Riesel problems

## Definition

For the original Riesel problem, it is finding and proving the smallest *k* such that *k*×*bn*-1 is not prime for all integers *n* ≥ 1 and GCD(*k*-1, *b*-1)=1.

### **Extended definiton**

Finding and proving the smallest *k* such that (*k*×*bn*-1)/GCD(*k*-1, *b*-1) is not prime for all integers *n* ≥ 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)/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 Riesel *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** | 509203 | 3, 5, 7, 13, 17, 241 |  | 23669, 31859, 38473, 46663, 67117, 74699, 81041, 93839, 97139, 107347, 121889, 129007, 143047, 161669, 206231, 215443, 226153, 234343, 245561, 250027, 315929, 319511, 324011, 325123, 327671, 336839, 342847, 344759, 351134, 362609, 363343, 364903, 365159, 368411, 371893, 384539, 386801, 397027, 409753, 444637, 470173, 474491, 477583, 478214, 485557, 494743 (k = 351134 and 478214 at n=6.65M, other k at n=11.4M) | 192971 (14773498)  206039 (13104952)  2293 (12918431)  9221 (11392194)  146561 (11280802)  273809 (8932416)  502573 (7181987)  402539 (7173024)  40597 (6808509)  304207 (6643565) |  |
| **3** | 12119 | 2, 5, 7, 13, 73 |  | 1613, 1831, 1937, 3131, 3589, 5755, 6787, 7477, 7627, 7939, 8713, 8777, 9811, 10651, 11597 (all at n=50K) | 8059 (47256)  11753 (36665)  6119 (28580)  7511 (26022)  313 (24761)  11251 (24314)  9179 (21404)  997 (20847)  6737 (17455)  7379 (16856) |  |
| **4** | 361 | 3, 5, 7, 13 | All k = m^2 for all n;  factors to:  (m\*2^n - 1) \*  (m\*2^n + 1) | none - proven | 106 (4553)  74 (1276)  219 (206)  191 (113)  312 (51)  247 (42)  223 (33)  274 (22)  234 (18)  91 (17) | k = 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, and 324 proven composite by full algebraic factors. |
| **5** | 13 | 2, 3 |  | none - proven | 2 (4)  1 (3)  11 (2)  8 (2)  12 (1)  9 (1)  7 (1)  6 (1)  4 (1)  3 (1) |  |
| **6** | 84687 | 7, 13, 31, 37, 97 |  | 1597, 6236, 9491, 37031, 49771, 50686, 53941, 55061, 57926, 76761, 79801, 83411 (k = 1597 at n=5.5M, other k at n=40K) | 36772 (1723287)  43994 (569498)  77743 (560745)  51017 (528803)  57023 (483561)  78959 (458114)  59095 (171929)  48950 (143236),  29847 (141526)  9577 (121099) |  |
| **7** | 457 | 2, 3, 5, 13, 19 |  | none - proven (with probable primes that have not been certified: k = 197 and 367) | 197 (181761)  367 (15118)  313 (5907)  159 (4896)  429 (3815)  419 (1052)  391 (938)  299 (600)  139 (468)  79 (424) |  |
| **8** | 14 | 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 | 11 (18)  5 (4)  12 (3)  7 (3)  2 (2)  13 (1)  10 (1)  9 (1)  6 (1)  4 (1) | k = 1 and 8 proven composite by full algebraic factors. |
| **9** | 41 | 2, 5 | All k = m^2 for all n;  factors to:  (m\*3^n - 1) \*  (m\*3^n + 1) | none - proven | 11 (11)  24 (8)  14 (8)  38 (3)  18 (3)  39 (2)  34 (2)  32 (2)  29 (2)  27 (2) | k = 1, 4, 9, 16, 25, and 36 proven composite by full algebraic factors. |
| **10** | 334 | 3, 7, 13, 37 |  | none - proven | 121 (483)  109 (136)  98 (90)  230 (60)  289 (35)  89 (33)  32 (28)  233 (18)  324 (17)  100 (17) |  |
| **11** | 5 | 2, 3 |  | none - proven | 1 (17)  3 (2)  2 (2)  4 (1) |  |
| **12** | 376 | 5, 13, 29 | (Condition 1):  All k where k = m^2  and m = = 5 or 8 mod 13:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*12^q - 1) \*  (m\*12^q + 1)  odd n:  factor of 13  (Condition 2):  All k where k = 3\*m^2  and m = = 3 or 10 mod 13:  even n:  factor of 13  for odd n let k = 3\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*3^q - 1] \*  [m\*2^(2q-1)\*3^q + 1] | none - proven | 298 (1676)  157 (285)  46 (194)  304 (40)  259 (40)  94 (36)  292 (30)  147 (28)  301 (27)  349 (25) | k = 25, 64, and 324 proven composite by condition 1.  k = 27 and 300 proven composite by condition 2. |
| **13** | 29 | 2, 7 |  | none - proven | 25 (15)  28 (14)  20 (10)  1 (5)  22 (3)  17 (3)  16 (3)  27 (2)  21 (2)  12 (2) |  |
| **14** | 4 | 3, 5 |  | none - proven | 2 (4)  1 (3)  3 (1) |  |
| **15** | 622403 | 2, 17, 113, 1489 |  | 47, 203, 239, 407, 437, 451, 889, 893, 1945, 2049, 2245, 2487, 2507, 2689, 2699, 2863, 2940, 3059, 3163, 3179, 3261, 3409, 3697, 3701, 3725, 4173, 4249, 4609, 4771, 4877, 5041, 5243, 5425, 5441, 5503, 5669, 5857, 5913, 5963, 6231, 6447, 6787, 6879, 6999, 7386, 7407, 7459, 7473, 7527, 7615, 7683, 7687, 7859, 8099, 8610, 8621, 8671, 8839, 8863, 9025, 9267, 9409, 9655, 9663, 9707, 9817, 9955 (for k <= 10K) (all at n=1.5K) | 2940 (13254)  8610 (5178)  2069 (1461)  3917 (1427)  1145 (1349)  1583 (1330)  7027 (1316)  8831 (1296)  5305 (1273)  4865 (1265) |  |
| **16** | 100 | 3, 7, 13 | All k = m^2 for all n;  factors to:  (m\*4^n - 1) \*  (m\*4^n + 1) | none - proven | 74 (638)  78 (26)  48 (15)  58 (12)  31 (12)  95 (8)  46 (8)  88 (6)  44 (6)  39 (6) | k = 1, 4, 9, 16, 25, 36, 49, 64, and 81 proven composite by full algebraic factors. |
| **17** | 49 | 2, 3 |  | none - proven | 44 (6488)  29 (4904)  13 (1123)  36 (243)  10 (117)  26 (110)  5 (60)  11 (46)  46 (25)  35 (24) |  |
| **18** | 246 | 5, 13, 19 |  | none - proven | 151 (418)  78 (172)  50 (110)  79 (63)  237 (44)  184 (44)  75 (44)  215 (36)  203 (32)  93 (32) |  |
| **19** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*19^q - 1) \*  (m\*19^q + 1)  odd n:  factor of 5 | none - proven | 1 (19)  7 (2)  3 (2)  8 (1)  6 (1)  5 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **20** | 8 | 3, 7 |  | none - proven | 2 (10)  1 (3)  6 (2)  5 (2)  7 (1)  4 (1)  3 (1) |  |
| **21** | 45 | 2, 11 |  | none - proven | 29 (98)  34 (17)  43 (10)  32 (4)  5 (4)  6 (3)  1 (3)  44 (2)  37 (2)  31 (2) |  |
| **22** | 2738 | 5, 23, 97 |  | 208, 211, 898, 976, 1036, 1885, 1933, 2050, 2161, 2278, 2347, 2434 (all at n=13K) | 1013 (26067)  185 (11433)  1335 (11155)  2719 (9671)  2083 (8046)  883 (5339)  2529 (3700)  2116 (3371)  2230 (3236)  1119 (2849) |  |
| **23** | 5 | 2, 3 |  | none - proven | 3 (6)  2 (6)  4 (5)  1 (5) |  |
| **24** | 32336 | 5, 7, 13, 73, 577 | (Condition 1):  All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*24^q - 1) \*  (m\*24^q + 1)  odd n:  factor of 5  (Condition 2):  All k where k = 6\*m^2  and m = = 1 or 4 mod 5:  even n:  factor of 5  for odd n let k = 6\*m^2  and let n=2\*q-1; factors to:  [m\*2^(3q-1)\*3^q - 1] \*  [m\*2^(3q-1)\*3^q + 1] | 389, 461, 1581, 1711, 2094, 2606, 3006, 3754, 4239, 5356, 5784, 5791, 6116, 6579, 6781, 6831, 7321, 7809, 10219, 10399, 10666, 11101, 11516, 12326, 12429, 12674, 13269, 13691, 15019, 15151, 15614, 15641, 16124, 16234, 16616, 17019, 17436, 18054, 18454, 18964, 19116, 20026, 20576, 20611, 20879, 21004, 21464, 21524, 21639, 21809, 23549, 24404, 25046, 25136, 25349, 25389, 25419, 25646, 25731, 26176, 26229, 26661, 27049, 27154, 28001, 28384, 28849, 28859, 29211, 29531, 29569, 29581, 31071, 31466, 31734, 31854, 31994, 31996, 32099 (k = 1 mod 23 at n=12.4K, other k at n=260K) | 10171 (259815)  11906 (252629)  23059 (252514)  21411 (252303)  28554 (239686)  20804 (233296)  8894 (210624)  2844 (203856)  25379 (175842)  22604 (169372) | k = 2^2, 3^2, 7^2, 8^2, 12^2, 13^2, 17^2, 18^2 (etc. pattern repeating every 5m) proven composite by condition 1.  k = 6\*1^2, 6\*4^2, 6\*6^2, 6\*9^2, 6\*11^2, 6\*14^2, 6\*16^2, 6\*19^2 (etc. pattern repeating every 5m) proven composite by condition 2. |
| **25** | 105 | 2, 13 | All k = m^2 for all n;  factors to:  (m\*5^n - 1) \*  (m\*5^n + 1) | none - proven | 86 (1029)  58 (26)  72 (24)  67 (24)  79 (21)  37 (17)  38 (14)  92 (13)  57 (10)  98 (9) | k = 1, 4, 9, 16, 25, 36, 49, 64, 81, and 100 proven composite by full algebraic factors. |
| **26** | 149 | 3, 7, 31, 37 |  | none - proven | 115 (520277)  32 (9812)  121 (1509)  73 (537)  80 (382)  128 (300)  124 (249)  37 (233)  25 (133)  65 (100) |  |
| **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 (23)  11 (10)  12 (2)  7 (2)  6 (2)  3 (2)  10 (1)  5 (1)  4 (1)  2 (1) | k = 1 and 8 proven composite by full algebraic factors. |
| **28** | 3769 | 5, 29, 157 | (Condition 1):  All k where k = m^2  and m = = 12 or 17 mod 29:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*28^q - 1) \*  (m\*28^q + 1)  odd n:  factor of 29  (Condition 2):  All k where k = 7\*m^2  and m = = 5 or 24 mod 29:  even n:  factor of 29  for odd n let k = 7\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*7^q - 1] \*  [m\*2^(2q-1)\*7^q + 1] | 233, 376, 943, 1132, 1422, 2437 (k = 233 and 1422 at n=1M, other k at n=20.3K) | 2319 (65184)  3232 (9147)  3019 (7073)  460 (5400)  1688 (4760)  2406 (4634)  2464 (4324)  849 (3129)  1507 (2938)  472 (2414) | k = 144, 289, 1681, and 2116 proven composite by condition 1.  k = 175 proven composite by condition 2. |
| **29** | 4 | 3, 5 |  | none - proven | 2 (136)  1 (5)  3 (1) |  |
