

Polar circularity recover original list

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(* Lista de somas consecutivas fornecida *)

```
consecutiveSums = {1.000, 0.*10^-4, 0.*10^-4, 2.000, -2.000, 10.000, -10.000,  
  4.000, 4.000, -4.000, 4.000, 0.*10^-4, -8.000, 0.*10^-4,  
  6.000, -2.000, 0.*10^-4, 4.000, -4.000, 0.*10^-4,  
  -2.000, -2.000, 8.000, -6.000, 0.*10^-4, 4.000,  
  -4.000, 8.000, -6.000, 10.000, -6.000, -6.000,  
  14.000, -16.000, 4.000, -4.000, 8.000, 0.*10^-4,  
  -8.000, 22.000, -12.000, -10.000, 6.000, 2.000,  
  12.000, -12.000, 10.000, -14.000, 12.000, -10.000,  
  2.000, -2.000, -6.000, 4.000, 10.000, -10.000,  
  -4.000, 12.000, 4.000, -14.000, 0.*10^-4, 2.000};
```

(* Função para recuperar a lista original *)

```
recoverOriginal[consecutiveSums_] := Module[{n = Length[consecutiveSums], originalList},  
  originalList = Table[0, {n + 1}]; (* Cria uma lista para armazenar os valores recuperados *)  
  originalList[[1]] = consecutiveSums[[1]]; (* Define o primeiro elemento *)
```

(* Recupera os elementos originais usando as somas consecutivas *)

```
Do[  
  originalList[[i + 1]] = consecutiveSums[[i]] - originalList[[i]],  
  {i, 1, n - 1}  
];
```

originalList

```
];
```

(* Recupera a lista original a partir das somas consecutivas *)

```
recoveredOriginalList = recoverOriginal[consecutiveSums];
```

(* Exibe a lista original recuperada *)

recoveredOriginalList

Explicação do Código:

Lista de Somas: A lista

consecutiveSums

```
{1.,0.,0.,0.,2.,-4.,14.,-24.,28.,-24.,20.,-16.,16.,-24.,24.,-18.,16.,-16.,20.,-24.,24.,-26.,24.,-16.,10.,-10.,14.,-18.,26.,-32.,42.,-48.,42.,-28.,12.,-8.,4.,4.,-4.,-4.,26.,-38.,28.,-22.,24.,-12.,0.,10.,-24.,36.,-46.,48.,-50.,44.,-40.,50.,-60.,56.,-44.,48.,-62.,62.,0}
```

do Explicação (Código:de Lista Somas:A lista)

```
{1.,0.,0.,2.,-2.,10.,-10.,4.,4.,-4.,4.,0.,-8.,0.,6.,-2.,0.,4.,-4.,0.,-2.,-2.,8.,-6.,0.,4.,-4.,8.,-6.,10.,-6.,-6.,14.,-16.,4.,-4.,8.,0.,-8.,22.,-12.,-10.,6.,2.,12.,-12.,10.,-14.,12.,-10.,2.,-2.,-6.,4.,10.,-10.,-4.,12.,4.,-14.,0.,2.}
```

The next lines show a positive successful result :

(* Function to sum until two elements, storing intermediate steps with normalization *)

```
sumUntilTwoElementsWithNormalization[consecutiveSums_] := Module[{sums = consecutiveSums, steps = {}},
```

```
While[Length[sums] > 2,
```

```
AppendTo[steps, sums];
```

```
sums = Table[
```

```
Module[{sum = sums[[i]] + sums[[i + 1]]},
```

```
(* Normalize the sum to be within 1 or 2 digits *)
```

```
If[Abs[sum] >= 10, sum = Mod[sum, 10]];
```

```
sum
```

```
], {i, 1, Length[sums] - 1}];
```

```
];
```

```
{sums, steps}
```

```
];
```

