PrimeFan's Listing of Esoteric Integer Sequences

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This is a listing of integer sequences that are esoteric yet interesting, at least to me. It is not at all meant as competition to Sloane's excellent Online Encyclopedia of Integer Sequences. Few of the sequences here are in Sloane's OEIS (or they were not in there at the time they were added here, in most cases) and I don't think they are of general interest. But then again, different people have different ideas of what is esoteric and what is of general interest. Would like to contribute a sequence to this listing? Details on that at the bottom of this page.

Some of the Mathematica commands given below assume that certain functions have been defined,

```
Mertens[x_] := Plus @@ MoebiusMu[Range[1, x]]
TriN[x_] := (1/2)(x^2 + x)
SPF[x_] := Take[Flatten[Take[FactorInteger[x]], 1], 1]
BPF[x_] := Take[Take[Flatten[FactorInteger[x]], -2], 1]
DigitalRoot[n_Integer?Positive] := FixedPoint[Plus @@ IntegerDigits[#] &, n]
```

as well as the following lists:

```
PiDigits50 = RealDigits[N[ Pi, 50]] [[1]]
SGPrimes = Select[Prime[Range[900]], PrimeQ[2# + 1] &]
SafePrimes = Select[Prime[Range[900]], PrimeQ[(# - 1)/2] &]
```

If a program has an object called Adddddd (where d are base 10 digits) it refers to a sequence from Sloane's OEIS. Enter (for example) "A012345 = { " then paste the contents of the Sequence: or Signed: field from the appropriate OEIS sequence, making sure to close with " } ".

Relating to Commerce in a Personal Way

MCKYD00001

Sequence

4001, 4003, 4005, 4007, 4008, 4009, 4011, 4013, 4014, 4016, 4017, 4019, 4020, 4021, 4023, 4024, 4025

Description

Location numbers of my game pieces in the McDonald's Monopoly Best Change Game 2.0. The two more significant digits (40) indicate this is the fourth time McDonald's has had this promotion, while the two less significant digits indicate the position of the piece on the game board (for example, 19 is North Carolina Avenue, 24 is Pennsylvania Railroad).

Comments

I have the maximum number of distinct pieces possible to still not win anything. I also had $47 in Best Buy Bucks, but that's money you pay to McDonald's, which McDonald's passes on to Best Buy.

TVCHN00002

Sequence

12, 14, 17, 99, 7, 26, 16, 4, 5, 3, 15

Description

Channels on the TV in my hospital room during my convalescence. At first I actually watched something on each of them. Fortunately, I'm well recovered now and the list of TV channels I watch now on my home TV is much shorter: ESPN and PBS.

Relating to Historical Circumstances

HISTLUSA50

Sequence

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

Description

Admission order of the *n*th alphabetical state of the United States.

Comments

Alabama is state 1, Alaska is state 2, ... Wyoming is state 50. This sequence is correct for the time period from 1960 to at least 2004.

References

World Almanac 2005

HISTUS2550

Sequence

212, 212, 212, 211, 211, 212, 212, 212, 212, 212, 213, 212, 211, 210, 209, 206, 199, 190, 186, 185, 185, 184, 183, 182, 167, 167, 159, 158, 156, 155, 154

Description

Difference between the year a state of the United States had its commemorative statehood quarter and the year it was admitted to the Union.

Comments

It is highly unlikely anything will derail the U.S. Mint's schedule. Nevertheless I prefer to stop at the state with the most recent quarter.

References

10-Year Schedule for Statehood Quarters at the U.S. Mint website.

Esoteric Relations of Number-Theoretic Functions

RNTFS00001

Sequence

1, 3, 40, 41, 59, 66, 94, 102, 146, 150, 151, 160, 161, 164, 165, 167, 215, 232, 233, 236, 237, 239, 255, 330, 332, 333, 334, 354, 356, 357, 359, 363, 364, 365, 367, 394, 402, 404, 405, 406, 408, 409, 414, 415, 420, 421, 423, 424, 425, 426, 428, 429, 538, 542, 608, 609, 636, 637, 638, 782, 786, 794, 796, 797, 799, 812, 813, 815, 824, 825, 826, 850, 851, 854, 870, 878, 884, 885, 887, 890, 894, 896, 897, 899, 904, 905, 907, 911, 914, 916, 917, 920, 921

Description

Numbers *n* for which the value of Möbius function and Mertens function are the same. On another page I list the values of Möbius function and Mertens function for the first 2500 integers.

Mathematica Command

```
Select[Range[1000], MoebiusMu[#] == Mertens[#] &]
```

RNTFS00002

Sequence

2, 101, 149, 163, 331, 353, 401, 419, 541, 607, 811, 823, 853, 877, 883, 919, 1013, 1279, 1289, 1291, 1297, 1523, 1531, 1543, 1861, 2017, 2099, 2113, 2309, 2689, 3607, 3613, 4603, 4637, 4723, 5107, 5113, 5197, 5261, 5849, 6011, 6067, 6089, 7187, 7853, 7877, 7879, 7901, 7907, 8011, 8017, 9001, 9013, 9203

Description

Prime Mertens function zeroes. This is a subset of Sloane's A028442.

