267, 283, 307, 309, 335, 343, 365, 367, 381, 391, 411, 425, 463, 467, 471, 487, 509, 549, 581, 587, 603, 605, 637, 643, 645, 673, 677, 681, 687, 689, 701, 789, 803, 807, 821, 825, 827, 881, 903, 937, 951, 963, 983, 989, 1021, 1027, 1043, 1047, 1049, 1063, 1067, 1103, 1121, 1189, 1201, 1207, 1263, 1267, 1283, 1321, 1341, 1367, 1401, 1433, 1461, 1463, 1467, 1481, 1523, 1553, 1563, 1581 (k = 1 at n=524K, other k at n=1K)	1108 (12351) 888 (2698) 9 (2162) 1174 (1989) 909 (938) 1085 (928) 1417 (918) 721 (816) 545 (810) 373 (774)	
64	14	5, 13	All k = m^3 for all n; factors to: (m*4^n + 1) * (m^2*16^n - m*4^n + 1)	none - proven	11 (3222) 13 (2) 6 (2) 12 (1) 10 (1) 9 (1) 7 (1) 5 (1) 4 (1) 3 (1)	k = 1 and 8 proven composite by full algebraic factors.

65	10	3, 11		none - proven	6 (5) 7 (2) 4 (2) 3 (2) 1 (2) 9 (1) 8 (1) 5 (1) 2 (1)	
66	21314443	7, 17, 37, 67, 73, 4357		269, 470, 537, 1198, 1408, 1449, 2076, 2257, 2464, 2605, 2614, 2624, 2815, 3284, 3899, 4153, 4155, 4175, 4356, 4689, 4769, 4820, 4883, 5024, 5200, 5334, 5361, 5442, 5765, 5805, 5857, 6031, 6289, 6634, 6835, 7216, 7374, 7818, 8024, 8304, 9312 (for k <= 10K) (all at n=1K)	1511 (999) 1674 (863) 5269 (831) 4490 (774) 6969 (764) 2014 (758) 6105 (658) 7285 (645) 3149 (627) 7669 (616)	
67	26	3, 7, 31		1, 17, 21 (k = 1 at n=524K, other k at n=10K)	6 (4532) 11 (209) 12 (135) 7 (135) 19 (21) 5 (6) 2 (6) 22 (3) 16 (3) 25 (2)	

68	22	3, 23		1, 17 (k = 1 at n=16.77M, k = 17 at n=1M)	12 (656921) 11 (3947) 8 (319) 16 (36) 5 (29) 13 (26) 19 (6) 10 (6) 4 (6) 18 (2)	
69	6	5, 7		none - proven	3 (2) 1 (2) 5 (1) 4 (1) 2 (1)	

70	11077	13, 29, 71		70, 89, 178, 212, 283, 285, 434, 545, 581, 629, 881, 1300, 1373, 1436, 1490, 1559, 1565, 1694, 1871, 1916, 1946, 1955, 2129, 2176, 2351, 2354, 2379, 2419, 2705, 2756, 3154, 3317, 3329, 3336, 3362, 3407, 3452, 3530, 3647, 3762, 3764, 3929, 3944, 4025, 4061, 4119, 4166, 4188, 4193, 4250, 4331, 4351, 4454, 4913, 5145, 5169, 5204, 5231, 5348, 5429, 5540, 5594, 5608, 5609, 5798, 5857, 5894, 5953, 5975, 6133, 6167, 6218, 6410, 6518, 6530, 6582, 6743, 7145, 7325, 7365, 7552, 7578, 7691, 7736, 7811, 7907, 7974, 7994, 8003, 8015, 8045, 8153, 8159, 8201, 8234, 8306, 8348, 8351, 8377, 8406, 8423, 8465,	3479 (998) 7345 (994) 10793 (976) 4155 (970) 1040 (965) 4343 (936) 2471 (936) 5578 (932) 4208 (926) 2877 (907)	

				8477, 8637, 8907, 8945, 9231, 9268, 9323, 9428, 9471, 9515, 9586, 9693, 9712, 9751, 9758, 10009, 10051, 10089, 10193, 10271, 10291, 10399, 10438, 10544, 10574, 10718, 10997, 11003 (all at n=1K)		