| **30** | 4928 | 13, 19, 31, 67 | k = 1369:  for even n let n=2\*q; factors to:  (37\*30^q - 1) \*  (37\*30^q + 1)  odd n:  covering set 7, 13, 19 | 659, 1024, 1580, 1936, 2293, 2916, 3719, 4372, 4897 (all at n=500K) | 1642 (346592)  239 (337990)  2538 (262614)  249 (199355)  3256 (160619)  225 (158755)  774 (148344)  1873 (50427)  3253 (43291)  1654 (38869) |  |
| **31** | 145 | 2, 3, 7, 19 |  | 5, 19, 51, 73, 97 (all at n=6K) | 123 (1872)  124 (1116)  113 (643)  49 (637)  115 (464)  21 (275)  39 (250)  70 (149)  142 (140)  33 (107) |  |
| **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) | none - proven | 3 (11)  2 (6)  9 (3)  8 (2)  5 (2)  7 (1)  6 (1)  4 (1) | k = 1 proven composite by full algebraic factors. |
| **33** | 545 | 2, 17 | (Condition 1):  All k where k = m^2  and m = = 4 or 13 mod 17:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*33^q - 1) \*  (m\*33^q + 1)  odd n:  factor of 17  (Condition 2):  All k where k = 33\*m^2  and m = = 4 or 13 mod 17:  [Reverse condition 1]  (Condition 3):  All k where k = m^2  and m = = 15 or 17 mod 32:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*33^q - 1) \*  (m\*33^q + 1)  odd n:  factor of 2 | 257, 339 (both at n=12K) | 186 (16770)  254 (3112)  142 (2568)  370 (1628)  272 (1418)  222 (919)  108 (360)  213 (233)  387 (191)  277 (187) | k = 16, 169, and 441 proven composite by condition 1.  k = 528 proven composite by condition 2.  k = 225 and 289 proven composite by condition 3. |
| **34** | 6 | 5, 7 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*34^q - 1) \*  (m\*34^q + 1)  odd n:  factor of 5 | none - proven | 1 (13)  5 (2)  3 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **35** | 5 | 2, 3 |  | none - proven | 1 (313)  3 (6)  2 (6)  4 (1) |  |
| **36** | 33791 | 13, 31, 43, 97 | All k = m^2 for all n;  factors to:  (m\*6^n - 1) \*  (m\*6^n + 1) | 1148, 1555, 2110, 2133, 3699, 4551, 4737, 6236, 6883, 7253, 7362, 7399, 7991, 8250, 8361, 8363, 8472, 9491, 9582, 11014, 12320, 12653, 13641, 14358, 14540, 14836, 14973, 14974, 15228, 15687, 15756, 15909, 16168, 17354, 17502, 17946, 18203, 19035, 19646, 20092, 20186, 20630, 21880, 22164, 22312, 23213, 23901, 23906, 24236, 24382, 24645, 24731, 24887, 25011, 25159, 25161, 25204, 25679, 25788, 26160, 26355, 27161, 29453, 29847, 30970, 31005, 31634, 32302, 33047, 33627 (all at n=10K) | 13800 (9790)  20485 (9140)  19389 (9119)  20684 (8627)  19907 (8439)  11216 (7524)  28416 (7315)  32380 (7190)  27296 (7115)  10695 (6672) | k = 1^2, 2^2, 3^2, 4^2, 5^2, 6^2, 7^2, 8^2, 9^2, 10^2, 11^2, 12^2, 13^2, 14^2, 15^2, 16^2, etc. proven composite by full algebraic factors. |
| **37** | 29 | 2, 5, 7, 13, 67 |  | none - proven | 5 (900)  19 (63)  18 (14)  1 (13)  8 (4)  25 (3)  23 (3)  14 (3)  6 (3)  4 (3) |  |
| **38** | 13 | 3, 5, 17 |  | none - proven | 11 (766)  9 (43)  7 (7)  1 (3)  12 (2)  8 (2)  5 (2)  2 (2)  10 (1)  6 (1) |  |
| **39** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*39^q - 1) \*  (m\*39^q + 1)  odd n:  factor of 5 | none - proven | 1 (349)  7 (2)  3 (2)  2 (2)  8 (1)  6 (1)  5 (1) | k = 4 proven composite by partial algebraic factors. |
| **40** | 25462 | 3, 7, 41, 223 | (Condition 1):  All k where k = m^2  and m = = 9 or 32 mod 41:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*40^q - 1) \*  (m\*40^q + 1)  odd n:  factor of 41  (Condition 2):  All k where k = 10\*m^2  and m = = 18 or 23 mod 41:  even n:  factor of 41  for odd n let k = 10\*m^2  and let n=2\*q-1; factors to:  [m\*2^(3q-1)\*5^q - 1] \*  [m\*2^(3q-1)\*5^q + 1] | 157, 534, 618, 709, 739, 787, 862, 1067, 1114, 1174, 1559, 1805, 2254, 2887, 3418, 3650, 4006, 4582, 4673, 4771, 6107, 6463, 6682, 6684, 6946, 7094, 7258, 7282, 7381, 7504, 7702, 7795, 8035, 8461, 8572, 9226, 9347, 9472, 9716, 9748, 9964, 10285, 10615, 10744, 11030, 11470, 11479, 11560, 11847, 12178, 12193, 12250, 12299, 12301, 12568, 12742, 13005, 13022, 13039, 13191, 13624, 13666, 13777, 13939, 14146, 14262, 14494, 15374, 15417, 15496, 15661, 15730, 16579, 16705, 16891, 16932, 17014, 17275, 17344, 17923, 17998, 18949, 19117, 19310, 19606, 19722, 19761, 19825, 19927, 20158, 20212, 20428, 20458, 20583, 20788, 21276, 21321, 21493, 21817, 21895, 22262, 22303, 22344, 22879, 23371, 24268, 24337, 24979 (all at n=5K) | 20479 (4917)  17536 (4845)  13165 (4713)  14980 (4579)  19751 (4554)  20747 (4471)  19780 (4400)  11971 (4360)  24421 (4047)  21731 (3999) | k = 81, 1024, 2500, 5329, 8281, 12996, 17424, and 24025 proven composite by condition 1.  k = 3240 and 5290 proven composite by condition 2. |
| **41** | 8 | 3, 7 |  | none - proven | 7 (153)  5 (10)  1 (3)  6 (2)  2 (2)  4 (1)  3 (1) |  |
| **42** | 15137 | 5, 43, 353 |  | 603, 1049, 1600, 2538, 4299, 4903, 5118, 5978, 6836, 6964, 6971, 7309, 8297, 8341, 9029, 9201, 9633, 9848, 11267, 11781, 11911, 11996, 12125, 12127, 12213, 12598, 13288, 13347, 14884 (k = 1600, 6971 and 14884 at n=8K, other k at n=200K) | 7051 (188034)  5417 (179220)  13898 (152983)  1633 (128734)  13757 (126934)  7913 (108747)  15024 (104613)  8453 (89184)  7658 (79316)  10923 (61071) |  |
| **43** | 21 | 2, 11 |  | 13 (50K) | 4 (279)  12 (203)  17 (79)  3 (24)  1 (5)  19 (4)  15 (4)  7 (4)  11 (2)  10 (2) |  |
| **44** | 4 | 3, 5 |  | none - proven | 1 (5)  2 (4)  3 (1) |  |
| **45** | 93 | 2, 23 |  | none - proven | 24 (153355)  53 (582)  70 (167)  29 (146)  76 (102)  85 (82)  91 (50)  77 (26)  1 (19)  33 (11) |  |
| **46** | 928 | 3, 7, 103 |  | 281, 436, 800 (k = 800 at n=500K, other k at n=28K) | 870 (51699)  86 (26325)  93 (24162)  561 (5011)  576 (3659)  100 (2955)  386 (2425)  338 (1478)  597 (950)  121 (935) |  |
| **47** | 5 | 2, 3 |  | none - proven | 4 (1555)  1 (127)  2 (4)  3 (2) |  |
| **48** | 3226 | 5, 7, 461 |  | 313, 384, 708, 909, 916, 1093, 1457, 1686, 1877, 1896, 1898, 2071, 2148, 2172, 2402, 2589, 2682, 2927, 2939, 3044, 3067 (all at n=200K) | 2157 (169491)  2549 (169453)  1478 (167541)  2822 (129611)  2379 (116204)  118 (107422)  692 (103056)  1842 (87175)  953 (81493)  2582 (75696) |  |
| **49** | 81 | 2, 5 | All k = m^2 for all n;  factors to:  (m\*7^n - 1) \*  (m\*7^n + 1) | none - proven | 79 (212)  44 (122)  69 (42)  30 (24)  59 (16)  53 (15)  70 (14)  24 (14)  31 (9)  74 (6) | k = 1, 4, 9, 16, 25, 36, 49, and 64 proven composite by full algebraic factors. |
| **50** | 16 | 3, 17 |  | none - proven | 14 (66)  13 (19)  5 (12)  11 (6)  6 (6)  1 (3)  8 (2)  2 (2)  15 (1)  12 (1) |  |
| **51** | 25 | 2, 13 |  | none - proven | 1 (4229)  23 (96)  3 (8)  12 (4)  14 (3)  4 (3)  22 (2)  19 (2)  18 (2)  15 (2) |  |
| **52** | 25015 | 3, 7, 53, 379 | (Condition 1):  All k where k = m^2  and m = = 23 or 30 mod 53:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*52^q - 1) \*  (m\*52^q + 1)  odd n:  factor of 53  (Condition 2):  All k where k = 13\*m^2  and m = = 7 or 46 mod 53:  even n:  factor of 53  for odd n let k = 13\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*13^q - 1] \*  [m\*2^(2q-1)\*13^q + 1] | 82, 139, 233, 239, 349, 363, 372, 472, 476, 478, 547, 557, 607, 613, 654, 657, 796, 813, 902, 931, 991, 1012, 1069, 1104, 1161, 1167, 1231, 1234, 1271, 1357, 1502, 1534, 1589, 1591, 1651, 1669, 1711, 1801, 1881, 1909, 1966, 2035, 2049, 2113, 2227, 2364, 2384, 2437, 2492, 2557, 2578, 2643, 2722, 2725, 2767, 2769, 3022, 3073, 3106, 3128, 3163, 3199, 3229, 3277, 3298, 3418, 3423, 3550, 3559, 3607, 3637, 3656, 3764, 3788, 3847, 3870, 3921, 4003, 4036, 4043, 4117, 4195, 4239, 4294, 4329, 4347, 4348, 4366, 4534, 4561, 4582, 4597, 4665, 4754, 4762, 4824, 4876, 4894, 4975, 4981, 5037, 5056, 5107, 5142, 5158, 5236, 5239, 5246, 5299, 5541, 5575, 5672, 5836, 5882, 6190, 6193, 6256, 6308, 6361, 6394, 6424, 6434, 6442, 6462, 6493, 6568, 6589, 6619, 6628, 6697, 6732, 6835, 6873, 6962, 6981, 6997, 7252, 7288, 7386, 7399, 7408, 7594, 7603, 7631, 7633, 7727, 7797, 7799, 7847, 7879, 7894, 7936, 8008, 8032, 8138, 8161, 8163, 8201, 8248, 8257, 8377, 8389, 8422, 8488, 8587, 8637, 8641, 8691, 8693, 8713, 8744, 8903, 8932, 8958, 9053, 9055, 9144, 9148, 9187, 9223, 9382, 9400, 9421, 9433, 9436, 9472, 9624, 9647, 9654, 9667, 9682, 9699, 9753, 9769, 9782, 9799, 9802, 9808, 9854, 9859, 9892, 9907, 9928, 9967, 10056, 10069, 10129, 10134, 10173, 10174, 10237, 10243, 10306, 10429, 10462, 10489, 10546, 10618, 10645, 10792, 10806, 10917, 10919, 10954, 10984, 10996, 11161, 11164, 11290, 11297, 11299, 11326, 11355, 11371, 11394, 11401, 11500, 11656, 11677, 11698, 11722, 11767, 11826, 11827, 11833, 11854, 11926, 12064, 12074, 12133, 12148, 12186, 12212, 12239, 12304, 12352, 12401, 12405, 12423, 12449, 12454, 12668, 12688, 12694, 12719, 12827, 12889, 12928, 12931, 13025, 13031, 13045, 13196, 13198, 13264, 13297, 13306, 13324, 13357, 13372, 13392, 13461, 13551, 13673, 13687, 13719, 13786, 13856, 13999, 14044, 14065, 14101, 14116, 14179, 14234, 14266, 14309, 14453, 14584, 14589, 14647, 14682, 14692, 14698, 14736, 14759, 14786, 