(* Reverse the process to get original list with correct length *)

```

reverseSumUntilTwoElementsWithNormalization[finalSums_, steps_, originalLength_] :=
Module[{currentSums = finalSums, reversed = {}},

Do[

currentSums = Flatten[Table[

Module[{sum = steps[[i, j]], diff = currentSums[[j + 1]] - steps[[i, j]]},

(* De-normalize the sum if needed *)

If[Abs[diff] >= 10, diff = diff + 10];

sum

], {j, Length[currentSums] - 1}

]];

PrependTo[reversed, currentSums];

, {i, Length[steps], 1, -1}

];

(* Limit the reversed list to the original length *)

Take[Flatten[{First[steps], reversed}], originalLength]

];

```

(* Provide the consecutive sums list *)

```
consecutiveSums = {1, 0, 0, 2, -2, 10, -10,
```

```
4, 4, -4, 4, 0, -8, 0,
```

```
6, -2, 0, 4, -4, 0,
```

```
-2, -2, 8, -6, 0, 4,
```

```
-4, 8, -6, 10, -6, -6,
```

```
14, -16, 4, -4, 8, 0,
```

```
-8, 22, -12, -10, 6, 2,
```

```
12, -12, 10, -14, 12, -10,
```

```
2, -2, -6, 4, 10, -10,
```

```
-4, 12, 4, -14, 0, 2};
```

(* Execute the function to sum and store intermediate steps *)

```
result = sumUntilTwoElementsWithNormalization[consecutiveSums];
```

```
(* Extract final sums and steps *)
```

```
finalSums = First[result];
```

```
steps = Last[result];
```

```
(* Display the final sums *)
```

```
finalSums
```

```
(* Execute the function to reverse the process *)
```

```
originalSums = reverseSumUntilTwoElementsWithNormalization[finalSums, steps,  
Length[consecutiveSums]];
```

```
(* Display the original sums with the correct length *)
```

```
originalSums
```

```
{3, 6}
```

```
{1, 0, 0, 2, -2, 10, -10, 4, 4, -4, 4, 0, -8, 0, 6, -2, 0, 4, -4, 0, \  
-2, -2, 8, -6, 0, 4, -4, 8, -6, 10, -6, -6, 14, -16, 4, -4, 8, 0, -8, \  
22, -12, -10, 6, 2, 12, -12, 10, -14, 12, -10, 2, -2, -6, 4, 10, -10, \  
-4, 12, 4, -14, 0, 2}
```

```
n = 1002;(* Gerar a lista dos primeiros n números primos *)
```

```
n1=1000;
```

```
primos = Prime[Range[n1]];(* Calcular a diferença entre cada número primo e sua posição *)
```

```
diferencas = primos - Range[n1];(* Calcular a média das diferenças *)
```

```
a=Differences[%]
```

```
diferencas1 = primos - Range[n];(* Calcular a média das diferenças *)
```

```
a1=Differences[%]
```

```
(* Exemplo de diferenças (para fins ilustrativos) *)
```

```
differences = a; (* Substitua pelas suas diferenças reais *)
```

(* Inicializar uma lista para armazenar os números primos reconstruídos *)

```
reconstructedPrimes = diferencas;
```

(* Adicionar a posição correspondente para reconstruir os números primos originais *)

```
reconstructedPrimes = reconstructedPrimes + diferencas;
```

(* Exibir o resultado *)

```
reconstructedPrimes
```

```
Length[%]
```

```
ListLinePlot[a]
```

```
ListLinePlot[reconstructedPrimes]
```

```
Length[reconstructedPrimes]
```