71	5	2, 3		none - proven	4 (22) 2 (3) 1 (2) 3 (1)	
72	731	5, 61, 73		72 (16.77M)	493 (480933) 647 (60536) 489 (20201) 559 (9626) 395 (8171) 444 (6071) 499 (2998) 292 (2779) 649 (2658) 521 (1208)	
73	47	2, 5, 13		none - proven (with probable primes that have not been certified: k = 14)	14 (21369) 21 (1531) 39 (350) 16 (40) 8 (28) 13 (23) 25 (10) 17 (9) 36 (7) 38 (6)	
74	4	3, 5		none - proven	1 (2) 3 (1) 2 (1)	
75	37	2, 19		none - proven	11 (3071) 28 (129) 17 (128) 18 (57) 12 (57) 5 (48) 1 (32) 33 (18) 35 (11) 9 (6)	

76	34	7, 11		none - proven	29 (84) 22 (16) 1 (16) 23 (12) 19 (6) 15 (6) 33 (4) 8 (4) 20 (3) 13 (3)	
77	7	2, 3		1 (524K)	4 (6098) 2 (3) 3 (2) 6 (1) 5 (1)	

78	96144	5, 79, 1217		78, 1143, 2371, 3317, 3513, 4346, 4820, 4897, 5136, 5294, 5531, 5686, 5862, 6103, 6353, 6859, 7188, 7594, 8373, 9558, 9652, 9694, 9701, 9953, 10348, 10723, 11003, 11219, 12244, 12251, 13353, 13508, 13768, 14566, 14832, 15126, 15777, 15899, 16071, 16273, 16591, 17588, 17761, 18248, 18776, 19501, 19828, 19931, 20146, 20206, 20754, 21171, 21284, 21453, 21489, 21884, 21972, 22279, 22662, 23337, 23341, 23953, 24254, 24672, 24877, 24886, 24912, 25044, 25171, 25199, 26069, 26212, 26515, 26592, 27059, 27124, 27537, 27663, 28202, 28423, 28518, 28597, 29303, 29322, 29497, 29784, 30572, 30967, 31030, 32073, 32633, 33094, 33193, 33318, 33732, 34208, 34522, 34528, 34712, 34998, 35244, 35433, 35628, 35709, 36014, 36497, 37068, 37456, 37773, 37795, 37842,	31738 (98568) 83107 (95785) 25281 (83932) 22344 (83678) 12325 (83516) 78211 (82952) 74928 (80731) 34346 (78373) 60908 (70199) 46424 (66623)	

79	9	2, 5		none - proven	3 (875) 5 (162) 6 (2) 1 (2) 8 (1) 7 (1) 4 (1) 2 (1)	
80	1039	3, 7, 13, 43, 173		86, 92, 166, 295, 326, 370, 393, 472, 556, 623, 628, 692, 778, 818, 947, 968 (k = 947 at n=4K, other k at n=250K)	188 (142291) 433 (121106) 770 (107149) 857 (106007) 787 (48156) 1024 (46306) 233 (36917) 893 (28705) 922 (21374) 683 (18633)	
81	575	2, 41	All k=4*q^4 for all n: let k=4*q^4 and let m=q*3^n; factors to: (2*m^2 + 2m + 1) * (2*m^2 - 2m + 1)	75, 239, 284, 335, 439, 514, 569 (all at n=1K)	558 (51992) 311 (7834) 41 (1223) 389 (871) 34 (734) 317 (518) 479 (495) 431 (414) 415 (385) 425 (258)	k = 4, 64, and 324 proven composite by full algebraic factors.