14827, 14833, 14947, 14968, 14998, 15007, 15010, 15022, 15051, 15109, 15124, 15139, 15154, 15181, 15212, 15244, 15265, 15316, 15370, 15574, 15677, 15688, 15733, 15899, 15928, 15937, 16007, 16039, 16087, 16096, 16111, 16216, 16227, 16293, 16308, 16324, 16342, 16388, 16429, 16535, 16614, 16714, 16726, 16729, 16748, 16836, 16854, 16884, 16897, 16906, 16927, 16963, 17092, 17102, 17182, 17197, 17224, 17229, 17277, 17311, 17418, 17423, 17438, 17489, 17714, 17734, 17754, 17782, 17821, 17882, 17911, 17916, 17989, 18604, 18670, 18709, 18757, 18761, 18787, 18871, 18883, 18899, 18903, 19024, 19026, 19028, 19079, 19098, 19102, 19132, 19142, 19163, 19189, 19282, 19357, 19363, 19549, 19556, 19558, 19594, 19609, 19672, 19678, 19821, 19876, 19946, 19982, 20008, 20088, 20094, 20139, 20212, 20267, 20308, 20318, 20359, 20395, 20417, 20616, 20649, 20793, 20821, 20881, 20883, 20983, 21013, 21016, 21049, 21092, 21148, 21151, 21235, 21307, 21316, 21368, 21403, 21404, 21413, 21464, 21526, 21537, 21572, 21676, 21684, 21729, 21757, 21784, 21796, 21803, 21804, 21837, 21859, 21866, 21898, 22096, 22146, 22180, 22216, 22308, 22312, 22324, 22383, 22406, 22429, 22447, 22456, 22459, 22471, 22528, 22566, 22643, 22688, 22704, 22723, 22738, 22744, 22771, 22789, 22842, 22846, 22874, 22887, 23056, 23191, 23215, 23268, 23315, 23344, 23377, 23427, 23518, 23531, 23533, 23584, 23692, 23759, 23773, 23829, 23924, 23991, 24042, 24175, 24244, 24331, 24403, 24412, 24448, 24503, 24553, 24557, 24591, 24646, 24671, 24763, 24911 (all at n=1K) | 13298 (1000)  19006 (994)  10592 (993)  427 (992)  10687 (989)  14621 (982)  20044 (980)  8959 (980)  19084 (977) | k = 529, 900, 5776, 6889, 16641, and 18496 proven composite by condition 1.  k = 637 proven composite by condition 2. |
| **53** | 13 | 2, 3 |  | none - proven | 12 (71)  10 (71)  2 (44)  7 (11)  1 (11)  8 (8)  11 (6)  9 (3)  5 (2)  6 (1) |  |
| **54** | 21 | 5, 11 | (Condition 1):  All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*54^q - 1) \*  (m\*54^q + 1)  odd n:  factor of 5  (Condition 2):  All k where k = 6\*m^2  and m = = 1 or 4 mod 5:  even n:  factor of 5  for odd n let k = 6\*m^2  and let n=2\*q-1; factors to:  [m\*2^q\*3^(3q-1) - 1] \*  [m\*2^q\*3^(3q-1) + 1] | none - proven | 20 (8)  19 (6)  10 (4)  17 (3)  1 (3)  14 (2)  7 (2)  3 (2)  18 (1)  16 (1) | k = 4 and 9 proven composite by condition 1.  k = 6 proven composite by condition 2. |
| **55** | 13 | 2, 7 |  | none - proven | 3 (76)  1 (17)  11 (8)  9 (3)  7 (2)  6 (2)  12 (1)  10 (1)  8 (1)  5 (1) |  |
| **56** | 20 | 3, 19 |  | none - proven | 14 (26)  10 (23)  1 (7)  18 (4)  17 (4)  7 (3)  11 (2)  8 (2)  5 (2)  2 (2) |  |
| **57** | 144 | 5, 13, 29 | All k where k = m^2  and m = = 3 or 5 mod 8:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*57^q - 1) \*  (m\*57^q + 1)  odd n:  factor of 2 | none - proven | 87 (242)  54 (157)  100 (109)  59 (83)  115 (34)  124 (31)  88 (27)  63 (22)  139 (20)  38 (20) | k = 9, 25, and 121 proven composite by partial algebraic factors. |
| **58** | 547 | 3, 7, 163 |  | 71, 130, 169, 178, 319, 456, 493, 499 (k = 71 and 456 at n=100K, other k at n=14K) | 382 (7188)  400 (5245)  421 (4526)  176 (2854)  473 (1641)  487 (1412)  312 (1079)  334 (724)  53 (645)  457 (492) |  |
| **59** | 4 | 3, 5 |  | none - proven | 3 (8)  1 (3)  2 (2) |  |
| **60** | 20558 | 13, 61, 277 | (Condition 1):  All k where k = m^2  and m = = 11 or 50 mod 61:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*60^q - 1) \*  (m\*60^q + 1)  odd n:  factor of 61  (Condition 2):  All k where k = 15\*m^2  and m = = 22 or 39 mod 61:  even n:  factor of 61  for odd n let k = 15\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*15^q - 1] \*  [m\*2^(2q-1)\*15^q + 1] | 36, 1770, 4708, 5317, 5611, 6101, 6162, 6274, 7060, 7870, 8722, 9212, 9454, 9881, 10249, 11101, 12061, 12072, 12098, 12479, 12996, 13297, 13480, 14275, 14851, 15800, 16167, 17185, 17620, 18055, 18965, 18972, 19336, 19394, 19397 (k = 16167 and 18055 at n=8K, other k at n=100K) | 1024 (90701)  12121 (84208)  15227 (80625)  15185 (79350)  8649 (79159)  20131 (71977)  19457 (68854)  16333 (61172)  18776 (60164)  1486 (58932) | k = 121, 2500, 5184, 14641, and 17689 proven composite by condition 1.  k = 7260 proven composite by condition 2. |
| **61** | 125 | 2, 31 |  | 37, 53, 100 (all at n=10K) | 13 (4134)  77 (3080)  10 (1552)  41 (755)  42 (174)  22 (117)  57 (89)  109 (86)  103 (78)  93 (60) |  |
| **62** | 8 | 3, 7 |  | none - proven | 3 (59)  4 (9)  1 (3)  6 (2)  5 (2)  2 (2)  7 (1) |  |
| **63** | 857 | 2, 5, 397 |  | 93, 129, 139, 211, 231, 237, 251, 281, 291, 333, 417, 457, 471, 473, 491, 493, 497, 513, 587, 599, 633, 669, 677, 679, 691, 733, 771, 817, 819, 831 (all at n=2K) | 65 (1883)  853 (1849)  37 (1615)  64 (1483)  177 (1423)  372 (1320)  821 (1225)  687 (1154)  695 (1144)  271 (1058) |  |
| **64** | 14 | 5, 13 | All k = m^2 for all n; factors to:  (m\*8^n - 1) \*  (m\*8^n + 1)  -or-  All k = m^3 for all n; factors to:  (m\*4^n - 1) \*  (m^2\*16^n + m\*4^n + 1) | none - proven | 11 (9)  12 (6)  5 (2)  13 (1)  10 (1)  7 (1)  6 (1)  3 (1)  2 (1) | k = 1, 4, 8, and 9 proven composite by full algebraic factors. |
| **65** | 10 | 3, 11 |  | none - proven | 1 (19)  8 (10)  4 (9)  2 (4)  5 (2)  9 (1)  7 (1)  6 (1)  3 (1) |  |
| **66** | 63717671 | 7, 67, 613, 4423 |  | 681, 1056, 1205, 1575, 1669, 1944, 2182, 2916, 2949, 3014, 3083, 3148, 3221, 3526, 3684, 3911, 3946, 4423, 5329, 5361, 5897, 5898, 5959, 5972, 6096, 6189, 6263, 6451, 6768, 6796, 7168, 7237, 7357, 7572, 7614, 7927, 8156, 8173, 8348, 8432, 8510, 8825, 8866, 9017, 9111, 9406, 9409, 9781, 9801, 9906, 9998 (for k <= 10K) (all at n=1K) | 7578 (988)  1252 (956)  2746 (918)  5248 (916)  5476 (873)  5929 (795)  6699 (790)  8843 (780)  5435 (762)  2946 (748) |  |
| **67** | 33 | 2, 17 | All k where k = m^2  and m = = 4 or 13 mod 17:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*67^q - 1) \*  (m\*67^q + 1)  odd n:  factor of 17 | none - proven | 25 (2829)  2 (768)  23 (42)  21 (27)  1 (19)  31 (10)  19 (8)  18 (7)  13 (7)  11 (6) | k = 16 proven composite by partial algebraic factors. |
| **68** | 22 | 3, 23 |  | none - proven | 7 (25395)  5 (13574)  11 (198)  8 (62)  10 (53)  3 (10)  1 (5)  14 (4)  2 (4)  9 (3) |  |
| **69** | 6 | 3, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*69^q - 1) \*  (m\*69^q + 1)  odd n:  factor of 5 | none - proven | 5 (4)  1 (3)  3 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **70** | 853 | 13, 29, 71 |  | 811 (50K) | 729 (28625)  376 (6484)  496 (4934)  434 (3820)  489 (2096)  278 (1320)  550 (764)  31 (545)  174 (441)  778 (356) |  |
| **71** | 5 | 2, 3 |  | none - proven | 2 (52)  1 (3)  3 (2)  4 (1) |  |
| **72** | 293 | 5, 17, 73 |  | none - proven | 4 (1119849)  79 (28009)  291 (26322)  116 (13887)  118 (4599)  67 (4308)  197 (3256)  24 (2648)  11 (2445)  18 (1494) |  |
| **73** | 112 | 5, 13, 37 | (Condition 1):  All k where k = m^2  and m = = 6 or 31 mod 37:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*73^q - 1) \*  (m\*73^q + 1)  odd n:  factor of 37  (Condition 2):  All k where k = m^2  and m = = 3 or 5 mod 8:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*73^q - 1) \*  (m\*73^q + 1)  odd n:  factor of 2 | none - proven (with probable primes that have not been certified: k = 79) | 79 (9339)  101 (2146)  105 (102)  48 (73)  54 (63)  42 (50)  26 (50)  97 (47)  61 (39)  89 (32) | k = 36 proven composite by condition 1.  k = 9 and 25 proven composite by condition 2. |
| **74** | 4 | 3, 5 |  | none - proven | 2 (132)  1 (5)  3 (2) |  |
| **75** | 37 | 2, 19 |  | none - proven | 35 (1844)  16 (119)  18 (54)  30 (41)  3 (16)  22 (15)  5 (9)  17 (5)  4 (5)  23 (4) |  |
| **76** | 34 | 7, 11 |  | none - proven | 1 (41)  27 (40)  20 (22)  25 (11)  15 (11)  30 (7)  21 (4)  19 (4)  13 (4)  10 (4) |  |
| **77** | 13 | 2, 3 |  | none - proven | 2 (14)  1 (3)  12 (2)  11 (2)  8 (2)  5 (2)  3 (2)  10 (1)  9 (1)  7 (1) |  |
