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Wilson

letter

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23 September 1992

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AT&T Bell Telephone Laboratories Inc.
Murray Hill, New Jersey 07974
201-582-3000, ext. 2005

Subject: A Handbook of Integer Sequences

Dear Dr. Sloane,

In the above referenced text, the most natural sequence is cited as simply "The Natural Numbers." It is SSN (for Sloane Sequence Nbr. and not for Social Security Nbr.) 173. There are fifteen elementary additional sequences that are all very simple. In fact, that is exactly what they are, the natural numbers, but not in the base Ten, but in bases two thru sixteen. Therefore; please consider the following sequences (all are to 101 terms for consistency) for your upcoming second edition:

Base 2: 1, 10, 11, 100, 101, 110, 111, 1000, 1001, 1010, 1011, 1100, 1101, 1110, 1111, 10000, 10001, 10010, 10011, 10100, 10101, 10110, 10111, 11000, 11001, 11010, 11011, 11100, 11101, 11110, 11111, 100000, 100001, 100010, 100011, 100100, 100101, 100110, 100111, 101000, 101001, 101010, 101011, 101100, 101101, 101110, 101111, 110000, 110001, 110010, 110011, 110100, 110101, 110110, 110111, 111000, 111001, 111010, 111011, 111100, 111101, 111110, 111111, 1000000, 1000001, 1000010, 1000011, 1000100, 1000101, 1000110, 1000111, 1001000, 1001001, 1001010, 1001011, 1001100, 1001101, 1001110, 1001111, 1010000, 1010001, 1010010, 1010011, 1010100, 1010101, 1010110, 1010111, 1011000, 1011001, 1011010, 1011011, 1011100, 1011101, 1011110, 1011111, 1100000, 1100001, 1100010, 1100011, 1100100, 1100101, ...

Base 3: 1, 2, 10, 11, 12, 20, 21, 22, 100, 101, 102, 110, 111, 112, 120, 121, 122, 200, 201, 202, 210, 211, 212, 220, 221, 222, 1000, 1001, 1002, 1010, 1011, 1012, 1020, 1021, 1022, 1100, 1101, 1102, 1110, 1111, 1112, 1120, 1121, 1122, 1200, 1201, 1202, 1210, 1211, 1212, 1220, 1221, 1222, 2000, 2001, 2002, 2010, 2011, 2012, 2020, 2021, 2022, 2100, 2101, 2102, 2110, 2111, 2112, 2120, 2121, 2122, 2200, 2201, 2202, 2210, 2211, 2212, 2220, 2221, 2222, 10000, 10001, 10002, 10010, 10011, 10012, 10020, 10021, 10022, 10100, 10101, 10102, 10110, 10111, 10112, 10120, 10121, 10122, 10200, 10201, 10202, ...

Base 4: 1, 2, 3, 10, 11, 12, 13, 20, 21, 22, 23, 30, 31, 32, 33, 100, 101, 102, 103, 110, 111, 112, 113, 120, 121, 122, 123, 130, 131, 132, 133, 200, 201, 202, 203, 210, 211, 212, 213, 220, 221, 222, 223, 230, 231, 232, 233, 300, 301, 302, 303, 310, 311, 312, 313, 320, 321, 322, 323, 330, 331, 332, 333, 1000, 1001, 1002, 1003, 1010, 1011, 1012, 1013, 1020, 1021, 1022, 1023, 1030, 1031, 1032, 1033, 1100, 1101, 1102, 1103, 1110, 1111, 1112,

1113, 1120, 1121, 1122, 1123, 1130, 1131, 1132, 1133, 1200, 1201, 1202,
1203, 1210, 1211, ...

Base 5: 1, 2, 3, 4, 10, 11, 12, 13, 14, 20, 21, 22, 23, 24, 30, 31, 32,
33, 34, 40, 41, 42, 43, 44, 100, 101, 102, 103, 104, 110, 111, 112, 113,
114, 120, 121, 122, 123, 124, 130, 131, 132, 133, 134, 140, 141, 142, 143,
144, 200, 201, 202, 203, 204, 210, 211, 212, 213, 214, 220, 221, 222, 223,
224, 230, 231, 232, 233, 234, 240, 241, 242, 243, 244, 300, 301, 302, 303,
304, 310, 311, 312, 313, 314, 320, 321, 322, 323, 324, 330, 331, 332, 333,
334, 340, 341, 342, 343, 344, 400, 401, ...

Base 6: 1, 2, 3, 4, 5, 10, 11, 12, 13, 14, 15, 20, 21, 22, 23, 24, 25,
30, 31, 32, 33, 34, 35, 40, 41, 42, 43, 44, 45, 50, 51, 52, 53, 54, 55, 100,
101, 102, 103, 104, 105, 110, 111, 112, 113, 114, 115, 120, 121, 122, 123,
124, 125, 130, 131, 132, 133, 134, 135, 140, 141, 142, 143, 144, 145, 150,
151, 152, 153, 154, 155, 200, 201, 202, 203, 204, 205, 210, 211, 212, 213,
214, 215, 220, 221, 222, 223, 224, 225, 230, 231, 232, 233, 234, 235, 240,
241, 242, 243, 244, 245, ...