82	19587	5, 7, 13, 37, 83		74, 122, 167, 470, 839, 848, 1121, 1226, 1251, 1319, 1327, 1376, 1427, 1433, 1493, 1514, 1559, 1716, 1733, 1798, 1908, 2024, 2066, 2159, 2251, 2339, 2352, 2461, 2491, 2708, 2939, 2989, 3041, 3236, 3239, 3332, 3377, 3474, 3572, 3593, 3641, 3656, 3746, 3896, 3962, 4133, 4142, 4151, 4232, 4379, 4384, 4454, 4542, 4898, 5064, 5251, 5279, 5396, 5477, 5483, 5516, 5612, 5703, 5721, 5747, 5867, 5893, 5975, 6059, 6226, 6497, 6641, 6761, 6764, 6912, 6953, 7127, 7160, 7201, 7266, 7541, 7718, 7856, 7884, 7969, 7982, 8135, 8301, 8384, 8467, 8532, 8609, 8657, 8742, 8797, 8909, 9038, 9169, 9335, 9380,	5652 (96054) 7288 (94205) 5101 (88245) 5977 (85004) 9676 (84109) 17692 (82887) 17091 (82407) 19134 (82154) 18168 (71000) 19098 (69654)	

				9419, 9437, 9461, 9476, 9638, 9776, 9788, 9812, 9836, 9842, 9851, 9911, 9941, 9954, 10049, 10127, 10154, 10304, 10448, 10553, 10577, 10586, 10802, 10958, 11080, 11087, 11177, 11408, 11612, 11621, 11666, 11702, 11704, 11761, 11783, 11834, 11957, 11963, 11984, 12008, 12036, 12119, 12347, 12451, 12491, 12532, 12548, 12554, 12638, 12737, 12744, 12856, 12866, 12938, 12947, 12949, 13121, 13246, 13268, 13283, 13343, 13607, 13613, 13777, 14192, 14473, 14609, 14621, 14639, 14676, 14681, 14692, 14873, 14941, 14984, 15032, 15122, 15146, 15203, 15271, 15296, 15356, 15551, 15854, 15869, 15937, 15953, 16088, 16133, 16267, 16269, 16423, 16433, 16442, 16502, 16601, 16682, 16733,		

				16811, 16847, 17029, 17078, 17112, 17174, 17177, 17369, 17393, 17798, 17813, 17846, 17921, 18332, 18342, 18457, 18548, 18566, 18626, 18944, 18965, 18971, 19061, 19181, 19421 (k = 2 mod 3 at n=1K, other k at n=100K)		

83	5	2, 3		1, 3 (k = 1 at n=524K, k = 3 at n=8K)	4 (5870) 2 (1)	
84	16	5, 17		none - proven	14 (47) 15 (6) 10 (5) 2 (4) 11 (2) 7 (2) 6 (2) 3 (2) 1 (2) 13 (1)	
85	87	2, 43		none - proven	70 (1586) 65 (125) 43 (62) 20 (57) 68 (12) 37 (12) 38 (11) 73 (7) 34 (7) 83 (6)	
86	28	3, 29		1, 8 (k = 1 at n=16.77M, k = 8 at n=1M)	6 (40) 24 (23) 17 (17) 7 (12) 19 (6) 4 (6) 27 (4) 25 (2) 22 (2) 21 (2)	
87	21	2, 11		none - proven	12 (1214) 8 (112) 17 (16) 1 (16) 7 (7) 5 (6) 16 (4) 10 (3) 14 (2) 13 (2)	

88	26	3, 7, 19, 31		none - proven	8 (1094) 14 (83) 12 (9) 6 (7) 3 (4) 23 (3) 21 (3) 11 (3) 25 (2) 22 (2)	
89	4	3, 5		1 (524K)	3 (1) 2 (1)	
90	27	7, 13		none - proven	14 (14) 8 (14) 22 (6) 19 (6) 5 (6) 16 (4) 12 (3) 23 (2) 21 (2) 15 (2)	
91	45	2, 23		1 (524K)	33 (52) 35 (45) 9 (36) 7 (17) 37 (12) 36 (9) 29 (8) 43 (7) 41 (6) 16 (6)	
92	32	3, 31		1 (16.77M)	31 (416) 25 (308) 8 (109) 17 (59) 29 (47) 24 (38) 10 (24) 16 (12) 7 (6) 23 (5)	