Mathematica Command

```
Select[Range[10000], Mertens[#] == 0 && PrimeQ[#] &]
```

References

Article in the Wayne State student newspaper on Sloane's OEIS reaching the 100K milestone. »The OEIS works like a search engine. In the search box, one can enter a few terms of the sequence separated by either commas or spaces, for example, Ò5, 7, 11, 23, 47,Ó and it answers with all sequences it finds with those numbers, such as safe primes for the Diffie-Hellman data encryption algorithm in the example above. If a sequence, Ò2, 101, 149, 163,Ó for example, does not match anything in the database, the OEIS gives a link to a form to send the sequence in to Neil Sloane to look at.»

Comments

It was here first! Robert Happelberg sent it in to Sloane's OEIS on December 5, 2004, it's Sloane's A100669. Thanks for listing my humble webpage!

RNTFS00003

Sequence

3, 41, 59, 66, 102, 151, 165, 167, 233, 239, 255, 354, 357, 359, 367, 402, 406, 409, 421, 426, 429, 609, 638, 782, 786, 797, 826, 854, 885, 887, 890, 894, 897, 907, 911

Description

Numbers *n* for which the value of Möbius function and Mertens function are both -1. Subset of RNTFS00001.

Mathematica Command

```
Select[Range[1000], MoebiusMu[#] == -1 && Mertens[#] == -1 &]
```

RNTFS00004

Sequence

40, 150, 160, 164, 232, 236, 332, 333, 356, 363, 364, 404, 405, 408, 414, 420, 423, 424, 425, 428, 608, 636, 637, 796, 812, 824, 825, 850, 884, 896, 904, 916, 920

Description

Numbers *n* for which the value of Möbius function and Mertens function are both 0. Subset of RNTFS00001.

Mathematica Command

```
Select[Range[1000], MoebiusMu[#] == 0 && Mertens[#] == 0 &]
```

RNTFS00005

Sequence

1, 94, 146, 161, 215, 237, 330, 334, 365, 394, 415, 538, 542, 794, 799, 813, 815, 851, 870, 878, 899, 905, 914, 917, 921

Description

Numbers *n* for which the value of Möbius function and Mertens function are both 1. Subset of RNTFS00001.

Mathematica Command

```
Select[Range[1000], MoebiusMu[#] == 1 && Mertens[#] == 1 &]
```

RNTFS00006

Sequence

1, 5, 3, 25, 2, 16, 142857, 125, 1, 1, 9, 83, 76923, 714285, 6, 625, 588235294117646110, 5, 526315789473684210, 5, 47619, 45

Description

Reciprocal of n multiplied by 10 raised to period length, $1/n(10^p)$. Submitted by Anton Mravcek.

Comments

This is a problematic sequence. For a while I even thought of describing it as "$(10^p - 1)/n$ for primes and $10^p/n$ for others."

RNTFS00007

Sequence

1, 2, 3, 5, 5, 8, 7, 11, 10, 12, 11, 20, 13, 16, 17, 23, 17, 27, 19, 30, 23, 24, 23, 44, 26, 28, 31, 40, 29, 50, 31, 47, 35, 36, 37, 67, 37, 40, 41, 66, 41, 66, 43, 60, 57, 48, 47, 92, 50, 63

Description

Sum of divisors of n minus cototient of n.

Mathematica Command

```
Table[(Plus @@ Divisors[n]) - (n - EulerPhi[n]), {n, 50}]
```

RNTFS00008

Sequence

5, 11, 19, 29, 41, 5, 71, 89, 109, 131, 5, 181, 11, 239, 271, 5, 11, 379, 419, 461, 5, 19, 599, 11, 701, 5, 811, 11, 929, 991, 5, 19, 29, 1259, 11, 5, 1481, 1559, 11, 1721, 5, 31, 1979, 2069, 2161, 5, 2351, 31, 2549

Description

Smallest prime factor of $n^2 + (n - 1)$. First n is $n = 2$. This sequence is almost the same as smallest prime factor of $n^2 - (n + 1)$ Terms of this sequence that match Sloane's A028387 and are prime are listed in Sloane's A002327.

Mathematica Command

```
Flatten[Table[SPF[n^2 + (n - 1)], {n, 2, 50}]]
```

RNTFS00009

Sequence

7, 13, 3, 31, 43, 3, 73, 7, 3, 7, 157, 3, 211, 241, 3, 307, 7, 3, 421, 463, 3, 7, 601, 3, 19, 757, 3, 13, 7, 3, 7, 1123, 3, 13, 31, 3, 1483, 7, 3, 1723, 13, 3, 7, 19, 3, 37, 13, 3, 2551

Description

Smallest prime factor of $n^2 + (n + 1)$. First n is $n = 2$. This sequence is almost the same as smallest prime factor of $n^2 - (n - 1)$ Terms of this sequence that match Sloane's A002061, the central polygonal numbers, are prime and are listed in Sloane's A002383.