| **78** | 90059 | 5, 79, 1217 |  | 274, 302, 631, 1816, 2292, 2381, 3872, 3949, 4344, 4383, 4489, 4937, 5057, 5766, 5782, 6077, 6436, 7032, 7800, 8469, 8499, 8649, 8758, 10263, 10924, 10928, 10942, 11044, 11936, 12167, 12187, 12244, 12286, 12332, 12622, 13212, 13287, 13668, 13824, 14059, 14456, 14526, 14932, 15722, 15799, 16451, 16688, 17029, 17039, 17221, 17271, 17732, 17886, 18013, 18663, 19614, 19846, 19909, 19986, 20027, 20182, 20462, 20879, 21197, 21631, 21961, 23052, 23079, 23801, 23899, 24214, 24949, 25061, 25532, 25901, 26377, 26385, 26804, 27021, 27096, 27175, 27256, 27399, 27439, 27842, 29073, 29389, 29668, 29863, 30444, 31046, 31053, 31742, 31836, 31917, 31994, 32705, 33298, 33412, 33671, 33888, 33892, 34728, 35179, 35568, 36233, 36344, 36609, 37024, 38354, 38438, 38711, 38886, 39173, 39901, 40131, 40239, 40289, 40437, 40998, 41079, 41316, 41711, 41748, 42106, 42337, 42896, 43331, 43842, 43886, 44038, 44374, 44634, 44871, 45214, 45221, 45466, 46012, 46187, 46593, 46922, 47004, 47562, 47573, 47636, 47657, 47986, 48004, 48112, 48371, 48973, 48979, 49386, 49611, 49988, 51430, 52042, 52929, 53719, 53761, 54188, 54936, 55245, 55491, 55617, 56563, 56721, 56757, 56904, 57234, 57317, 57611, 57786, 57842, 58402, 58455, 58696, 58854, 59093, 59536, 59774, 60187, 60919, 60978, 61762, 61783, 61937, 62481, 62646, 62854, 63043, 63281, 63351, 64309, 64384, 64744, 65157, 65814, 65885, 66102, 66249, 66991, 67386, 67588, 67593, 67706, 67880, 68027, 68573, 68804, 69630, 69914, 71254, 71338, 72003, 72916, 72997, 73706, 73708, 73734, 73787, 74757, 74823, 75307, 75482, 75857, 75888, 76056, 76392, 76781, 77057, 77594, 78135, 78604, 78835, 78959, 79630, 79633, 79674, 80421, 80725, 80788, 80976, 81208, 81369, 83186, 83739, 84484, 85218, 85506, 85886, 86137, 86164, 86329, 86353, 86446, 86692, 88718, 88817, 88866, 89314, 89538, 89664, 89846 (k = 1 mod 7 and k = 1 mod 11 at n=1K, other k at n=100K) | 3633 (94500)  68571 (91386)  51476 (88677)  78053 (84433)  58412 (83824)  45661 (73022)  11412 (72798)  72638 (70230)  23462 (69162)  23543 (62677) |  |
| **79** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*79^q - 1) \*  (m\*79^q + 1)  odd n:  factor of 5 | none - proven | 1 (5)  7 (4)  3 (4)  6 (3)  8 (1)  5 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **80** | 253 | 3, 37, 173 |  | 10, 31, 214 (all at n=400K) | 170 (148256)  106 (16237)  154 (9753)  46 (5337)  232 (2997)  157 (2613)  169 (1959)  45 (1156)  218 (776)  244 (653) |  |
| **81** | 74 | 7, 13, 73 | All k = m^2 for all n;  factors to:  (m\*9^n - 1) \*  (m\*9^n + 1) | none - proven | 53 (268)  42 (99)  23 (68)  18 (15)  35 (14)  30 (12)  71 (4)  60 (4)  40 (4)  24 (4) | k = 1, 4, 9, 16, 25, 36, 49, and 64 proven composite by full algebraic factors. |
| **82** | 22326 | 5, 83, 269 |  | 118, 133, 290, 331, 334, 439, 625, 649, 667, 748, 757, 763, 829, 878, 883, 898, 997, 1163, 1252, 1279, 1327, 1348, 1351, 1531, 1741, 1827, 1936, 1991, 2050, 2157, 2263, 2278, 2419, 2431, 2539, 2543, 2588, 2635, 2668, 2797, 2836, 2896, 2929, 2971, 2974, 3079, 3121, 3156, 3293, 3319, 3436, 3653, 3796, 3817, 4068, 4078, 4083, 4118, 4372, 4399, 4447, 4481, 4483, 4780, 4801, 4867, 4898, 4972, 5053, 5182, 5230, 5311, 5329, 5401, 5560, 5562, 5713, 5893, 5899, 5975, 6028, 6122, 6124, 6143, 6178, 6186, 6226, 6296, 6343, 6418, 6427, 6571, 6631, 6925, 6994, 7054, 7056, 7303, 7386, 7388, 7396, 7474, 7615, 7723, 7801, 7813, 7822, 7884, 7892, 7969, 8065, 8314, 8368, 8384, 8499, 8629, 8761, 8830, 8878, 8891, 8941, 9124, 9166, 9304, 9409, 9461, 9712, 9739, 9967, 9988, 10000, 10036, 10075, 10147, 10162, 10448, 10542, 10891, 10957, 11056, 11086, 11119, 11123, 11271, 11372, 11485, 11533, 11553, 11665, 11728, 11827, 11884, 11929, 12079, 12169, 12202, 12211, 12283, 12547, 12562, 12587, 12791, 13126, 13141, 13358, 13531, 13613, 13768, 13779, 13792, 13862, 13891, 14095, 14109, 14161, 14188, 14242, 14257, 14275, 14349, 14441, 14524, 14531, 14563, 14614, 14687, 14855, 14939, 14941, 14986, 15046, 15136, 15271, 15343, 15349, 15403, 15493, 15508, 15634, 15679, 15682, 15852, 15997, 16024, 16103, 16131, 16242, 16312, 16534, 16633, 16753, 16756, 16767, 16954, 17011, 17401, 17512, 17518, 17761, 17803, 17833, 17878, 18058, 18061, 18431, 18448, 18514, 18538, 18550, 18757, 19093, 19237, 19309, 19372, 19414, 19444, 19519, 19672, 19678, 19930, 19946, 20002, 20050, 20113, 20218, 20251, 20413, 20491, 20578, 20581, 20708, 20773, 20980, 21052, 21088, 21215, 21282, 21334, 21382, 21398, 21433, 21449, 21453, 21454, 21466, 21514, 21541, 21631, 21683, 21762, 21862, 21871, 21913, 22012, 22132, 22162, 22243, 22245 (k = 1 mod 3 at n=1K, other k at n=100K) | 15978 (99999)  21429 (96772)  18989 (96049)  17592 (83837)  22233 (75716)  12912 (74869)  5811 (72615)  16091 (65850)  18576 (64927)  4482 (63245) |  |
| **83** | 5 | 2, 3 |  | none - proven | 2 (8)  1 (5)  3 (2)  4 (1) |  |
| **84** | 16 | 5, 17 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*84^q - 1) \*  (m\*84^q + 1)  odd n:  factor of 5 | none - proven | 1 (17)  14 (8)  11 (7)  8 (4)  12 (3)  15 (1)  13 (1)  10 (1)  7 (1)  6 (1) | k = 4 and 9 proven composite by partial algebraic factors. |
| **85** | 173 | 2, 43 |  | 61 (8K) | 169 (6939)  64 (1253)  105 (403)  112 (394)  97 (287)  109 (230)  16 (171)  27 (160)  93 (90)  145 (77) |  |
| **86** | 28 | 3, 29 |  | none - proven | 23 (112)  14 (38)  18 (26)  27 (14)  1 (11)  2 (10)  25 (9)  11 (8)  22 (5)  19 (5) |  |
| **87** | 21 | 2, 11 |  | none - proven | 19 (372)  9 (91)  16 (17)  18 (15)  5 (15)  13 (11)  11 (10)  1 (7)  7 (6)  12 (5) |  |
| **88** | 571 | 3, 7, 13, 19 | k = 400:  for even n let n=2\*q; factors to:  (20\*88^q - 1) \*  (20\*88^q + 1)  odd n:  covering set 3, 7, 13 | 46, 94, 277, 508 (all at n=10K) | 464 (20648)  444 (19708)  544 (8904)  380 (8712)  79 (7665)  477 (5816)  212 (5511)  179 (4545)  346 (2969)  68 (2477) |  |
| **89** | 4 | 3, 5 |  | none - proven | 2 (60)  3 (5)  1 (3) |  |
| **90** | 27 | 7, 13 | All k where k = m^2  and m = = 5 or 8 mod 13:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*90^q - 1) \*  (m\*90^q + 1)  odd n:  factor of 13 | none - proven | 6 (20)  11 (10)  10 (10)  13 (6)  15 (5)  12 (4)  7 (4)  24 (3)  1 (3)  20 (2) | k = 25 proven composite by partial algebraic factors. |
| **91** | 45 | 2, 23 |  | none - proven (with probable primes that have not been certified: k = 27) | 27 (5048)  1 (4421)  37 (159)  15 (14)  43 (6)  39 (6)  31 (6)  24 (5)  20 (4)  36 (3) |  |
| **92** | 32 | 3, 31 |  | none - proven | 1 (439)  29 (272)  28 (99)  13 (35)  14 (32)  18 (26)  22 (25)  20 (6)  6 (6)  17 (4) |  |
| **93** | 189 | 2, 47 |  | 33, 69, 109, 113, 125, 149, 177 (all at n=8K) | 97 (1179)  29 (496)  92 (476)  46 (434)  121 (271)  141 (262)  101 (142)  122 (126)  85 (86)  166 (66) |  |
| **94** | 39 | 5, 19 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*94^q - 1) \*  (m\*94^q + 1)  odd n:  factor of 5 | 29 (1M) | 16 (21951)  37 (254)  13 (163)  14 (154)  7 (95)  34 (54)  25 (41)  24 (12)  26 (9)  36 (7) | k = 4 and 9 proven composite by partial algebraic factors. |
| **95** | 5 | 2, 3 |  | none - proven | 1 (7)  3 (2)  2 (2)  4 (1) |  |
| **96** | 38995 | 7, 67, 97, 1303 | (Condition 1):  All k where k = m^2  and m = = 22 or 75 mod 97:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*96^q - 1) \*  (m\*96^q + 1)  odd n:  factor of 97  (Condition 2):  All k where k = 6\*m^2  and m = = 9 or 88 mod 97:  even n:  factor of 97  for odd n let k = 6\*m^2  and let n=2\*q-1; factors to:  [m\*2^(5q-1)\*3^q - 1] \*  [m\*2^(5q-1)\*3^q + 1] | 431, 591, 701, 831, 872, 956, 1006, 1126, 1648, 1681, 1810, 2036, 2386, 2424, 2878, 3001, 3431, 3461, 3671, 3856, 3881, 3956, 3996, 4261, 4351, 4366, 4406, 4451, 4461, 5046, 5836, 5918, 6031, 6261, 6481, 6586, 6670, 6786, 7091, 7116, 7121, 7131, 7249, 7274, 7461, 7801, 8016, 8202, 8291, 8546, 8816, 9022, 9131, 9156, 9326, 9441, 9463, 9476, 9677, 9681, 9921, 10036, 10204, 10375, 10453, 10551, 10651, 10721, 11056, 11156, 11196, 11458, 11553, 11766, 11831, 12676, 12901, 13216, 13231, 13288, 13571, 14011, 14061, 14276, 14517, 14551, 14646, 15341, 15461, 15573, 15596, 16176, 16306, 16392, 16586, 16641, 16645, 17116, 17421, 17636, 17653, 17792, 18311, 19136, 19191, 19246, 19486, 19681, 20091, 20396, 20464, 20502, 20936, 21488, 21776, 22541, 22811, 22846, 22931, 23010, 23161, 23271, 23301, 23570, 23766, 24076, 24216, 24386, 24506, 24831, 24916, 24929, 25306, 25706, 25966, 26038, 26161, 26183, 26571, 26772, 26801, 26846, 27045, 27106, 27126, 27450, 27646, 27700, 27741, 28365, 28558, 28774, 28776, 28921, 29093, 29196, 29561, 29681, 30086, 30120, 30151, 30421, 30581, 30662, 31021, 31136, 31936, 32205, 32881, 33099, 33141, 33391, 33406, 33501, 33621, 33701, 33711, 33951, 33986, 34116, 34236, 34436, 34531, 34921, 35016, 35113, 35271, 35406, 35446, 35781, 35966, 36158, 36551, 36945, 36981, 37031, 37036, 37166, 37222, 37471, 37991, 38156, 38301, 38316, 38986 (k = 1 mod 5 and k = 1 mod 19 at n=1K, other k at n=100K) | 3769 (92879)  28907 (89447)  13528 (86114)  19882 (82073)  37155 (76817)  9160 (71178)  5179 (66965)  32960 (60312)  7565 (59052)  4754 (56909) | k = 484, 5625, 14161, and 29584 proven composite by condition 1.  k = 486 proven composite by condition 2. |
| **97** | 43 | 3, 5, 7, 37, 139 |  | 22 (35.8K) | 8 (192335)  16 (1627)  4 (621)  28 (184)  1 (17)  34 (16)  32 (9)  27 (8)  37 (5)  31 (5) |  |
| **98** | 10 | 3, 11 |  | none - proven | 1 (13)  5 (10)  7 (3)  4 (3)  8 (2)  2 (2)  9 (1)  6 (1)  3 (1) |  |