93	95	2, 47		62, 67, 87, 93 (k = 62 at n=100K, k = 93 and n=524K, other k at n=8K)	19 (4362) 36 (3936) 43 (2994) 31 (527) 6 (520) 3 (156) 79 (69) 71 (41) 63 (31) 18 (24)	
94	39	5, 19		none - proven	17 (581) 9 (263) 11 (90) 31 (54) 2 (51) 16 (26) 23 (22) 34 (19) 30 (12) 38 (11)	
95	5	2, 3		none - proven	3 (9) 4 (6) 1 (2) 2 (1)	

96	68869	13, 97, 709		194, 939, 969, 994, 1169, 1177, 1262, 1514, 1844, 2146, 2424, 2545, 2868, 2952, 3028, 3364, 3624, 3699, 3784, 4019, 4164, 4239, 4549, 5140, 5239, 5262, 5764, 5959, 6009, 6074, 6304, 6389, 6569, 6668, 6671, 6769, 6882, 6934, 7132, 7246, 7312, 7539, 7569, 8009, 8069, 8226, 8634, 8796, 9020, 9064, 9309, 9489, 9589, 9619, 9799, 10089, 10139, 10574, 10669, 10739, 10844, 10849, 10939, 11154, 11159, 11361, 11549, 11634, 11659, 11738, 11974, 12029, 12054, 12417, 12706, 12999, 13044, 13519, 13773, 13899, 14169, 14279, 14299, 14494, 14646, 15194, 15208, 15228, 15448, 16073, 16279, 16349, 16799, 17009, 17029, 17264, 17362, 17517, 17564, 17909, 18189, 18231, 18254, 18916, 19109, 19254, 19289, 19304, 19683, 19884, 19934,	14825 (91707) 64312 (89580) 59132 (85620) 41452 (85565) 32762 (81344) 21533 (81235) 26773 (74392) 13872 (73620) 4461 (73443) 16780 (72065)	

97	127	2, 7		1, 27, 43, 62, 83, 116, 120, 123 (k = 1 at n=524K, k = 120 at n=100K, other k at n=1K)	64 (7474) 22 (2182) 122 (660) 68 (593) 26 (224) 87 (167) 24 (158) 113 (104) 41 (89) 17 (64)	
98	10	3, 11		1 (16.77M)	4 (294) 8 (119) 6 (32) 7 (8) 3 (2) 9 (1) 5 (1) 2 (1)	
99	9	2, 5		1 (524K)	5 (14) 8 (10) 6 (6) 7 (1) 4 (1) 3 (1) 2 (1)	
100	62	3, 7, 13		none - proven	31 (168) 38 (29) 59 (24) 34 (13) 36 (8) 17 (6) 52 (5) 3 (5) 60 (4) 46 (4)	
101	7	2, 3		none - proven	2 (192275) 3 (22) 5 (3) 4 (2) 1 (2) 6 (1)	

102	293	7, 19, 79		122, 178, 236 (all at n=300K)	46 (50451) 278 (10941) 94 (6421) 12 (2739) 73 (2040) 131 (1112) 202 (610) 56 (499) 48 (305) 271 (300)	
103	25	2, 13		7 (8K)	13 (7010) 20 (476) 11 (81) 23 (51) 14 (34) 21 (16) 5 (16) 2 (8) 8 (7) 1 (4)	
104	4	3, 5		1 (16.77M)	2 (1233) 3 (1)	
105	319	2, 53		none - proven (with probable primes that have not been certified: k = 191)	191 (5045) 36 (675) 39 (348) 264 (275) 183 (210) 150 (193) 80 (177) 164 (146) 167 (140) 204 (105)	

106	2387	3, 19, 199		69, 110, 164, 198, 259, 412, 436, 449, 635, 653, 679, 740, 748, 812, 887, 929, 1000, 1088, 1160, 1190, 1421, 1429, 1511, 1544, 1559, 1607, 1628, 1703, 1796, 1823, 1835, 1925, 1973, 1985, 2018, 2036, 2075, 2119, 2177, 2189, 2216, 2279 (all at n=1K)	626 (998) 79 (987) 1001 (921) 632 (889) 1437 (807) 1310 (797) 890 (742) 1730 (720) 509 (695) 2330 (593)	
107	5	2, 3		1 (524K)	4 (32586) 3 (165) 2 (3)	