Mathematica Command

```
Flatten[Table[SPF[n^2 + (n + 1)], {n, 2, 50}]]
```

RNTFS00010

Sequence

11, 3, 31, 41, 3, 61, 71, 3, 7, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 3, 13, 23, 3, 43, 53, 3, 73, 83, 3, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 5

Description

Smallest prime factor of reversal of digits of n. First n is $n = 11$. Reversal of digits of n is listed in Sloane's A004086.

Mathematica Command

```
Flatten[Table[SPF[A004086[[n]]], {n, 11, 50}]]
```

RNTFS00011

Sequence

2, 3, 5, 7, 20, 21, 38, 39, 56, 57, 74, 75, 92, 93, 95, 110, 111, 128, 129, 133, 146, 147, 164, 165, 182, 183, 185, 200, 201, 218, 219, 236, 237, 254, 255, 259, 272, 273, 275, 290, 291, 308, 309, 326, 327, 344, 345, 362, 363, 365, 380, 381, 398, 399, 416, 417, 434, 435, 452, 453, 455, 470, 471, 488, 489, 506, 507, 511, 524, 525, 542, 543, 545, 560, 561, 578, 579, 596, 597, 614, 615, 632, 633, 635, 637, 650, 651, 668, 669, 686, 687, 704, 705, 722, 723, 725, 740, 741, 758, 759, 763, 776, 777, 794, 795, 812, 813, 815, 830, 831, 848, 849, 866, 867, 884, 885, 889, 902, 903, 905, 920, 921, 938, 939, 956, 957, 974, 975, 992, 993, 995

Description

Numbers m such that digital root of m matches smallest prime factor of m.

Comments

Alonso Delarte noticed that if you isolate the even numbers in this sequence, all terms are 18 apart. Looking at just the odd numbers this way, 18 shows up a lot, but not exclusively.

Mathematica Command

```
Select[Range[2, 1000], SPF[#] == {DigitalRoot[#]} &]
```

RNTFS00012

Sequence

2, 3, 5, 7, 12, 48, 50, 70, 128, 192, 196, 320, 448, 500, 700, 768

Description

Numbers n such that digital root of n matches largest prime factor of n.

Mathematica Command

```
Select[Range[2, 1000], BPF[#] == {DigitalRoot[#]} &]
```

RNTFS00013

Sequence

23, 47, 59, 83, 167, 839, 2099, 5879, 6719

Description

Safe primes that are also highly cototient numbers.

Mathematica Command

```
Intersection[SafePrimes, A100827]
```

RNTFS00014

Sequence

2, 23, 83, 89, 113, 419, 509, 659, 1049, 1889, 3359, 4409

Description

Sophie Germain primes that are also highly cototient numbers.

Mathematica Command

```
Intersection[SGPrimes, A100827]
```

RNTFS00015

Sequence

2, 3, 5, 3, 13, 5, 7, 73, 5, 241, 433, 13, 577, 7, 1153, 11, 43, 29, 7, 8641, 41, 11, 7, 30241, 17, 61, 47, 31, 13, 11, 103681, 73, 161281, 13, 7, 241921, 19, 41, 293, 11

Description

Smallest prime factor of the *n*th highly totient number plus 1.

Mathematica Command

```
SetAttributes[SPF, Listable]
Flatten[SPF[A097942 + 1]]
```

RNTFS00016

Sequence

2, 3, 5, 15, 13, 35, 65, 73, 185, 241, 433, 527

Description

Smallest totient answer for the *n*th highly totient number.

Comments

When a highly totient number is followed by that prime, that prime will obviously be the smallest totient answer for that particular highly totient number.

RNTFS00017

Sequence

4, 8, 8, 158, 788, 788, 210998, 5316098, 34415168, 703693778

Description

Smallest composite number such that the next *n* - 1 integers have the property that the list of smallest prime factors not in common with a smaller number of the set is the set of the first *n* prime numbers.

Comments

A simpler description for this sequence would be nice. If the description sounds confusing (and I bet it does), the chart below might help clarify the concept.

Integer	Factorization	Smallest unique prime factor
210998	2×105499	2
210999	$3 \times 61 \times 1153$	3
211000	$2^3 \times 5^3 \times 211$	5
211001	$7 \times 43 \times 701$	7
211002	$2 \times 3 \times 11 \times 23 \times 139$	11
211003	13×16231	13
211004	$2^2 \times 17 \times 29 \times 107$	17

RNTFS00018

Sequence

4, 9, 10, 161, 792, 793, 211004, 5316105, 34415176, 703693787

Description

Smallest composite number such that the previous *n* - 1 integers have the property that the list of smallest prime factors not in common with a smaller number of the set is the set of the first *n* prime numbers.

