Cinquante signes

Prime bayonets

mai 03, 2022

El Tres de Mayo, Francisco de **Goya**

We extend the sequence S with the smallest integer a(n+1) not yet present in S such that a(n) and a(n+1) form a «prime bayonet»:

```
123
..124
```
123 and 124 form such a bayonet as 31 (in yellow) is prime

The same construction works in this way:

```
..124
123
```
as 13 is prime

If we extend S with a(n+1) although only one of the two above constructions works, we are happy:

```
..125
124
```
doesn't work (as 14 is not prime) but

```
124
..125
```
works (as 41 is prime). We can thus extend S with a(n+1) = 125.

Note that no bayonet is possible if a(n) ends in zero (we don't accept primes with a leading 0, like 05).
The sequence S could start with unorthodox (but sound) bayonets like this:

S = 1, 3, 2, 9, 5, 31, 4, 7, 6, 11, ...

as the successive prime bayonets are:
13, 23, 29, 59, 53, 41, 47, 67, 61, ...

The above bayonets could be named «single prime bayonets»; what about «double prime bayonets»? We would then have a(n+1) and a(n) that vertically form two primes:

```
123
 31
```
123 and 31 form such a «double bayonet» as 23 and 31 are primes; but the hereunder construction is not admitted:

```
123
.941
```
as 29 is prime but not 34 (or 43 is prime but not 92). This is because attaching a bayonet to a rifle induces a «reading direction» that must be the same for the

two primes.

The seq D of «double prime bayonets» starts like this (if I'm not wrong):
D = 11, 13, 12, 19, 15, 33, 14, 17, ...

as the successive primes we get are:
(11,13), (11,23), (11,29), (11,59), (13,53), (13,43), (11,47), ...

As always, ideas and variants welcomed!
Best,
É.

P.-S.
The Third of May (today, Belgian time) is explained here.

P.-S. 2
Maximilian H. and **Carole** D. were quick to correct the above page and propose this:

https://oeis.org/A350831
S = 1, 3, 2, 9, 5, 31, 4, 7, 6, 11, 12, 32, 33, 8, 34, 13, 14, 15, 35, 36, 16, 17, 18, 37, 19, 21, 38, 39, 22, 91, 41, 42, 92, 93, 23, 24, 71, 43, 25, 94, 72, 95, 96, 73, 26, 74, 75, 97, 44, 76, 77, 45, 98, 99, 27, 46, 78, 301, 47, 48, 302, 303, 28, 304, 79, 29, 51, 49, 52, 305, 306, 101, 61, 62, 307, 63, 53, 54, 102, 308, 309, 55, 311, 64, 103, 56, 104, 105, 312, 313, 57, 65, 314, 106, 107, 66, 108, 315, 316, 109, 58, 317, 67, 68, 318, 319, 59, 81, 69, 82, 321, 111, 112, 322, 323, 83, 84, 113, 85, 324, 114, 115, 325, 326, 116, 117, 118, 327, 119, 86, 121, 122, 328, 329, 87, 123, 88, 331, 124, 125, 332, 333, 89, 126, 127, 128, 334, 129, 131, 132, 335, 336, 133, 134, 135, 337, 136, 137, 138, 338, 339, 139, 141, 142, 341, 143, 144, 145, 342, 343, 146, 147, 148, 344, 149, 151, 152, 345, 346, 153, 154, 155, 347, 156, 157, 158, 348, 349, 159, 161, 162, 351, 163, 164, 165, 352, 353, 166, 167, 168, ...

https://oeis.org/A350832
D = 11, 13, 12, 19, 15, 33, 14, 17, 16, 31, 21, 37, 23, 91, 24, 93, 18, 39, 22, 99, 25, 331, 26, 97, 29, 371, 34, 71, 36, 77, 41, 73, 32, 79, 35, 131, 27, 311, 43, 111, 44, 112, 132, 133, 28, 332, 134, 113, 38, 135, 136, 114, 115, 137, 46, 116, 117, 49, 171, 47, ...

Many thanks to all!

MFH *3 mai 2022 à 18:20*

If I understood well, it should be S = 1, 3, 2, 9, 5, 31, 4, 7, 6, 11, ... (4 before 7, 11 after 6).
I think we can conjecture that the sequence contains all non-multiples of 10.

RÉPONDRE

MFH *3 mai 2022 à 18:55*

For the double bayonets, I get D(5)=15 instead of 17, with primes (11,59).
More terms: D=11, 13, 12, 19, 15, 33, 14, 17, 16, 31, 21, 37, 23, 91, 24, 93, 18, 39, 22, 99, 25, 331, 26, 97, 29, 371, 34, 71, 36, 77, 41, 73, 32, 79, 35, 131, 27, 311, 43, 111, 44, 112, 132, 133, 28, 332, 134, 113, 38, 135, 136, 114, 115, 137, 46, 116, 117, 49, 171, 47, 118, 138, 139, 42, 191, 51, 312, 192, 731, 53, 313, 45, 193, 52, 333, 48, 194, 711, 61, 119, 62, 195, 732, 196, 712, 197, 54, 314, 172, 198, 733, 55, 334, 173, 64, 174, 175, 199, 57, ...

RÉPONDRE

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A square for three (chess)

juin 22, 2024

(English translation after the French text) Voici cinq problèmes d'échecs disjoints : a) combien faut-il de coups au minimum pour que trois pions soient capturés sur la même case ? b) trois tours c) trois c ...

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Le tripalin se présente

avril 11, 2024

Un tripalin est constitué de trois images. Chaque image illustre un substantif. Accolés, ces trois substantifs forment une chaîne palindromique. Laquelle nous vous invitons à trouver. Exem ...

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Some strings au cinéma Galeries

juillet 19, 2024

Lettre ouverte au cinéma Galeries Bonsoir à tous, Je viens de voir pour la seconde fois chez vous le beau film de Léos Carax (la première fois c'était le 26 juin en présence du

réalisateur, au BRIFF). Apparut à l'écran aujourd'hui, avant la projection propre ...

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