108	26270	7, 13, 109, 127		108, 127, 156, 211, 217, 653, 998, 1267, 1271, 1854, 2252, 2393, 2399, 2724, 2842, 2915, 2942, 2976, 3098, 3563, 3571, 3925, 3938, 4162, 4311, 4391, 4468, 4623, 4699, 5013, 5117, 5251, 5778, 5794, 5849, 5924, 5994, 6686, 7211, 7478, 8401, 8623, 8642, 8828, 9127, 9482, 9578, 9941, 10188, 10202, 10245, 10574, 10689, 10973, 11008, 11028, 11321, 11335, 11703, 11833, 11909, 12172, 12209, 12427, 12534, 13081, 13299, 13316, 13844, 13861, 14044, 14134, 14691, 14932, 15207, 15638, 15912, 15913, 15926, 16042, 16122, 16240, 16569, 16896, 17267, 17616, 18319, 18638, 19098, 19158, 19294, 19318, 19839, 19948, 19966, 20303, 20543, 20687, 20929, 21181,	7612 (99261) 7304 (94930) 15874 (94153) 8034 (93577) 2874 (91402) 20666 (91335) 7631 (90728) 9187 (90213) 6759 (89530) 21101 (88027)	

				21262, 21511, 21532, 21581, 21818, 21908, 22008, 22182, 22194, 22259, 22266, 22562, 22706, 23066, 23327, 23543, 23838, 24078, 24088, 24103, 24529, 24756, 24767, 24853, 25062, 25068, 25071, 25319, 25546, 25607, 25763, 25973, 26234, 26256 (k = 108 at n=16.77M, k = 20543 at n=2K, other k at n=100K)		

109	19	2, 5		1 (524K)	3 (6) 4 (3) 18 (2) 16 (2) 12 (2) 11 (2) 6 (2) 5 (2) 17 (1) 15 (1)	
110	38	3, 37		none - proven	20 (933) 34 (356) 11 (161) 13 (124) 19 (66) 25 (58) 2 (51) 22 (42) 28 (12) 18 (11)	
111	13	2, 7		none - proven	8 (62) 1 (16) 9 (8) 11 (5) 6 (3) 12 (2) 5 (2) 10 (1) 7 (1) 4 (1)	

112	2261	5, 13, 113		209, 269, 467, 941, 1292, 1412, 1463, 1499, 1517, 1604, 1613, 1664, 1696, 1937 (k = 1696 at n=1M, other k at n=6.9K)	1780 (62794) 547 (8124) 953 (6802) 677 (5723) 1920 (5333) 2082 (5308) 1712 (4836) 813 (4616) 8 (4526) 1217 (3872)	
113	20	3, 19		17 (8K)	4 (2958) 13 (1336) 19 (50) 18 (47) 8 (47) 16 (40) 12 (4) 3 (4) 1 (4) 15 (2)	
114	24	5, 23		none - proven	1 (32) 12 (15) 3 (12) 22 (11) 11 (10) 9 (5) 16 (4) 23 (3) 19 (3) 15 (3)	

115	57	2, 29		17, 47 (both at n=8K)	30 (47376) 50 (798) 38 (94) 46 (79) 23 (51) 5 (44) 53 (38) 40 (38) 49 (14) 37 (12)	
116	14	3, 13		none - proven	12 (47) 9 (8) 4 (6) 10 (4) 7 (4) 5 (3) 13 (2) 6 (2) 1 (2) 11 (1)	
117	119	2, 59		59, 117 (k = 59 at n=8K, k = 117 at n=524K)	58 (460033) 75 (1428) 11 (1164) 77 (311) 2 (286) 81 (264) 47 (227) 67 (182) 4 (101) 51 (76)	
118	50	7, 17		48 (740K)	43 (106) 36 (96) 18 (80) 33 (67) 3 (46) 15 (22) 29 (10) 21 (7) 35 (6) 46 (5)	
119	4	3, 5		none - proven	1 (4) 3 (1) 2 (1)	