| **99** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*99^q - 1) \*  (m\*99^q + 1)  odd n:  factor of 5 | none - proven | 5 (135)  3 (4)  1 (3)  7 (2)  8 (1)  6 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **100** | 211 | 7, 13, 37 | All k = m^2 for all n;  factors to:  (m\*10^n - 1) \*  (m\*10^n + 1) | none - proven (with probable primes that have not been certified: k = 133) | 74 (44709)  133 (5496)  102 (209)  193 (155)  203 (133)  95 (96)  109 (68)  55 (56)  98 (45)  37 (36) | k = 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, and 196 proven composite by full algebraic factors. |
| **101** | 13 | 2, 3 |  | none - proven | 5 (350)  8 (112)  2 (42)  11 (24)  12 (11)  4 (3)  1 (3)  6 (2)  10 (1)  9 (1) |  |
| **102** | 1635 | 7, 19, 79 |  | 191, 207, 1082, 1369 (all at n=500K) | 1451 (188973)  1208 (178632)  653 (117255)  1607 (82644)  254 (58908)  1527 (49462)  1037 (43460)  32 (43302)  1296 (37715)  142 (22025) |  |
| **103** | 25 | 2, 13 |  | none - proven | 19 (820)  22 (442)  23 (216)  14 (189)  16 (57)  11 (54)  24 (32)  15 (32)  1 (19)  20 (5) |  |
| **104** | 4 | 3, 5 |  | none - proven | 1 (97)  2 (68)  3 (1) |  |
| **105** | 297 | 2, 37, 149 | All k where k = m^2  and m = = 3 or 5 mod 8:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*57^q - 1) \*  (m\*57^q + 1)  odd n:  factor of 2 | 73, 137 (both at n=8K) | 148 (3645)  265 (1666)  162 (294)  255 (222)  154 (139)  145 (119)  80 (91)  68 (56)  66 (47)  223 (21) | k = 9, 25, 121, and 169 proven composite by partial algebraic factors. |
| **106** | 13624 | 3, 19, 199 |  | 64, 81, 163, 332, 391, 400, 511, 526, 643, 676, 841, 862, 897, 1024, 1223, 1283, 1417, 1546, 1597, 1713, 1869, 2116, 2248, 2389, 2458, 2605, 2623, 2674, 2743, 2780, 2781, 2965, 3241, 3277, 3336, 3425, 3427, 3478, 3481, 3617, 3622, 3646, 3655, 3746, 3883, 4045, 4067, 4096, 4153, 4177, 4219, 4336, 4339, 4416, 4628, 4666, 4696, 4713, 4722, 5135, 5283, 5395, 5468, 5623, 5692, 5707, 5752, 5776, 5872, 5878, 5971, 5992, 6094, 6100, 6220, 6376, 6421, 6547, 6613, 6716, 6736, 6784, 6832, 6955, 7069, 7156, 7202, 7246, 7273, 7297, 7331, 7336, 7345, 7398, 7496, 7540, 7561, 7744, 7894, 7906, 8023, 8181, 8266, 8323, 8371, 8386, 8428, 8521, 8572, 8586, 8637, 8779, 8788, 8861, 8950, 8956, 8962, 8975, 9031, 9096, 9190, 9294, 9415, 9469, 9634, 9736, 9787, 9796, 9808, 9859, 9877, 9973, 10033, 10072, 10117, 10166, 10186, 10271, 10273, 10446, 10627, 10646, 10651, 10660, 10699, 10876, 10894, 11173, 11278, 11299, 11426, 11506, 11833, 11884, 11901, 12066, 12090, 12145, 12352, 12490, 12627, 12851, 12856, 12916, 12970, 12991, 13162, 13174, 13366, 13374, 13378, 13387, 13497, 13516, 13528, 13543 (all at n=2K) | 913 (1991)  7771 (1952)  13023 (1951)  8561 (1927)  13567 (1850)  12361 (1830)  12910 (1817)  6181 (1800)  2719 (1769)  11639 (1746) |  |
| **107** | 5 | 2, 3 |  | none - proven (with probable primes that have not been certified: k = 3) | 2 (21910)  3 (4900)  4 (251)  1 (17) |  |
| **108** | 13406 | 7, 13, 61, 109 | (Condition 1):  All k where k = m^2  and m = = 33 or 76 mod 109:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*108^q - 1) \*  (m\*108^q + 1)  odd n:  factor of 109  (Condition 2):  All k where k = 3\*m^2  and m = = 20 or 89 mod 109:  even n:  factor of 109  for odd n let k = 3\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*3^(3q-1) - 1] \*  [m\*2^(2q-1)\*3^(3q-1) + 1] | 137, 411, 437, 873, 1634, 1769, 1782, 1961, 2508, 2617, 2962, 2963, 3002, 3029, 3474, 3499, 3596, 3646, 4007, 4066, 4084, 4121, 4184, 4328, 4468, 4499, 4744, 4904, 5015, 5142, 5212, 5351, 5625, 5821, 5892, 5923, 5994, 6212, 6284, 6432, 6528, 6570, 6614, 6866, 7107, 7211, 7302, 7304, 7419, 7848, 8037, 8144, 8374, 8383, 8503, 8524, 8638, 8986, 9346, 9852, 10052, 10129, 10136, 10245, 10699, 10926, 11089, 11164, 11278, 11619, 11881, 11918, 12262, 12861, 12863, 13162, 13291, 13297 (k = 5351, 6528, and 13162 at n=6K, other k at n=100K) | 10322 (88080)  1999 (85188)  7557 (84180)  11882 (81547)  3439 (79524)  4686 (79010)  1159 (77107)  3573 (76352)  1465 (75209)  2148 (75018) | k = 1089 and 5776 proven composite by condition 1.  k = 1200 proven composite by condition 2. |
| **109** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*109^q - 1) \*  (m\*109^q + 1)  odd n:  factor of 5 | none - proven | 8 (19)  1 (17)  5 (2)  2 (2)  7 (1)  6 (1)  3 (1) | k = 4 proven composite by partial algebraic factors. |
| **110** | 38 | 3, 37 | All k where k = m^2  and m = = 6 or 31 mod 37:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*110^q - 1) \*  (m\*110^q + 1)  odd n:  factor of 37 | none - proven | 23 (78120)  17 (2598)  37 (1689)  9 (77)  11 (42)  10 (17)  2 (16)  31 (9)  5 (6)  22 (5) | k = 36 proven composite by partial algebraic factors. |
| **111** | 13 | 2, 7 |  | none - proven | 2 (24)  7 (6)  6 (4)  1 (3)  12 (2)  11 (2)  3 (2)  10 (1)  9 (1)  8 (1) |  |
| **112** | 1357 | 5, 13, 113 | All k where k = m^2  and m = = 15 or 98 mod 113:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*112^q - 1) \*  (m\*112^q + 1)  odd n:  factor of 113 | 31, 79, 310, 340, 421, 424, 451, 529, 703, 940, 1018, 1051, 1204 (all at n=7.5K) | 948 (173968)  1268 (50536)  758 (35878)  1353 (7751)  187 (7524)  498 (6038)  9 (5717)  1024 (5681)  619 (5441)  981 (2858) | k = 225 proven composite by partial algebraic factors. |
| **113** | 20 | 3, 19 |  | none - proven | 14 (308)  1 (23)  7 (15)  19 (11)  5 (8)  16 (5)  3 (5)  12 (3)  4 (3)  18 (2) |  |
| **114** | 24 | 5, 23 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*114^q - 1) \*  (m\*114^q + 1)  odd n:  factor of 5 | none - proven | 3 (63)  1 (29)  11 (27)  18 (21)  22 (20)  20 (3)  19 (2)  17 (2)  14 (2)  10 (2) | k = 4 and 9 proven composite by partial algebraic factors. |
| **115** | 57 | 2, 29 |  | 13, 43 (both at n=8K) | 45 (5227)  4 (4223)  51 (2736)  23 (1116)  53 (165)  21 (127)  35 (50)  15 (38)  39 (28)  32 (28) |  |
| **116** | 14 | 3, 13 |  | none - proven | 9 (249)  5 (156)  11 (118)  1 (59)  2 (32)  13 (15)  10 (11)  12 (2)  8 (2)  7 (1) |  |
| **117** | 149 | 2, 5, 37 |  | 5, 17, 33, 141 (all at n=8K) | 83 (442)  59 (352)  19 (336)  110 (232)  143 (222)  41 (209)  87 (177)  129 (165)  118 (136)  92 (129) |  |
| **118** | 50 | 7, 17 |  | 43 (37K) | 27 (860)  29 (599)  18 (393)  6 (210)  22 (191)  8 (85)  19 (72)  7 (52)  42 (30)  37 (27) |  |
| **119** | 4 | 3, 5 |  | none - proven | 2 (28)  3 (6)  1 (3) |  |
| **120** | 166616308 | 11, 13, 1117, 14281 |  | 384, 386, 419, 483, 551, 672, 824, 846, 890, 901, 991, 1024, 1077, 1095, 1132, 1134, 1255, 1309, 1385, 1394, 1693, 1797, 1921, 2036, 2133, 2177, 2258, 2354, 2386, 2410, 2452, 2650, 2696, 2716, 3004, 3025, 3123, 3178, 3189, 3214, 3290, 3343, 3347, 3400, 3407, 3433, 3596, 3786, 3994, 4003, 4082, 4320, 4399, 4423, 4460, 4500, 4577, 4676, 4685, 4819, 4830, 4839, 4936, 5105, 5125, 5255, 5378, 5630, 5686, 5730, 6112, 6241, 6332, 6357, 6425, 6581, 6676, 6678, 6755, 6821, 6852, 6951, 6982, 6997, 7008, 7413, 7470, 7523, 7545, 7549, 7789, 7803, 7820, 7910, 7985, 8100, 8205, 8464, 8647, 8810, 8812, 8869, 8922, 8964, 8966, 8997, 9010, 9019, 9057, 9070, 9395, 9564, 9626, 9712, 9889, 9921, 9954, 9993 (for k <= 10K) (all at n=1K) | 8063 (997)  6434 (976)  2980 (958)  5180 (938)  164 (878)  4234 (876)  7085 (843)  4390 (833)  9354 (829)  2726 (822) |  |
| **121** | 100 | 3, 7, 37 | All k = m^2 for all n;  factors to:  (m\*11^n - 1) \*  (m\*11^n + 1) | none - proven | 62 (13101)  79 (4545)  43 (68)  7 (60)  30 (24)  60 (12)  87 (11)  39 (11)  57 (10)  50 (10) | k = 1, 4, 9, 16, 25, 36, 49, 64, and 81 proven composite by full algebraic factors. |
| **122** | 14 | 3, 5, 13 |  | none - proven | 13 (43)  8 (26)  11 (10)  2 (6)  12 (5)  1 (5)  10 (3)  6 (2)  5 (2)  3 (2) |  |
| **123** | 13 | 2, 5, 17 |  | 11 (8K) | 1 (43)  3 (8)  2 (8)  12 (7)  6 (7)  9 (5)  7 (2)  10 (1)  8 (1)  5 (1) |  |