RNTFS00019

Sequence

3, 7, 13, 19, 31, 37, 67, 109, 127, 139, 157, 181, 199, 211, 307, 337, 379, 409, 487, 499

Description

Chen primes not of the form 3*n* - 1 (that is, not Eisenstein primes without imaginary parts).

Mathematica Command

```
Complement[A109611, A003627]
```

RNTFS00020

Sequence

3, 6, 30, 585, 870

Description

Value of *n*th Markov triple, with the Markov triples sorted in order by largest integer included.

RNTFS00021

Sequence

2, 5, 7, 13, 19, 31, 61, 181, 199

Description

"So not Stern primes," for lack of a better name. Primes q such that $q - 2n^2$ is prime for every $2n^2 < q$.

References

Laurent Hodges, *A lesser-known Goldbach conjecture*.

RNTFS00022

Sequence

5993, 6797, 59117, 59117, 87677, 148397

Description

The largest odd number that can be represented as the sum of a prime and twice a square in no more than $n - 1$ ways. First n is 1.

Comments

This sequence comes from Hodges's conjecture that for every number $n > 1$ there are only a finite number of odd integers that cannot be represented as the sum of a prime and twice a square in at least n ways. Hodges expects any further terms of this sequence to be congruent to 2 mod 3.

References

Laurent Hodges, *A lesser-known Goldbach conjecture*.

RNTFS00023

Sequence

3, 3, 13, 19, 55, 61, 139, 139, 181, 181, 391, 439, 559, 619, 619, 829, 859, 1069

Description

The smallest odd number that can be represented as the sum of a prime and twice a square in at least n ways.

Comments

Hodges expects any further terms of this sequence to be congruent to 1 mod 3 (as are all known terms except the 3s at the beginning).

References

Laurent Hodges, *A lesser-known Goldbach conjecture*.

RNTFS00024

Sequence

3, 139, 181, 619, 2 341, 3 331, 4 189, 4 801, 5 911, 6 319, 8 251, 9 751, 11311

Description

The smallest odd number that can be represented as the sum of a prime and twice a square in at least ways *n* for more than one value of *n*.

References

Laurent Hodges, *A lesser-known Goldbach conjecture*.

Sylvester-type Sequences

SYLVS00000

Sequence

0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Description

Sylvester-type sequence starting with 0. Submitted by Anton Mravcek.

Mathematica Command

```
Sylvester0 = Table[0, {20}]; Do[Sylvester0[[m]] = (Times @@ Sylvester0[[Range[n]]]) + 1, {m, 2, 20}, {n, m - 1}];
Sylvester0
```

Thanks to Alonso Delarte for this program.

Comments

Numerically, for *n* = 0 forward, this sequence is the same as Sloane's A057427. This sequence is undefined for negative *n*, while A057427(n) = -1 for all negative *n*.

For more sequences of this sort, see Sylvester-type sequences.

Relating to the Decimal Digits of π

Even though for most practical purposes you only need π to 10 or so decimal places (heck, I've even done some "good enough" estimates with π as exactly 3), professional and amateur mathematicians alike study π to hundreds or thousands, sometimes millions, of decimal places. Will all this help you design a better tire or bake a better cake? Probably not. So for this reason, I consider integer sequences based on the decimal digits of π to be esoteric.

For our purposes here, we will consider the integer part of π, 3, to belong to the sequence of decimal digits of π (as listed in Sloane's A000796) unless otherwise noted. We will consider that initial 3 to be at position 0, unless otherwise noted.

3141500001

Sequence

3, 31, 653, 4159, 14159

Description

First substring of n digits of π that spells a prime number. For example, for $n = 3$, the first substring of 3 digits, 314, is clearly not prime. Neither is 141, 415, and so on until we get to 653.

For more sequences of this sort, see Digits of π.

Powers of 2 Written in Other Bases

2POWR00036

Sequence

1, 2, 4, 8, G, W, 1S, 3K, 74, E8, SG, 1KW, 35S, 6BK, CN4, PA8, 1EKG, 2T4W, 5M9S, B8JK, MH34, 18Y68, 2HWCG, 4ZSOW, 9ZLDS, JZ6RK, 12YDJ4, 27WR28, 4FTI4G, 8VN08W, HRA0HS, ZIK0ZK, 1Z141Z4, 3Y238Y8, 7W4G7WG, FS8WFSW, VKHSVLS, 1R4ZLR7K, 3I9Z7IF4, 70JYF0U8, E13WU1OG

Description

Powers of 2 written in base 36. Submitted by Numerao.

Mathematica Command

```
BaseForm[Table[2^n, {n, 0, 40}], 36]
```

2POWR00047

Sequence

ア, イ, エ, ク, タ, ミ, アチ, イメ, オナ, コユ, ナリ, ヨヒ, アロキ, ウムセ, キテフ, セレケ, ヘマツ, アシソ, アシソラ, イネマノ, オイタウ, コエミカ, トケチシ, ロツメネ, アムリニア, ウトヒウイ, カヤクヤオ

Description

Powers of 2 written in base 47. Submitted by Alonso Delarte.