120	374876369	11, 13, 1117, 14281		56, 89, 208, 219, 307, 309, 426, 540, 560, 694, 714, 727, 991, 1024, 1167, 1616, 1658, 1662, 1689, 1833, 1946, 1969, 1970, 2023, 2078, 2157, 2223, 2279, 2377, 2395, 2509, 2519, 2881, 3161, 3257, 3301, 3321, 3345, 3387, 3510, 3561, 3598, 3607, 3774, 3805, 3814, 3827, 3860, 3893, 3950, 4212, 4333, 4367, 4456, 4610, 4724, 4762, 4852, 4993, 5069, 5191, 5347, 5433, 5543, 5553, 5665, 5763, 5875, 5894, 5928, 6029, 6084, 6447, 6478, 6502, 6715, 6718, 6984, 7097, 7195, 7248, 7284, 7379, 7589, 7998, 8051, 8161, 8189, 8293, 8304, 8359, 8382, 8427, 8514, 8636, 8669, 8678, 8693, 8876, 8931, 8933, 8957,	8389 (969) 6546 (954) 3195 (951) 3466 (908) 7479 (899) 3359 (897) 4437 (870) 8584 (843) 6382 (803) 738 (790)	

				9041, 9043, 9058, 9109, 9140, 9195, 9318, 9351, 9494, 9513, 9637, 9721, 9890 (for k <= 10K) (all at n=1K)		

121	27	7, 19, 37		none - proven	23 (102) 24 (72) 7 (6) 17 (5) 10 (5) 2 (5) 25 (4) 21 (4) 19 (4) 16 (4)	
122	40	3, 41		1, 34 (k = 1 at n=16.77M, k = 34 at n=1M)	37 (1622) 31 (1236) 16 (764) 2 (755) 25 (674) 23 (389) 17 (371) 4 (358) 5 (135) 28 (108)	
123	55	2, 17, 89		1, 3, 41 (k = 1 at n=524K, other k at n=8K)	19 (59) 38 (42) 47 (29) 13 (28) 34 (19) 28 (19) 8 (16) 54 (15) 15 (15) 53 (14)	
124	31001	3, 5, 7, 5167		54, 61, 76, 83, 89, 96, 114, 121, 146, 171, 206, 209, 221, 239, 251, 344, 362, 376, 381, 386, 411, 416, 431, 446, 449, 516, 519, 526, 530, 576, 581, 601, 635, 646, 647, 656, 661, 669, 670, 676, 684, 731, 766, 794, 804, 809, 831, 836, 841,	1646 (998) 8094 (997) 1886 (996) 1926 (994) 2987 (985) 7193 (981) 3276 (974) 6974 (973) 6951 (966) 2801 (960)	

				872, 896, 911, 971, 976, 1019, 1031, 1051, 1054, 1076, 1111, 1124, 1129, 1136, 1166, 1190, 1229, 1251, 1254, 1259, 1264, 1284, 1298, 1324, 1326, 1336, 1369, 1421, 1446, 1460, 1461, 1471, 1474, 1477, 1499, 1519, 1535, 1536, 1551, 1569, 1586, 1591, 1601, 1604, 1647, 1657, 1676, 1686, 1700, 1721, 1727, 1734, 1741, 1779, 1801, 1814, 1829, 1844, 1864, 1910, 1955, 2021, 2034, 2036, 2045, 2055, 2067, 2069, 2096, 2097, 2109, 2114, 2129, 2159, 2163, 2179, 2216, 2234, 2266, 2306, 2316, 2354, 2374, 2375, 2406, 2414, 2429, 2436, 2446, 2462, 2504, 2507, 2539, 2559, 2561, 2565, 2621, 2639, 2646, 2651,		