| **124** | 92881 | 3, 5, 7, 5167 | (Condition 1):  All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*124^q - 1) \*  (m\*124^q + 1)  odd n:  factor of 5  (Condition 2):  All k where k = 31\*m^2  and m = = 1 or 4 mod 5:  even n:  factor of 5  for odd n let k = 31\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*31^q - 1] \*  [m\*2^(2q-1)\*31^q + 1] | 101, 136, 146, 175, 179, 199, 204, 236, 259, 271, 301, 328, 364, 389, 434, 441, 459, 469, 561, 586, 589, 599, 604, 614, 616, 631, 661, 741, 766, 806, 844, 894, 901, 922, 931, 951, 971, 974, 1013, 1016, 1019, 1021, 1039, 1043, 1046, 1061, 1081, 1114, 1123, 1149, 1156, 1186, 1229, 1231, 1237, 1246, 1249, 1269, 1288, 1336, 1375, 1376, 1384, 1399, 1461, 1496, 1498, 1499, 1509, 1511, 1519, 1522, 1542, 1636, 1654, 1664, 1711, 1719, 1724, 1731, 1741, 1743, 1754, 1766, 1779, 1783, 1784, 1789, 1814, 1824, 1834, 1861, 1904, 1924, 1926, 1931, 1941, 1954, 1969, 1989, 2029, 2041, 2095, 2101, 2109, 2124, 2131, 2161, 2166, 2191, 2194, 2212, 2296, 2306, 2307, 2344, 2364, 2366, 2377, 2416, 2419, 2436, 2479, 2491, 2497, 2529, 2539, 2559, 2572, 2576, 2616, 2656, 2661, 2664, 2666, 2680, 2686, 2731, 2761, 2789, 2804, 2830, 2854, 2864, 2920, 2931, 2971, 2994, 3024, 3034, 3054, 3067, 3076, 3079, 3081, 3096, 3154, 3196, 3214, 3229, 3247, 3261, 3286, 3294, 3316, 3319, 3324, 3329, 3346, 3382, 3421, 3439, 3579, 3604, 3606, 3646, 3649, 3654, 3679, 3704, 3716, 3730, 3734, 3739, 3752, 3771, 3779, 3786, 3789, 3809, 3821, 3829, 3839, 3866, 3942, 3949, 3964, 3986, 4006, 4015, 4039, 4054, 4066, 4084, 4089, 4091, 4094, 4096, 4129, 4134, 4153, 4207, 4229, 4231, 4234, 4236, 4311, 4319, 4331, 4375, 4376, 4384, 4424, 4429, 4476, 4486, 4506, 4512, 4526, 4546, 4554, 4609, 4646, 4651, 4684, 4714, 4716, 4771, 4786, 4796, 4801, 4811, 4816, 4831, 4854, 4879, 4885, 4909, 4911, 4946, 4961, 4976, 4997, 5009, 5020, 5026, 5032, 5049, 5101, 5116, 5149, 5152, 5164, 5186, 5209, 5224, 5226, 5246, 5269, 5274, 5283, 5314, 5334, 5396, 5404, 5416, 5431, 5459, 5499, 5526, 5539, 5554, 5611, 5626, 5630, 5632, 5679, 5684, 5696, 5699, 5710, 5746, 5751, 5764, 5784, 5830, 5840, 5844, 5911, 5926, 5934, 5946, 5956, 5959, 5974, 5979, 5982, 6000, 6019, 6024, 6049, 6094, 6098, 6106, 6154, 6181, 6184, 6186, 6187, 6189, 6191, 6212, 6214, 6223, 6226, 6246, 6251, 6261, 6309, 6318, 6336, 6361, 6374, 6376, 6381, 6384, 6424, 6434, 6439, 6449, 6466, 6469, 6506, 6514, 6571, 6589, 6625, 6644, 6759, 6799, 6826, 6849, 6856, 6886, 6901, 6919, 6931, 6961, 6971, 6976, 6986, 7006, 7051, 7062, 7066, 7092, 7096, 7104, 7114, 7134, 7144, 7146, 7195, 7221, 7232, 7261, 7274, 7276, 7284, 7301, 7309, 7311, 7329, 7369, 7389, 7396, 7423, 7453, 7456, 7478, 7479, 7494, 7516, 7521, 7522, 7523, 7544, 7551, 7591, 7600, 7616, 7617, 7619, 7674, 7682, 7714, 7739, 7741, 7756, 7762, 7771, 7779, 7801, 7811, 7861, 7884, 7885, 7897, 7909, 7951, 8006, 8041, 8044, 8046, 8111, 8124, 8129, 8137, 8146, 8149, 8161, 8166, 8201, 8203, 8231, 8248, 8249, 8250, 8266, 8286, 8326, 8334, 8339, 8361, 8369, 8383, 8394, 8419, 8429, 8431, 8441, 8454, 8461, 8476, 8479, 8491, 8499, 8524, 8529, 8536, 8551, 8564, 8581, 8606, 8641, 8655, 8674, 8683, 8691, 8719, 8724, 8730, 8779, 8794, 8809, 8811, 8839, 8849, 8854, 8869, 8871, 8934, 8936, 8974, 8979, 8980, 8986, 9001, 9034, 9064, 9069, 9076, 9115, 9136, 9142, 9166, 9172, 9175, 9178, 9199, 9236, 9244, 9247, 9256, 9260, 9264, 9276, 9314, 9334, 9336, 9344, 9349, 9366, 9382, 9401, 9436, 9454, 9459, 9463, 9496, 9516, 9524, 9526, 9551, 9562, 9564, 9571, 9574, 9586, 9634, 9646, 9661, 9728, 9739, 9761, 9799, 9826, 9831, 9844, 9907, 9909, 9931, 9966, 9976 (for k <= 10K) (all at n=1K) | 1194 (998)  1611 (989)  659 (986)  3996 (985)  6314 (984)  6101 (983)  4903 (978)  3941 (977)  6011 (975)  6179 (972) | k = 2^2, 3^2, 7^2, 8^2, 12^2, 13^2, 17^2, 18^2 (etc. pattern repeating every 5m) proven composite by condition 1.  k = 31\*1^2, 31\*4^2, 31\*6^2, 31\*9^2, 31\*11^2, 31\*14^2, 31\*16^2, 31\*19^2 (etc. pattern repeating every 5m) proven composite by condition 2. |
| **125** | 8 | 3, 7 | All k = m^3 for all n;  factors to:  (m\*5^n - 1) \*  (m^2\*25^n + m\*5^n + 1) | none - proven | 6 (24)  7 (5)  3 (3)  5 (2)  2 (2)  4 (1) | k = 1 proven composite by full algebraic factors. |
| **126** | 480821 | 13, 19, 127, 829 |  | 380, 406, 438, 729, 893, 1132, 1523, 1654, 1810, 1855, 2707, 2744, 2804, 3285, 3566, 3573, 3631, 3721, 4335, 4416, 4436, 4596, 4772, 5081, 5164, 5285, 5784, 5820, 6026, 6041, 6204, 6605, 6990, 7075, 7107, 7183, 7479, 7580, 7673, 7876, 8061, 8099, 8238, 8256, 8323, 8336, 8485, 8527, 8836, 9025, 9127, 9166, 9220, 9524, 9606, 9651, 9936, 10195, 10728, 10818, 11012, 11287, 11366, 11475, 11493, 11683, 11696, 12013, 12416, 12424, 12433, 12594, 12794, 12820, 12868, 13006, 13016, 13023, 13027, 13134, 13302, 13389, 13824, 14225, 14270, 14509, 14790, 14831, 15167, 15348, 15366, 15577, 15596, 15620, 15752, 15898, 16130, 16367, 16636, 16723, 16974, 17351, 17436, 17826, 17920, 18001, 18058, 18067, 18162, 18430, 18437, 18543, 18571, 18617, 18638, 18849, 19314, 19686, 19759, 19847, 19940, 19996, 20192, 20216, 20439, 20497, 20520, 20573, 20575, 20608, 20635, 20744, 20907, 20983, 20993, 21060, 21209, 21306, 21316, 21342, 21583, 21849, 22031, 22224, 22389, 22478, 22790, 22837, 22938, 23180, 23264, 23390, 23466, 23533, 23692, 23748, 23830, 23903, 24001, 24060, 24176, 24319, 24390, 24579, 24706, 24748, 24779, 24832, 24963, 25012, 25106, 25130, 25886, 26159, 26279, 26326, 26490, 26822, 27182, 27296, 27730, 27842, 27920, 28447, 28453, 28659, 28791, 28928, 29001, 29012, 29228, 29329, 29477, 29551, 29617, 29719, 29844, 29942 (for k <= 30K) (k = 1 mod 5 at n=1K, other k at n=2.5K) | 16604 (2475)  26728 (2429)  3428 (2428)  16844 (2365)  15239 (2348)  13759 (2324)  4698 (2302)  13672 (2239)  8177 (2224)  8682 (2162) |  |
| **127** | 2593 | 2, 5, 17, 137 |  | 13, 17, 25, 27, 33, 35, 79, 83, 91, 113, 121, 139, 159, 179, 191, 231, 233, 235, 236, 237, 239, 250, 251, 264, 279, 288, 293, 333, 353, 361, 367, 379, 443, 451, 459, 471, 473, 511, 513, 517, 523, 531, 537, 551, 553, 557, 561, 597, 599, 604, 617, 631, 639, 649, 659, 679, 699, 715, 725, 731, 733, 737, 739, 747, 751, 755, 763, 773, 778, 783, 797, 809, 838, 848, 863, 871, 895, 919, 937, 939, 950, 953, 964, 982, 997, 999, 1013, 1019, 1025, 1031, 1037, 1039, 1043, 1051, 1106, 1107, 1117, 1119, 1127, 1157, 1173, 1185, 1196, 1199, 1211, 1231, 1232, 1233, 1245, 1253, 1259, 1279, 1288, 1291, 1313, 1327, 1333, 1335, 1337, 1347, 1353, 1359, 1371, 1377, 1401, 1407, 1417, 1421, 1429, 1432, 1439, 1473, 1481, 1491, 1513, 1525, 1539, 1549, 1551, 1573, 1577, 1579, 1589, 1593, 1595, 1597, 1599, 1611, 1612, 1618, 1631, 1639, 1641, 1661, 1677, 1693, 1699, 1709, 1711, 1731, 1732, 1737, 1751, 1771, 1792, 1793, 1803, 1837, 1839, 1903, 1911, 1921, 1928, 1933, 1936, 1939, 1943, 1951, 1957, 1959, 1999, 2013, 2017, 2032, 2039, 2045, 2072, 2073, 2079, 2092, 2097, 2099, 2129, 2155, 2168, 2179, 2191, 2197, 2215, 2231, 2247, 2253, 2273, 2279, 2303, 2313, 2339, 2367, 2377, 2389, 2411, 2427, 2431, 2433, 2479, 2501, 2543, 2548, 2559, 2565, 2573, 2583 (all at n=1K) | 667 (1000)  1775 (994)  2497 (989)  2199 (972)  1759 (936)  2015 (910)  343 (904)  1113 (899)  1962 (893)  1543 (872) |  |
| **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) | none - proven | 29 (211192)  23 (2118)  26 (1442)  37 (699)  16 (459)  42 (246)  35 (98)  30 (66)  36 (59)  12 (46) | k = 1 proven composite by full algebraic factors. |
| **129** | 14 | 5, 13 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*129^q - 1) \*  (m\*129^q + 1)  odd n:  factor of 5 | none - proven | 12 (228)  1 (5)  5 (3)  7 (2)  13 (1)  11 (1)  10 (1)  8 (1)  6 (1)  3 (1) | k = 4 and 9 proven composite by partial algebraic factors. |
| **130** | 2563 | 3, 7, 811 |  | 64, 247, 253, 254, 302, 597, 739, 799, 877, 918, 961, 1003, 1129, 1159, 1178, 1255, 1258, 1423, 1702, 1754, 1773, 1807, 1849, 2227, 2304, 2311, 2319, 2381, 2479, 2494, 2536 (all at n=2K) | 148 (1894)  1555 (1886)  1049 (1881)  2242 (1850)  2326 (1749)  1114 (1724)  523 (1670)  1796 (1650)  557 (1525)  1483 (1490) |  |
| **131** | 5 | 2, 3 |  | none - proven | 2 (4)  1 (3)  3 (2)  4 (1) |  |
| **132** | 20 | 7, 19 |  | none - proven | 18 (62)  1 (47)  3 (38)  8 (11)  19 (9)  4 (3)  13 (2)  7 (2)  6 (2)  17 (1) |  |
| **133** | 17 | 2, 5, 29 |  | none - proven | 1 (13)  11 (5)  2 (4)  12 (3)  9 (3)  7 (3)  4 (3)  13 (2)  5 (2)  16 (1) |  |
| **134** | 4 | 3, 5 |  | none - proven | 1 (5)  2 (2)  3 (1) |  |
| **135** | 33 | 2, 17 | All k where k = m^2  and m = = 4 or 13 mod 17:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*135^q - 1) \*  (m\*135^q + 1)  odd n:  factor of 17 | none - proven (with probable primes that have not been certified: k = 27) | 27 (3250)  32 (2091)  1 (1171)  29 (697)  18 (569)  25 (317)  7 (26)  26 (13)  17 (11)  23 (6) | k = 16 proven composite by partial algebraic factors. |
| **136** | 22195 | 3, 7, 43, 137 | All k where k = m^2  and m = = 37 or 100 mod 137:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*136^q - 1) \*  (m\*136^q + 1)  odd n:  factor of 137 | testing not started | testing not started | k = 1369 and 10000 proven composite by partial algebraic factors. |
| **137** | 17 | 2, 3 | All k where k = m^2  and m = = 3 or 5 mod 8:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*137^q - 1) \*  (m\*137^q + 1)  odd n:  factor of 2 | 11, 13, 15 (all at n=2K) | 16 (231)  3 (27)  5 (12)  1 (11)  10 (5)  14 (4)  12 (2)  8 (2)  2 (2)  7 (1) | k = 9 proven composite by partial algebraic factors. |
| **138** | 1806 | 5, 13, 139 |  | 408, 688, 831, 1074, 1743 (all at n=300K) | 421 (272919)  773 (249730)  372 (103160)  1368 (66926)  1087 (55582)  1258 (54256)  557 (52295)  359 (47249)  291 (35886)  9 (35685) |  |