References

Hiragana & Katakana Reference

Comments

Since the characters 0 - 9 and A - Z are not enough for base 47, Japanese katakana are co-opted for this purpose. A is 1, I is 2, U is 3, E is 4 and O is 5. Then KA is 6, KI is 7, KU is 8, KE is 9 and KO is 10. Syllable groups with line changes are ignored for this purpose. So then we use SA for 11, TA for 16, NA for 21, HA for 26, MA for 31, RA for 36, YA for 41, YU for 42, YO for 43, WA for 44, WO for 45 and N for 46. Alonso Delarte suggested using a kanji for 0, but I prefer to keep it simple and use 0 here. As a digit it does not occur here like it does in base 10 and how it certainly does in base 2, but then again, I'm taking Alonso's word that this sequence is correct.

Figurate Numbers

NNGON00001

Sequence

1, 2, 6, 16, 35, 66, 112, 176, 261, 370, 506, 672, 871, 1106, 1380, 1696, 2057, 2466, 2926, 3440, 4011, 4642, 5336, 6096, 6925, 7826, 8802, 9856, 10991, 12210

Description

The n^{th} n-gonal number. First n is $n = 1$.

Comments

This one is already in Sloane's OEIS, it's A060354.

Of course 1- and 2-gonal numbers don't have much of a basis in geometric reality, but they are included here for the sake of completeness.

Mathematica Command

```
Table[((n - 2)n^2 + (n - 4)n)/2, {n, 50}]
```

NNGON00002

Sequence

0, 0, 3, 12, 30, 60, 105, 168, 252, 360, 495

Description

The n^{th} n-gonal number minus n.

Mathematica Command

After executing the command to calculate the n^{th} n-gonal number (see NNGON00001), execute this command:

```
Table[%[[n]] - n, {n, 50}]
```

CPOLY00047

Sequence

1, 48, 142, 283, 471, 706, 988, 1317, 1693, 2116, 2586, 3103, 3667, 4278, 4936, 5641, 6393, 7192, 8038, 8931, 9871, 10858, 11892, 12973, 14101, 15276, 16498, 17767, 19083, 20446, 21856, 23313, 24817, 26368, 27966, 29611, 31303, 33042, 34828, 36661, 38541, 40468, 42442, 44463, 46531, 48646, 50808, 53017, 55273, 57576

Description

Centered 47-gonal numbers.

Mathematica Command

```
Table[47*TriN[(n - 1)] + 1, {n, 50}]
```

PYRAM00047

Sequence

1, 48, 186, 460, 915, 1596, 2548, 3816, 5445, 7480, 9966, 12948, 16471, 20580, 25320, 30736, 36873, 43776, 51490, 60060, 69531, 79948, 91356, 103800, 117325, 131976, 147798, 164836, 183135, 202740, 223696, 246048, 269841, 295120, 321930, 350316, 380323, 411996, 445380, 480520, 517461, 556248, 596926, 639540, 684135, 730756, 779448, 830256, 883225, 938400

Description

Pyramidal 47-gonal numbers.

Mathematica Command

After executing the command to calculate regular 47-gonal numbers (see RPOLY00047), execute this command:

```
Table[Sum[%[[i]], {i, 1, n}], {n, 50}]
```

RPOLY00047

Sequence

1, 47, 138, 274, 455, 681, 952, 1268, 1629, 2035, 2486, 2982, 3523, 4109, 4740, 5416, 6137, 6903, 7714, 8570, 9471, 10417, 11408, 12444, 13525, 14651, 15822, 17038, 18299, 19605, 20956, 22352, 23793, 25279, 26810, 28386, 30007, 31673, 33384, 35140, 36941, 38787, 40678, 42614, 44595, 46621, 48692, 50808, 52969, 55175

Description

Regular 47-gonal numbers.

Mathematica Command

```
Table[(45n^2 - 43n)/2, {n, 50}]
```

Comments

Alonso Delarte points out that this sequence was on OEIS predating this listing. It's Sloane's A095311, added by Gary Adamson on June 2, 2004. The sequence is even discussed in an old book from the 1960s!

CPOLY01729

Sequence

1, 1730, 5188, 10375, 17291, 25936, 36310, 48413, 62245, 77806, 95096, 114115, 134863, 157340, 181546, 207481, 235145, 264538, 295660, 328511, 363091, 399400, 437438, 477205, 518701, 561926, 606880, 653563, 701975, 752116, 803986, 857585, 912913, 969970, 1028756, 1089271, 1151515, 1215488, 1281190, 1348621, 1417781, 1488670, 1561288, 1635635, 1711711, 1789516, 1869050, 1950313, 2033305, 2118026

Description

Centered 1729-gonal numbers. Submitted by Anton Mravcek.