				2716, 2726, 2734, 2799, 2821, 2834, 2840, 2844, 2861, 2864, 2874, 2901, 2906, 2934, 2981, 2999, 3019, 3032, 3041, 3049, 3053, 3071, 3144, 3161, 3164, 3181, 3229, 3236, 3242, 3251, 3281, 3285, 3296, 3299, 3316, 3329, 3351, 3405, 3442, 3470, 3471, 3491, 3494, 3533, 3554, 3561, 3574, 3631, 3659, 3674, 3684, 3714, 3726, 3736, 3737, 3758, 3779, 3806, 3824, 3854, 3869, 3881, 3890, 3911, 3916, 3921, 3941, 3961, 3981, 3986, 3994, 4021, 4049, 4086, 4089, 4124, 4127, 4131, 4153, 4162, 4191, 4196, 4226, 4231, 4254, 4297, 4306, 4314, 4352, 4375, 4388, 4406, 4414, 4421, 4454, 4476, 4489, 4500,		

				4506, 4520, 4521, 4529, 4541, 4546, 4589, 4594, 4604, 4629, 4719, 4739, 4751, 4764, 4769, 4799, 4849, 4891, 4910, 4926, 4936, 4952, 4961, 4964, 4973, 4974, 5001, 5041, 5048, 5049, 5108, 5114, 5121, 5149, 5154, 5189, 5191, 5231, 5244, 5279, 5289, 5300, 5316, 5321, 5326, 5364, 5366, 5369, 5375, 5381, 5384, 5414, 5440, 5462, 5474, 5481, 5489, 5519, 5543, 5551, 5579, 5581, 5596, 5651, 5663, 5681, 5696, 5697, 5701, 5721, 5723, 5738, 5744, 5771, 5781, 5799, 5801, 5816, 5819, 5825, 5839, 5840, 5851, 5876, 5884, 5909, 5919, 5939, 5951, 5976, 5981, 6024, 6026, 6036, 6041, 6046, 6059, 6099,		

				6146, 6151, 6161, 6164, 6166, 6196, 6201, 6211, 6219, 6224, 6241, 6269, 6296, 6310, 6323, 6329, 6366, 6383, 6386, 6394, 6401, 6409, 6410, 6411, 6416, 6486, 6494, 6496, 6511, 6514, 6536, 6539, 6559, 6596, 6620, 6621, 6644, 6646, 6647, 6654, 6659, 6665, 6686, 6689, 6691, 6712, 6729, 6731, 6746, 6749, 6751, 6761, 6789, 6794, 6806, 6821, 6864, 6881, 6891, 6904, 6908, 6926, 6949, 6956, 6959, 6962, 6971, 7004, 7006, 7016, 7034, 7036, 7071, 7074, 7079, 7081, 7146, 7169, 7204, 7216, 7227, 7239, 7259, 7269, 7271, 7276, 7301, 7319, 7324, 7331, 7359, 7369, 7376, 7391, 7424, 7439, 7446, 7451,		

				7454, 7472, 7484, 7486, 7499, 7523, 7544, 7559, 7565, 7586, 7601, 7609, 7639, 7656, 7664, 7666, 7671, 7691, 7739, 7744, 7761, 7796, 7801, 7831, 7851, 7868, 7881, 7886, 7931, 7949, 7979, 7981, 8014, 8017, 8034, 8042, 8054, 8114, 8141, 8146, 8192, 8213, 8219, 8221, 8231, 8274, 8279, 8291, 8296, 8321, 8323, 8351, 8354, 8381, 8396, 8417, 8423, 8424, 8429, 8516, 8519, 8526, 8531, 8532, 8579, 8634, 8641, 8651, 8666, 8681, 8711, 8714, 8741, 8771, 8776, 8780, 8786, 8829, 8831, 8876, 8916, 8921, 8930, 8936, 8939, 8966, 8978, 8982, 9006, 9024, 9026, 9038, 9069, 9099, 9106, 9118, 9138, 9161,		

				9166, 9173, 9187, 9209, 9214, 9216, 9226, 9244, 9261, 9267, 9269, 9286, 9302, 9314, 9319, 9411, 9479, 9483, 9509, 9521, 9536, 9594, 9596, 9598, 9599, 9641, 9651, 9681, 9687, 9743, 9754, 9785, 9791, 9831, 9836, 9865, 9866, 9901, 9911, 9914, 9949, 9971 (for k <= 10K) (all at n=1K)		
125	7	2, 3	All k = m^3 for all n; factors to: (m*5^n + 1) * (m^2*25^n - m*5^n + 1)	none - proven	4 (2) 3 (2) 6 (1) 5 (1) 2 (1)	k = 1 proven composite by full algebraic factors.