| **139** | 6 | 5, 7 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*139^q - 1) \*  (m\*139^q + 1)  odd n:  factor of 5 | none - proven | 1 (163)  3 (114)  5 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **140** | 46 | 3, 47 |  | none - proven | 38 (448)  11 (108)  1 (79)  5 (30)  29 (18)  32 (16)  14 (16)  33 (12)  40 (9)  41 (8) |  |
| **141** | 285 | 2, 71 |  | none - proven (with probable primes that have not been certified: k = 201) | 201 (5279)  93 (1860)  197 (1052)  133 (818)  16 (573)  203 (250)  283 (244)  73 (237)  147 (209)  144 (171) |  |
| **142** | 12 | 11, 13 |  | none - proven | 1 (1231)  3 (26)  11 (14)  8 (7)  6 (3)  4 (3)  10 (2)  9 (1)  7 (1)  5 (1) |  |
| **143** | 5 | 2, 3 |  | none - proven | 3 (16)  1 (3)  2 (2)  4 (1) |  |
| **144** | 59 | 5, 29 | All k = m^2 for all n;  factors to:  (m\*12^n - 1) \*  (m\*12^n + 1) | none - proven | 39 (964)  30 (519)  23 (134)  46 (97)  58 (35)  2 (24)  57 (20)  15 (10)  54 (8)  34 (8) | k = 1, 4, 9, 16, 25, 36, and 49 proven composite by full algebraic factors. |
| **145** | 1169 | 2, 73 | (Condition 1):  All k where k = m^2  and m = = 27 or 46 mod 73:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*145^q - 1) \*  (m\*145^q + 1)  odd n:  factor of 73  (Condition 2):  All k where k = m^2  and m = = 7 or 9 mod 16:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*145^q - 1) \*  (m\*145^q + 1)  odd n:  factor of 2 | 8, 72, 113, 181, 303, 450, 523, 673, 769, 865, 1094, 1160 (all at n=2K) | 863 (1480)  838 (1460)  257 (1269)  1025 (1223)  347 (737)  817 (730)  641 (723)  685 (589)  759 (575)  1011 (537) | k = 729 proven composite by condition 1.  k = 49, 81, 529, and 625 proven composite by condition 2. |
| **146** | 8 | 3, 7 |  | none - proven | 5 (30)  2 (16)  1 (7)  4 (5)  3 (3)  6 (2)  7 (1) |  |
| **147** | 73 | 2, 37 | All k where k = m^2  and m = = 6 or 31 mod 37:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*147^q - 1) \*  (m\*147^q + 1)  odd n:  factor of 37 | 11, 49, 51, 55, 58, 59, 63 (all at n=2K) | 33 (619)  64 (169)  19 (140)  38 (131)  71 (114)  12 (112)  48 (96)  22 (48)  15 (46)  34 (43) | k = 36 proven composite by partial algebraic factors. |
| **148** | 1936 | 5, 13, 149 | All k where k = m^2  and m = = 44 or 105 mod 149:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*148^q - 1) \*  (m\*148^q + 1)  odd n:  factor of 149 | 215, 256, 304, 346, 367, 448, 577, 580, 595, 636, 691, 694, 746, 801, 831, 898, 934, 967, 1015, 1048, 1052, 1134, 1204, 1234, 1249, 1256, 1258, 1307, 1341, 1351, 1426, 1489, 1516, 1594, 1600, 1604, 1621, 1743, 1750, 1852, 1901 (all at n=2K) | 1554 (1991)  1312 (1967)  1381 (1942)  597 (1895)  417 (1891)  1357 (1890)  541 (1762)  281 (1738)  1228 (1657)  1841 (1586) | No k's proven composite by algebraic factors. |
| **149** | 4 | 3, 5 |  | none - proven | 1 (7)  2 (4)  3 (1) |  |
| **150** | 49074 | 7, 31, 103, 151 |  | 206, 841, 1509, 1962, 3229, 4682, 5245, 5890, 6039, 6353, 6494, 7851, 9061, 9260, 11324, 11477, 11516, 12839, 14373, 16309, 16404, 16424, 16977, 17603, 18859, 19027, 19191, 19226, 20468, 20988, 22238, 22349, 22977, 23396, 23706, 23944, 24614, 24852, 25488, 25704, 25829, 26685, 27032, 28389, 28822, 30050, 30993, 31738, 31812, 33521, 34429, 34707, 35066, 35344, 36709, 36994, 37137, 39108, 39141, 39712, 39736, 40020, 42012, 42128, 43060, 43789, 44346, 44645, 44832, 46257, 46616, 47717, 48138 (k = 30993 and 31738 at n=2K, other k at n=100K) | 17554 (99646)  32797 (97430)  32399 (96963)  37966 (96107)  10505 (93910)  42643 (93875)  5674 (92155)  6492 (90168)  32135 (90000)  31409 (89441) |  |
| **151** | 37 | 2, 19 |  | 9, 25 (both at n=2K) | 3 (716)  34 (45)  29 (25)  22 (20)  4 (15)  27 (14)  1 (13)  16 (9)  13 (9)  23 (8) |  |
| **152** | 16 | 3, 17 |  | none - proven (with probable primes that have not been certified: k = 1) | 14 (343720)  1 (270217)  2 (796)  13 (23)  11 (14)  5 (12)  10 (5)  3 (3)  15 (2)  8 (2) |  |
| **153** | 34 | 7, 11 | (Condition 1):  All k where k = m^2  and m = = 3 or 5 mod 8:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*153^q - 1) \*  (m\*153^q + 1)  odd n:  factor of 2  (Condition 2):  All k where k = 17\*m^2  and m = = 1 or 7 mod 8:  even n:  factor of 2  for odd n let k = 17\*m^2 and let n=2\*q-1; factors to:  [m\*3^(2q-1)\*17^q - 1] \* [m\*3^(2q-1)\*17^q + 1] | none - proven | 12 (21659)  21 (70)  27 (44)  22 (23)  32 (8)  15 (5)  20 (4)  4 (3)  1 (3)  30 (2) | k = 9 and 25 proven composite by condition 1.  k = 17 proven composite by condition 2. |
| **154** | 61 | 5, 31 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*154^q - 1) \*  (m\*154^q + 1)  odd n:  factor of 5 | none - proven | 6 (1989)  39 (326)  19 (324)  24 (106)  14 (78)  29 (62)  54 (30)  36 (7)  31 (7)  21 (7) | k = 4, 9, and 49 proven composite by partial algebraic factors. |
| **155** | 5 | 2, 3 |  | none - proven | 1 (3)  3 (2)  2 (2)  4 (1) |  |
| **156** | unknown (>10^9, <=2113322677) | unknown | (Condition 1):  All k where k = m^2  and m = = 28 or 129 mod 157:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*156^q - 1) \*  (m\*156^q + 1)  odd n:  factor of 157  (Condition 2):  All k where k = 39\*m^2  and m = = 56 or 101 mod 157:  even n:  factor of 157  for odd n let k = 39\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*39^q - 1] \*  [m\*2^(2q-1)\*39^q + 1] | testing not started | testing not started | k = 28^2, 129^2, 185^2, 286^2 (etc. pattern repeating every 157m) proven composite by condition 1.  k = 39\*56^2, 39\*101^2, 39\*213^2, 39\*258^2 (etc. pattern repeating every 157m) proven composite by condition 2. |
| **157** | 17 | 2, 5, 29 |  | none - proven | 8 (56)  15 (49)  4 (45)  7 (32)  1 (17)  13 (10)  14 (7)  16 (5)  5 (4)  12 (2) |  |
| **158** | 52 | 3, 53 |  | 29, 44 (both at n=300K) | 47 (273942)  34 (5223)  46 (147)  41 (94)  38 (74)  39 (49)  7 (39)  9 (35)  20 (34)  8 (20) |  |
| **159** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*159^q - 1) \*  (m\*159^q + 1)  odd n:  factor of 5 | none - proven | 3 (2160)  8 (22)  1 (13)  7 (6)  6 (1)  5 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **160** | 22 | 7, 23 |  | none - proven | 20 (7570)  12 (11)  6 (8)  1 (7)  5 (3)  4 (3)  13 (2)  10 (2)  2 (2)  21 (1) |  |
| **161** | 65 | 2, 3 |  | none - proven | 52 (549)  50 (328)  32 (316)  2 (228)  55 (153)  49 (103)  40 (67)  53 (46)  59 (36)  20 (26) |  |
| **162** | 3259 | 5, 163, 181 |  | 274, 302, 456, 1205, 1358, 1588, 1828, 2118, 2178, 2297, 2423, 2703, 2841, 2997, 3144, 3249 (k = 2118 and 2841 at n=300K, other k at n=2K) | 2018 (194314)  2954 (95124)  1308 (82803)  1607 (28018)  58 (13758)  2809 (12303)  423 (8898)  3098 (8723)  653 (8335)  1781 (8327) |  |
| **163** | 81 | 2, 41 |  | 11, 37, 39, 57, 64 (all at n=2K) | 4 (2285)  45 (1863)  75 (1000)  41 (955)  42 (775)  46 (249)  2 (84)  29 (37)  63 (36)  72 (24) |  |
| **164** | 4 | 3, 5 |  | none - proven | 1 (3)  2 (2)  3 (1) |  |
| **165** | 79 | 7, 13, 43 |  | 65 (2K) | 53 (1174)  45 (184)  49 (171)  6 (86)  44 (71)  60 (67)  50 (41)  78 (29)  16 (17)  41 (13) |  |
| **166** | 4174 | 3, 7, 13, 167 |  | 79, 187, 196, 222, 322, 337, 387, 424, 472, 556, 565, 571, 610, 615, 640, 759, 888, 946, 982, 1033, 1057, 1087, 1249, 1321, 1550, 1609, 1759, 1846, 1849, 1942, 1963, 2003, 2047, 2071, 2096, 2152, 2170, 2302, 2313, 2362, 2501, 2526, 2554, 2566, 2588, 2614, 2673, 2809, 3166, 3234, 3349, 3418, 3467, 3481, 3493, 3501, 3502, 3508, 3526, 3541, 3642, 3736, 3899, 3962, 3991, 4006, 4134 (all at n=2K) | 3106 (1861)  1969 (1823)  1789 (1796)  1602 (1770)  4042 (1732)  823 (1698)  919 (1651)  3424 (1597)  2802 (1583)  2929 (1528) |  |
| **167** | 5 | 2, 3 |  | none - proven | 4 (1865)  2 (8)  3 (6)  1 (3) |  |
| **168** | 4744 | 5, 13, 17, 73 | (Condition 1):  All k where k = m^2  and m = = 5 or 8 mod 13:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*168^q - 1) \*  (m\*168^q + 1)  odd n:  factor of 13  (Condition 2):  All k where k = 42\*m^2  and m = = 3 or 10 mod 13:  even n:  factor of 13  for odd n let k = 42\*m^2  and let n=2\*q-1; factors to:  [m\*2^(2q-1)\*42^q - 1] \*  [m\*2^(2q-1)\*42^q + 1] | 53, 495, 584, 586, 948, 1364, 1416, 1429, 1512, 1626, 1741, 1743, 1754, 1938, 2172, 2237, 2263, 2599, 2627, 2848, 2852, 3067, 3106, 3119, 3238, 3314, 3407, 3574, 3678, 3769, 3795, 3797, 3844, 4016, 4328, 4382, 4549, 4614, 4642, 4668, 4707, 4723 (k = 2172 at n=2K, other k at n=100K) | 1689 (68676)  3309 (63795)  4471 (54466)  4185 (53498)  2846 (50670)  1717 (38259)  1829 (34296)  2885 (34186)  2942 (33546)  2523 (31457) | k = 25, 64, 324, 441, 961, 1156, 1936, 2209, 3249, and 3600 proven composite by condition 1.  k = 378 and 4200 proven composite by condition 2. |
| **169** | 16 | 5, 17 | All k = m^2 for all n;  factors to:  (m\*13^n - 1) \*  (m\*13^n + 1) | none - proven | 14 (2)  13 (2)  3 (2)  15 (1)  12 (1)  11 (1)  10 (1)  8 (1)  7 (1)  6 (1) | k = 1, 4, and 9 proven composite by full algebraic factors. |