Mathematica Command

```
Table[1729*TriN[(n - 1)] + 1, {n, 50}]
```

RPOLY01729

Sequence

1, 1729, 5184, 10366, 17275, 25911, 36274, 48364, 62181, 77725, 94996, 113994, 134719, 157171, 181350, 207256, 234889, 264249, 295336, 328150, 362691, 398959, 436954, 476676, 518125, 561301, 606204, 652834, 701191, 751275, 803086, 856624, 911889, 968881, 1027600, 1088046, 1150219, 1214119, 1279746, 1347100, 1416181, 1486989, 1559524, 1633786, 1709775, 1787491, 1866934, 1948104, 2031001, 2115625

Description

1729-gonal numbers.

Mathematica Command

```
Table[(1727n^2 - 1725n)/2, {n, 50}]
```

CPOLY69105

Sequence

1, 69106, 207316, 414631, 691051, 1036576, 1451206, 1934941, 2487781, 3109726, 3800776, 4560931, 5390191, 6288556, 7256026, 8292601, 9398281, 10573066, 11816956, 13129951, 14512051, 15963256, 17483566, 19072981, 20731501, 22459126, 24255856, 26121691, 28056631, 30060676, 32133826, 34276081, 36487441, 38767906, 41117476, 43536151, 46023931, 48580816, 51206806, 53901901, 56666101, 59499406, 62401816, 65373331, 68413951, 71523676, 74702506, 77950441, 81267481, 84653626

Description

Centered 69105-gonal numbers.

Mathematica Command

```
Table[69105*TriN[(n - 1)] + 1, {n, 50}]
```

RPOLY69105

Sequence

1, 69105, 207312, 414622, 691035, 1036551, 1451170, 1934892, 2487717, 3109645, 3800676, 4560810, 5390047, 6288387, 7255830, 8292376, 9398025, 10572777, 11816632, 13129590, 14511651, 15962815, 17483082, 19072452, 20730925, 22458501, 24255180, 26120962, 28055847, 30059835, 32132926, 34275120, 36486417, 38766817, 41116320, 43534926, 46022635, 48579447, 51205362, 53900380, 56664501, 59497725, 62400052, 65371482, 68412015, 71521651, 74700390, 77948232, 81265177, 84651225

Description

Regular 69105-gonal numbers.

Mathematica Command

```
Table[(69103n^2 - 69101n)/2, {n, 50}]
```

Chains of Digit Addition Generators

These sequences are of course infinite, but for my convenience, I only plan to go up to about 1000 in each chain, and up to the self number closest to 200.

The initial terms of the following sequences correspond to the self numbers (Sloane's A003052).

DAGCH00001

Sequence

1, 2, 4, 8, 16, 23, 28, 38, 49, 62, 70, 77, 91, 101, 103, 107, 115, 122, 127, 137, 148, 161, 169, 185, 199, 218, 229, 242, 250, 257, 271, 281, 292, 305, 313, 320, 325, 335, 346, 359, 376, 392, 406, 416, 427, 440, 448, 464, 478, 497, 517, 530, 538, 554, 568, 587, 607, 620, 628, 644, 658, 677, 697, 719, 736, 752, 766, 785, 805, 818, 835, 851, 865, 884, 904, 917, 934, 950, 964, 983, 1003

Description

Chain of digit addition generators with initial term 1. After initial term, each term is equal to the previous term plus the sum of its digits.

Mathematica Command

```
searchMax = 1000; dagChain1 = {1}; For[n = 1, dagChain1[[n]] < searchMax, n++, dagResult = dagChain1[[n]] + (Plus @@ IntegerDigits[dagChain1[[n]]]); dagChain1 = Flatten[{dagChain1, dagResult}]]; dagChain1
```

Thanks to Alonso Delarte for this program. He writes that this program can easily be modified for any other digit addition generator chain, and in fact, I have used it for each of the following chains.

Comments

This sequence is Sloane's A004207.

For more sequences of this sort, see Digit Addition Generator Chains.

Fraction Numerators and Denominators

These are sequences of fractions split into numerators and denominators, in much the same way as is done in the OEIS. I usually use an arbitrary cut-off of 50.

FRACT1729N

Sequence

1, 2, 3, 4, 5, 6, 1, 8, 9, 10, 11, 12, 1, 2, 15, 16, 17, 18, 1, 20, 3, 22, 23, 24, 25, 2, 27, 4, 29, 30, 31, 32, 33, 34, 5, 36, 37, 2, 3, 40, 41, 6, 43, 44, 45, 46, 47, 48, 7, 50

Description

Numerators of *n*/1729.

FRACT1729N

Sequence

1729, 1729, 1729, 1729, 1729, 1729, 247, 1729, 1729, 1729, 1729, 1729, 133, 247, 1729, 1729, 1729, 1729, 91, 1729, 247, 1729, 1729, 1729, 1729, 133, 1729, 247, 1729, 1729, 1729, 1729, 1729, 1729, 247, 1729, 1729, 91, 133, 1729, 1729, 247, 1729, 1729, 1729, 1729, 1729, 1729, 247, 1729

Description

Denominators of *n*/1729.