126	766700	13, 19, 127, 829		259, 1084, 1117, 1154, 2708, 2922, 3735, 3982, 5093, 5099, 5392, 5529, 5587, 6059, 6478, 6772, 7817, 8150, 8304, 8659, 8759, 8779, 8829, 9268, 9429, 9474, 9624, 10072, 10540, 11008, 11429, 12094, 12414, 12750, 12757, 12799, 12900, 13111, 13129, 13264, 13274, 13309, 14299, 14390, 14538, 14598, 15402, 15454, 15781, 15876, 15883, 16312, 17300, 18119, 18394, 18594, 18795, 19421, 19479, 19484, 19499, 19559, 19894, 20326, 20394, 20609, 20914, 21083, 21369, 21679, 21694, 21999, 22582, 24023, 24119, 24543, 24764, 25399, 25624, 25739, 25757, 25913, 26374, 26441, 27179, 27884, 27948, 28222, 28374, 28602, 28729, 29590 (for k <= 30K) (k = 4 mod 5 at	26532 (23264) 27765 (22565) 15493 (22097) 25722 (20095) 29405 (19897) 28188 (17368) 25575 (17359) 26036 (15264) 27433 (14598) 12965 (14155)	

				n=1K, other k at n=25K)		

127	6343	2, 5, 17, 137		1, 37, 67, 103, 121, 134, 138, 139, 141, 153, 172, 177, 189, 201, 205, 215, 223, 237, 247,	2163 (985) 2837 (982) 6065 (980) 2479 (975) 3525 (972) 365 (968)	
128	44	3, 43	All k = m^7 for all n; factors to: (m*2^n + 1) * (m^6*64^n - m^5*32^n + m^4*16^n - m^3*8^n + m^2*4^n - m*2^n + 1)	16, 40 (k = 16 at n=4.908G, k = 40 at n=1.2857M)	41 (39271) 42 (13001) 20 (473) 28 (322) 38 (291) 19 (178) 25 (64) 3 (27) 17 (21) 31 (20)	k = 1 proven composite by full algebraic factors. k = 8 and 32 have no possible prime.
256	38	3, 7, 13	All k=4*q^4 for all n: let k=4*q^4 and let m=q*4^n; factors to: (2*m^2 + 2m + 1) * (2*m^2 - 2m + 1)	none - proven (with probable primes that have not been certified: k = 11)	11 (5702) 23 (537) 20 (20) 7 (15) 22 (10) 25 (8) 15 (6) 36 (5) 6 (5) 28 (3)	k = 4 proven composite by full algebraic factors.
512	18	5, 13, 19	All k = m^3 for all n; factors to: (m*8^n + 1) * (m^2*64^n - m*8^n + 1)	2, 4, 5, 16 (k = 2 at n=2.001P, k = 4 at n=62.54T, k = 5 at n=1M, k = 16 at n=1.954T)	12 (23) 14 (21) 7 (20) 11 (9) 9 (7) 10 (6) 17 (3) 13 (2) 3 (2) 15 (1)	k = 1 and 8 proven composite by full algebraic factors.

1024	81	5, 41	All k = m^5 for all n; factors to: (m*4^n + 1) * (m^4*256^n - m^3*64^n + m^2*16^n - m*4^n + 1)	4, 16, 29, 38, 56 (k = 4 at n=858.9M, k = 16 at n=1.717G, other k at n=3K)	44 (1933) 41 (350) 9 (323) 51 (266) 14 (221) 33 (142) 48 (53) 11 (46) 54 (37) 10 (36)	k = 1 and 32 proven composite by full algebraic factors.