| **170** | 20 | 3, 19 |  | none - proven | 2 (166428)  8 (15422)  18 (360)  11 (108)  5 (38)  1 (17)  13 (13)  9 (7)  7 (3)  4 (3) |  |
| **171** | 85 | 2, 43 |  | 15, 51, 75 (all at n=2K) | 5 (2925)  1 (181)  11 (138)  68 (83)  42 (72)  7 (68)  3 (60)  73 (51)  61 (45)  23 (32) |  |
| **172** | 235 | 3, 7, 13 |  | 22, 127, 133, 184, 219 (k = 219 at n=300K, other k at n=2K) | 30 (1160)  196 (749)  164 (603)  139 (573)  200 (468)  230 (231)  148 (103)  103 (95)  100 (89)  217 (80) |  |
| **173** | 13 | 2, 3 |  | 11 (6K) | 5 (54)  7 (15)  2 (4)  10 (3)  1 (3)  12 (2)  8 (2)  6 (2)  3 (2)  9 (1) |  |
| **174** | 6 | 5, 7 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*174^q - 1) \*  (m\*174^q + 1)  odd n:  factor of 5 | none - proven (with probable primes that have not been certified: k = 1) | 1 (3251)  5 (2)  3 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **175** | 21 | 2, 11 |  | none - proven (with probable primes that have not been certified: k = 11) | 11 (3048)  10 (136)  3 (90)  16 (17)  5 (13)  18 (10)  15 (8)  14 (7)  1 (5)  19 (2) |  |
| **176** | 58 | 3, 59 |  | none - proven | 34 (79)  26 (20)  22 (19)  53 (16)  50 (12)  32 (12)  29 (12)  25 (9)  4 (9)  43 (7) |  |
| **177** | 209 | 2, 5, 13 | All k where k = m^2  and m = = 7 or 9 mod 16:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*177^q - 1) \*  (m\*177^q + 1)  odd n:  factor of 2 | 25, 161, 193, 197 (all at n=2K) | 64 (340147)  36 (2957)  44 (1711)  163 (963)  97 (609)  33 (431)  179 (383)  200 (288)  58 (219)  172 (200) | k = 49 and 81 proven composite by partial algebraic factors. |
| **178** | 22 | 3, 5, 7, 13, 97 |  | 4, 19 (k = 4 at n=6K, k = 19 at n=2K) | 11 (177)  6 (118)  21 (89)  14 (44)  3 (14)  17 (12)  13 (8)  7 (4)  16 (3)  15 (3) |  |
| **179** | 4 | 3, 5 |  | none - proven | 1 (19)  3 (16)  2 (2) |  |
| **180** | 7674582 | 7, 31, 181, 1051 | (Condition 1):  All k where k = m^2  and m = = 19 or 162 mod 181:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*180^q - 1) \*  (m\*180^q + 1)  odd n:  factor of 181  (Condition 2):  All k where k = 5\*m^2  and m = = 67 or 114 mod 181:  even n:  factor of 181  for odd n let k = 5\*m^2  and let n=2\*q-1; factors to:  [m\*6^(2q-1)\*5^q - 1] \*  [m\*6^(2q-1)\*5^q + 1] | testing not started | testing not started | k = 19^2, 162^2, 200^2, 343^2 (etc. pattern repeating every 181m) proven composite by condition 1.  k = 5\*67^2, 5\*114^2, 5\*248^2, 5\*295^2 (etc. pattern repeating every 181m) proven composite by condition 2. |
| **181** | 25 | 2, 13 |  | 5, 21 (k = 5 at n=6K, k = 21 at n=2K) | 14 (29)  1 (17)  12 (8)  24 (5)  10 (5)  9 (5)  15 (3)  20 (2)  13 (2)  6 (2) |  |
| **182** | 62 | 3, 61 |  | none - proven | 43 (502611)  26 (990)  29 (632)  54 (329)  7 (209)  1 (167)  44 (152)  58 (127)  47 (122)  59 (96) |  |
| **183** | 45 | 2, 23 |  | none - proven | 13 (581)  23 (534)  1 (223)  17 (175)  37 (155)  15 (42)  27 (40)  26 (37)  21 (27)  42 (11) |  |
| **184** | 36 | 5, 37 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*184^q - 1) \*  (m\*184^q + 1)  odd n:  factor of 5 | none - proven (with probable primes that have not been certified: k = 1) | 1 (16703)  28 (85)  7 (32)  16 (21)  11 (15)  19 (10)  24 (8)  14 (8)  22 (7)  34 (6) | k = 4 and 9 proven composite by partial algebraic factors. |
| **185** | 17 | 2, 3 | All k where k = m^2  and m = = 3 or 5 mod 8:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*185^q - 1) \*  (m\*185^q + 1)  odd n:  factor of 2 | 1 (66.3K) | 10 (6783)  12 (8)  8 (8)  14 (4)  11 (4)  5 (4)  16 (3)  15 (2)  2 (2)  13 (1) | k = 9 proven composite by partial algebraic factors. |
| **186** | 67 | 11, 17 | All k where k = m^2  and m = = 4 or 13 mod 17:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*186^q - 1) \*  (m\*186^q + 1)  odd n:  factor of 17 | 36 (2K) | 12 (112717)  32 (388)  43 (44)  51 (32)  44 (14)  35 (13)  52 (11)  58 (9)  42 (7)  1 (7) | k = 16 proven composite by partial algebraic factors. |
| **187** | 51 | 2, 5, 13 |  | 13, 27, 33, 39 (all at n=2K) | 17 (1125)  7 (510)  43 (136)  11 (110)  31 (74)  48 (71)  1 (37)  10 (16)  18 (12)  23 (10) |  |
| **188** | 8 | 3, 7 |  | none - proven | 6 (950)  5 (40)  7 (7)  1 (3)  2 (2)  4 (1)  3 (1) |  |
| **189** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*189^q - 1) \*  (m\*189^q + 1)  odd n:  factor of 5 | none - proven | 6 (3)  2 (3)  1 (3)  5 (2)  8 (1)  7 (1)  3 (1) | k = 4 proven composite by partial algebraic factors. |
| **190** | 626861 | 13, 89, 191, 1753 |  | testing not started | testing not started |  |
| **191** | 5 | 2, 3 |  | none - proven | 2 (970)  1 (17)  4 (5)  3 (2) |  |
| **192** | 13897 | 5, 73, 193 | All k where k = m^2  and m = = 81 or 112 mod 193:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*192^q - 1) \*  (m\*192^q + 1)  odd n:  factor of 193 | 253, 311, 593, 894, 898, 1268, 1422, 1704, 2118, 2264, 2315, 2324, 2396, 2441, 2909, 3092, 3282, 3303, 3323, 3719, 3859, 4038, 4062, 4078, 4104, 4164, 4247, 4304, 4372, 4426, 4618, 4679, 5132, 5173, 5523, 5547, 5584, 5731, 5758, 5761, 5789, 5967, 5984, 6083, 6175, 6177, 6205, 6261, 6263, 6297, 6353, 6354, 6484, 6547, 6558, 6746, 6789, 6889, 6939, 7096, 7407, 7528, 7549, 7591, 7756, 7889, 7913, 7931, 7984, 8187, 8214, 8248, 8347, 8361, 8382, 8493, 8537, 8988, 9091, 9111, 9208, 9402, 9689, 9883, 10037, 10063, 10162, 10349, 10396, 10423, 10488, 10657, 10817, 10988, 11002, 11213, 11488, 11933, 12132, 12157, 12234, 12317, 12424, 12716, 12782, 12797, 12906, 12983, 12984, 13358, 13484, 13605, 13623, 13738, 13798 (k = 5731 and 8214 at n=2K, other k at n=100K) | 10909 (89859)  2486 (88582)  49 (88335)  2258 (86531)  7511 (85174)  12732 (85108)  12807 (84820)  9344 (83216)  1023 (78795)  2423 (77515) | k = 6561 and 12544 proven composite by partial algebraic factors. |
| **193** | 484 | 3, 5, 7, 13, 97 | All k where k = m^2  and m = = 22 or 75 mod 97:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*193^q - 1) \*  (m\*193^q + 1)  odd n:  factor of 97 | 30, 58, 95, 106, 116, 134, 169, 184, 207, 226, 272, 302, 348, 379, 449, 463 (all at n=2K) | 466 (1986)  431 (1794)  297 (1700)  387 (1638)  93 (1473)  136 (1018)  121 (849)  408 (725)  256 (417)  135 (413) | No k's proven composite by algebraic factors. |
| **194** | 4 | 3, 5 |  | none - proven | 2 (42)  3 (3)  1 (3) |  |
| **195** | 13 | 2, 7 |  | none - proven | 6 (38)  1 (11)  11 (4)  4 (3)  7 (2)  3 (2)  12 (1)  10 (1)  9 (1)  8 (1) |  |
| **196** | 1267 | 3, 61, 211 | All k = m^2 for all n;  factors to:  (m\*14^n - 1) \*  (m\*14^n + 1) | 198, 202, 223, 423, 562, 617, 647, 735, 808, 976, 1183 (all at n=2K) | 5 (9849)  947 (1797)  807 (1630)  973 (1574)  342 (1548)  1111 (1455)  865 (649)  877 (639)  1087 (541)  962 (485) | k = 1^2, 2^2, 3^2, 4^2, 5^2, 6^2, 7^2, 8^2, 9^2, 10^2, 11^2, 12^2, 13^2, 14^2, 15^2, 16^2, etc. proven composite by full algebraic factors. |
| **197** | 10 | 3, 11 |  | none - proven | 7 (249)  1 (31)  5 (10)  8 (4)  3 (4)  2 (2)  9 (1)  6 (1)  4 (1) |  |
| **198** | 3662 | 7, 13, 433 |  | 81, 172, 424, 464, 484, 529, 991, 1037, 1054, 1262, 1283, 1792, 1856, 1920, 2253, 2272, 2304, 2445, 2577, 2787, 2811, 2934, 3103, 3207, 3305, 3329, 3342, 3602, 3649 (all at n=100K) | 2661 (95399)  1284 (73379)  807 (50662)  2791 (48837)  2187 (43879)  2388 (43718)  848 (40132)  947 (36807)  3420 (35891)  1922 (31592) |  |
| **199** | 9 | 2, 5 | All k where k = m^2  and m = = 2 or 3 mod 5:  for even n let k = m^2  and let n = 2\*q; factors to:  (m\*199^q - 1) \*  (m\*199^q + 1)  odd n:  factor of 5 | none - proven | 1 (577)  7 (104)  3 (24)  8 (5)  5 (3)  6 (1)  2 (1) | k = 4 proven composite by partial algebraic factors. |
| **200** | 68 | 3, 67 |  | none - proven (with probable primes that have not been certified: k = 1) | 38 (131900)  58 (102363)  53 (45666)  51 (44252)  23 (31566)  19 (29809)  1 (17807)  13 (12053)  37 (597)  62 (126) |  |
| **256** | 100 | 3, 7, 13 | All k = m^2 for all n;  factors to:  (m\*16^n - 1) \*  (m\*16^n + 1) | none - proven | 74 (319)  47 (228)  42 (224)  92 (143)  68 (87)  61 (54)  35 (28)  65 (24)  70 (18)  75 (17) | k = 1, 4, 9, 16, 25, 36, 49, 64, and 81 proven composite by full algebraic factors. |
| **512** | 14 | 3, 5, 13 | All k = m^3 for all n;  factors to:  (m\*8^n - 1) \*  (m^2\*64^n + m\*8^n + 1) | none - proven | 4 (2215)  13 (2119)  9 (7)  11 (6)  6 (6)  5 (2)  3 (2)  2 (2)  12 (1)  10 (1) | k = 1 and 8 proven composite by full algebraic factors. |
| **1024** | 81 | 5, 41 | All k = m^2 for all n; factors to:  (m\*32^n - 1) \*  (m\*32^n + 1)  -or-  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) | 29, 31, 56, 61 (k = 29 at n=1M, other k at n=3K) | 74 (666084)  39 (4070)  43 (2290)  13 (1167)  78 (424)  65 (93)  69 (54)  3 (47)  71 (41)  44 (36) | k = 1, 4, 9, 16, 25, 32, 36, 49, and 64 proven composite by full algebraic factors. |