Arising From Various Numerical Representations

NUREP01464

Sequence

MCDXLIV, MCDXLVI, MCDLXIV, MCDLXVI, MDCXLIV, MDCXLVI, MDCLXIV, MDCLXVI

(1444, 1446, 1464, 1466, 1644, 1646, 1664, 1666)

Description

Numbers that in Roman numerals use every numeral exactly once and in a valid way. Submitted by Robert Happelberg.

Comments

Numbers like 1364 are not in this sequence. We could certainly try to parse a combination like CMDXLIV (1364), but this is a combination that would have never arisen in the ancient Roman times. (Some other invalid combinations, however, do yield numbers that are in this sequence, e.g., CMXDILV, which can be parsed as 1444).

NUREP08968

Sequence

0, 6, 8, 9, 69, 88, 96, 609, 689, 808, 906, 986, 6009, 6889, 8008, 8698, 8888, 8968, 9006, 9886

Description

Numbers that are strobogrammatic in base 10 written in ASCII using a Base 14 font such as Times New Roman or Courier New.

Comments

This is a subset of Sloane's A000787 which is plainly called "strobogrammatic numbers" but would be more properly called "strobogrammatic numbers written in a font where the digits 1, 6, 8 and 9 are strobogrammatic."

NUREP08869

Sequence

60, 68, 80, 86, 89, 90, 98, 600, 606, 608, 660, 666, 668, 669, 680, 686, 688, 690, 696, 698, 699, 800, 806, 809, 860, 866, 868, 869, 890, 896, 898, 900, 908, 909, 960, 966, 968, 969, 980, 988, 990, 996, 998, 999

Description

Numbers that are quasi-strobogrammatic (read like a different number upside down, but still a valid one in the representational scheme) in base 10 written in ASCII using a Base 14 font such as Times New Roman or Courier New.

Comments

The only practical use for this sequence, as far as I can tell, is in contexts where a number might need to read upside down, such as on lottery balls and aircraft carriers. In such cases, it becomes necessary to draw a line under the number, or if possible, to write out the number in words as well as numerals to avoid any confusion.

NUREPGR136

Sequence

136, 138, 146, 148, 156, 158, 163, 164, 165, 167, 169, 176, 178, 183, 184, 185, 186, 187, 189, 196, 198, 236

Description

Numbers whose digits have all possible different heights when written in a font like Georgia.

NUREPGRG12

Sequence

0, 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

Description

Numbers that are the same height as a lowercase x when written in a font like Georgia.

Comments

Interestingly, this sequence is in Sloane's OEIS, A007089, but arising out of a different problem of numerical representation.

NUREPGRG34

Sequence

3, 4, 5, 7, 9, 33, 34, 35, 37, 39, 43, 44, 45, 47, 49, 53, 54, 55, 57, 59, 73, 74, 75, 77, 79, 93, 94, 95, 97, 99

Description

Numbers that are the same height as a lowercase x when written in a font like Georgia.

NUREPGRG68

Sequence

6, 8, 66, 68, 86, 88, 666, 668, 686, 688, 866, 868, 886, 888

Description

Numbers that are the same height as a capital letter when written in a font like Georgia.

NUREPUPRIM

Sequence

200, 202, 204, 205, 206, 208, 320, 322, 324, 325, 326, 328, 510, 512, 514, 515, 516, 518, 620, 622, 624, 625, 626, 628, 840, 842, 844, 845, 846, 848, 890, 892, 894, 895, 896, 898

Description

Unprimeable numbers in base 10, composite numbers that can't be turned prime by changing just one digit.

Comments

If changing two digits is allowed, then all of these are primeable. All the odd numbers in this sequence, at least in the range I've examined, end in 5. At this point I can't answer the question: is there an odd unprimeable number ending in 1, 3, 7 or 9?

Web Dependent

WEBDE00001

Sequence

226, 234, 241, 249, 250, 258, 269, 277, 278, 281, 287, 293, 295, 298, 299, 304, 305, 306, 316, 324, 326, 329, 331, 332, 334, 338, 339, 346, 348, 349, 356, 361, 363, 368, 378, 380, 386, 387, 388, 389, 391, 393, 394, 395, 396, 397, 398

Description

Numbers with question marks (???) in What's Special About This Number? as of September 21, 2004. Submitted by Robert Happelberg.

WEBDE00002

Sequence

134, 136, 138, 139, 141, 143, 146, 148, 149, 152, 154, 156, 158, 159, 161, 162, 164, 165, 166, 168, 171, 172, 173, 174

Description

Integers without articles in Wikipedia's List of numbers as of December 13, 2004.

Comments

Of course this sequence is infinite. The English Wikipedia will probably eventually have articles on every integer between -1 and +1024. Only very few integers beyond that range will get their own articles.

WEBDEOEIS1

Sequence

1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 2

Description

Term a(1) in Sloane's Online Encyclopedia of Integer Sequences sequence A*n*.