Base 7: 1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23,
24, 25, 26, 30, 31, 32, 33, 34, 35, 36, 40, 41, 42, 43, 44, 45, 46, 50, 51,
52, 53, 54, 55, 56, 60, 61, 62, 63, 64, 65, 66, 100, 101, 102, 103, 104,
105, 106, 110, 111, 112, 113, 114, 115, 116, 120, 121, 122, 123, 124, 125,
126, 130, 131, 132, 133, 134, 135, 136, 140, 141, 142, 143, 144, 145, 146,
150, 151, 152, 153, 154, 155, 156, 160, 161, 162, 163, 164, 165, 166, 200,
201, 202, 203, ...

Base 8: 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21,
22, 23, 24, 25, 26, 27, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 42, 43, 44,
45, 46, 47, 50, 51, 52, 53, 54, 55, 56, 57, 60, 61, 62, 63, 64, 65, 66, 67,
70, 71, 72, 73, 74, 75, 76, 77, 100, 101, 102, 103, 104, 105, 106, 107, 110,
111, 112, 113, 114, 115, 116, 117, 120, 121, 122, 123, 124, 125, 126, 127,
130, 131, 132, 133, 134, 135, 136, 137, 140, 141, 142, 143, 144, 145, ...

Base 9: 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20,
21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41,
42, 43, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62,
63, 64, 65, 66, 67, 68, 70, 71, 72, 73, 74, 75, 76, 77, 78, 80, 81, 82, 83,
84, 85, 86, 87, 88, 100, 101, 102, 103, 104, 105, 106, 107, 108, 110, 111,
112, 113, 114, 115, 116, 117, 118, 120, 121, 122, ...

Base 10: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18,
19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37,
38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56,
57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75,
76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94,
95, 96, 97, 98, 99, 100, 101, ...

Base A: 1, 2, 3, 4, 5, 6, 7, 8, 9, A, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 1A, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 2A, 30, 31, 32, 33, 34,
35, 36, 37, 38, 39, 3A, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 4A, 50, 51,

52, 53, 54, 55, 56, 57, 58, 59, 5A, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69,
6A, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 7A, 80, 81, 82, 83, 84, 85, 86,
87, 88, 89, 8A, 90, 91, 92,

Base B: 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, 10, 11, 12, 13, 14, 15, 16,
17, 18, 19, 1A, 1B, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 2A, 2B, 30, 31,
32, 33, 34, 35, 36, 37, 38, 39, 3A, 3B, 40, 41, 42, 43, 44, 45, 46, 47, 48,
49, 4A, 4B, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 5A, 5B, 60, 61, 62, 63,
64, 65, 66, 67, 68, 69, 6A, 6B, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 7A,
7B, 80, 81, 82, 83, 84, 85,

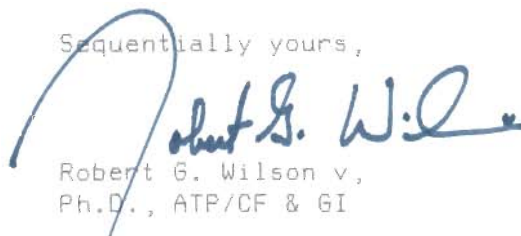
Base C: 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, 10, 11, 12, 13, 14, 15, 16,
17, 18, 19, 1A, 1B, 1C, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 2A, 2B, 2C,
30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 3A, 3B, 3C, 40, 41, 42, 43, 44, 45,
46, 47, 48, 49, 4A, 4B, 4C, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 5A, 5B,
5C, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 6A, 6B, 6C, 70, 71, 72, 73, 74,
75, 76, 77, 78, 79, 7A,

Base D: 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, 10, 11, 12, 13, 14, 15,
16, 17, 18, 19, 1A, 1B, 1C, 1D, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 2A,
2B, 2C, 2D, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 3A, 3B, 3C, 3D, 40, 41,
42, 43, 44, 45, 46, 47, 48, 49, 4A, 4B, 4C, 4D, 50, 51, 52, 53, 54, 55, 56,
57, 58, 59, 5A, 5B, 5C, 5D, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 6A, 6B,
6C, 6D, 70, 71, 72, 73,

Base E: 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, 10, 11, 12, 13, 14,
15, 16, 17, 18, 19, 1A, 1B, 1C, 1D, 1E, 20, 21, 22, 23, 24, 25, 26, 27, 28,
29, 2A, 2B, 2C, 2D, 2E, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 3A, 3B, 3C,
3D, 3E, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 4A, 4B, 4C, 4D, 4E, 50, 51,
52, 53, 54, 55, 56, 57, 58, 59, 5A, 5B, 5C, 5D, 5E, 60, 61, 62, 63, 64, 65,
66, 67, 68, 69, 6A, 6B,

Base F: 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, 10, 11, 12, 13,
14, 15, 16, 17, 18, 19, 1A, 1B, 1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26,
27, 28, 29, 2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39,
3A, 3B, 3C, 3D, 3E, 3F, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 4A, 4B, 4C,
4D, 4E, 4F, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 5A, 5B, 5C, 5D, 5E, 5F,
60, 61, 62, 63, 64, 65,

Sequentially yours,



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