Comments

Although this sequence is finite, it is still (being at least 100000 terms) too long to list here. I looked at the first twenty sequences. A(1) of A000004, A000014 are both zeroes, while A(1) of A000020 is 2. This sequence is now itself in the OEIS, A100544.

WEBDEOEIS2

Sequence

1, 2, 3, 5, 6, 8, 10, 14, 16, 19, 26, 27, 36, 37

Description

Sequences in Sloane's Online Encyclopedia of Integer Sequences in which the A number is a member of the sequence (leading zeroes ignored).

Comments

For example, Sloane's A002808 lists composite numbers. We can be sure 2808 is a composite number, even though it's not displayed in the sequence field. (Though of course it makes it easier for me if the number is small enough, or has an index small enough, to be listed in the sequence field).

I don't know how to compute A000019, the number of primitive groups of degree *n*, but I followed the link entitled "The first 1000 terms," and sure enough, 19 occurs a couple of times after the last number listed in the sequence field.

This one was in the OEIS long before it was here. It's A053873.

WEBDEOEIS3

Sequence

4, 7, 9, 11, 12, 13, 15, 17?, 18, 20, 21, 22, 23, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 38, 39, 40, 41, 42, 43

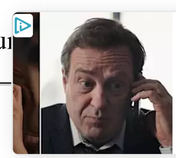
Description

Sequences in Sloane's Online Encyclopedia of Integer Sequences in which the A number is not a member of the sequence (leading zeroes ignored).

Comments

This one was in the OEIS long before it was here. It's A053169.

For example, Sloane's A000040 lists the prime numbers, but 40 is itself not a prime nu



WEBDEOEIS4

Sequence

4, 7, 12, 35, 56, 66, 82, 118, 132, 141, 143, 144, 145, 152, 156, 252, ..., 290, ..., 384, ..., 567, ..., 578, 580, 581, 582, 583, 584, ..., 1014, 1015, ..., 1106, 1107, ..., 2808, ..., 8586, 8588, 8590, 8591, 8592, 8594, 8596, 8597, 8598, 8600, 8602, ..., 18252, ..., 97785, ..., 100766, 100767, ..., 105416

Description

Sequences in Sloane's Online Encyclopedia of Integer Sequences that are primefree.

Comments

Ten different people wrote me to point out that I had mistakenly included 566 in the list. Numerao's e-mail had the earliest timestamp, so he gets the credit for the correction. Thanks for pointing out my mistake. I have now corrected it.

Alonso Delarte, relayed a question as to whether or not terms beyond the "clipping" range count, to which I reply, yes, they do. Thus, if Paul Hoffman's inverted version of the Wilf primefree sequence was in the OEIS, its A number would not be a member of this sequence. That even though there would only be room to display about the first half dozen terms or so, which are large composite numbers. (Eric W. Weisstein, of Mathworld, had long ago noticed that the 138th term of that sequence is a prime).

At about the same time I received the fifth e-mail with the correction, this sequence was added to the OEIS as A111157. There, only the terms up to 252 are listed, as ellipses are not allowed in the OEIS (I too hesitated to use them, but I can afford to be informal). If you have the time and the inclination to eliminate any of these ellipses, feel free to e-mail me (but if you eliminate the first ellipse, contact the OEIS first).

In case you're wondering, 111157 is now a term of A053169.

For a professional mathematician, the term "primefree" refers specifically to a Fibonacci-like sequence that does not contain primes, such as Wilf's $a_1 = 20615674205555510$, $a_2 = 3794765361567513$, $a_n = a_{n-1} + a_{n-2}$. I use the term for any sequence that does not contain primes, even if the lack of primes is a trivial consequence of the definition of the sequence (for example, the sequence of multiples of 4, A008586).

For the sake of this sequence, I regard 1 as not a prime number.

Relating to Sports

MLBNL00001

Sequence

16, 6, 9, 9, 9, 12, 10, 12, 7, 10, 21, 14, 19, 19, 24, 12, 12, 8, 12, 15

Description

Homeruns batted by National League homerun leader in the year 1900 + n.

MLBAL00002

Sequence

13, 16, 13, 10, 8, 12, 8, 7, 9, 10, 9, 10, 13, 9, 7, 12, 9, 11, 29, 54

Description

Homeruns batted by American League homerun leader in the year 1900 + n.

Relating to Science Fiction

SCIFI01985

Sequence

1985, 1955, 1985, 2015, 1985, 1955, 1885, 1985

Description

The years Marty McFly travels through in the *Back To The Future* trilogy.

SCIFI02369

Sequence

1969, 1972, 1984, 1996

Description

Years travelled to by a Federation starship which correspond to the present year when the *Star Trek* episode aired or the movie premiered.

Comments

I'm not entirely sure this sequence is correct, so I'm hoping a *Star Trek* fan will write in and set the record straight.

If you would like to add a sequence to this listing, you can e-mail me at primefan@yahoo.com. If the sequence appears to be of limited practical value and I find it interesting, I will add it. But if on the other hand, it appears to be of high practical value, I will recommend to you that you submit it to Sloane's OEIS.