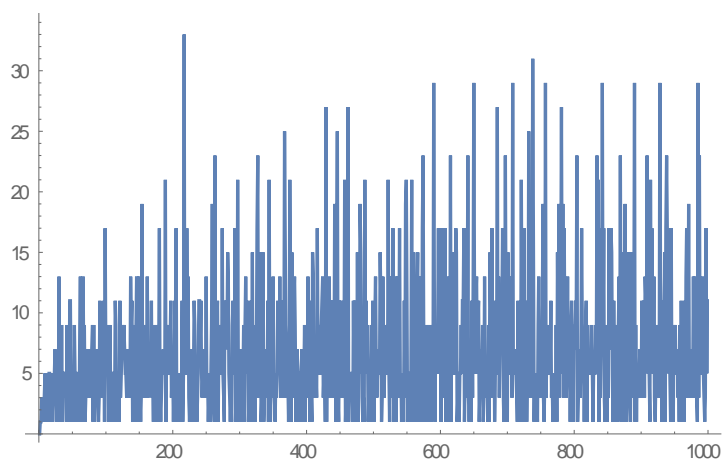
```
Length[diferencas]
```

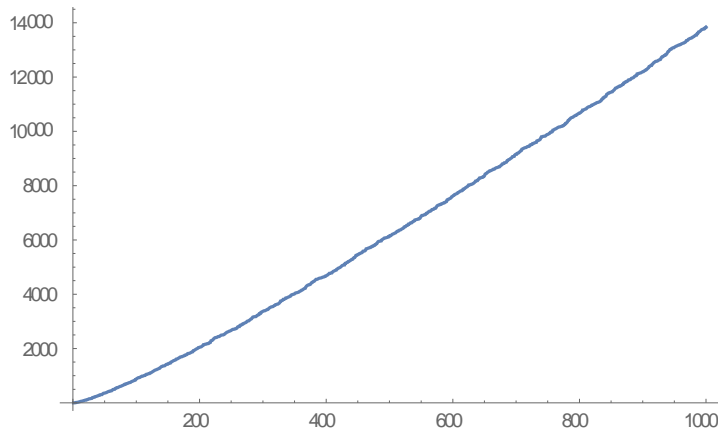
```
sa=(reconstructedPrimes/2)+1000
```

```
Position[%,7919]
```

```
as=Prime[Range[1000]]
```

```
as-as
```





sa={1001,1001,1002,1003,1006,1007,1010,1011,1014,1019,1020,1025,1028,1029,1032,1037,1042,1043,1048,1051,1052,1057,1060,1065,1072,1075,1076,1079,1080,1083,1096,1099,1104,1105,1114,1115,1120,1125,1128,1133,1138,1139,1148,1149,1152,1153,1164,1175,1178,1179,1182,1187,1188,1197,1202,1207,1212,1213,1218,1221,1222,1231,1244,1247,1248,1251,1264,1269,1278,1279,1282,1287,1294,1299,1304,1307,1312,1319,1322,1329,1338,1339,1348,1349,1354,1357,1362,1369,1372,1373,1376,1387,1394,1397,1404,1407,1412,1423,1424,1441,1446,1455,1460,1465,1466,1471,1480,1485,1490,1491,1496,1501,1504,1505,1516,1525,1526,1529,1534,1539,1540,1551,1554,1559,1566,1575,1582,1591,1598,1603,1608,1611,1618,1623,1626,1633,1636,1649,1658,1669,1670,1679,1680,1683,1684,1693,1706,1709,1710,1713,1726,1729,1730,1733,1752,1755,1762,1771,1778,1781,1786,1791,1804,1807,1812,1817,1824,1829,1840,1843,1848,1849,1858,1859,1864,1873,1874,1883,1884,1889,1906,1909,1910,1913,1918,1923,1930,1935,1940,1961,1962,1971,1978,1987,1992,1997,2004,2015,2018,2023,2028,2029,2034,2045,2054,2071,2072,2075,2080,2081,2086,2089,2090,2093,2104,2105,2110,2143,2148,2153,2160,2177,2186,2199,2202,2203,2206,2211,2218,2221,2222,2227,2238,2247,2248,2251,2252,2255,2260,2271,2282,2289,2300,2305,2308,2313,2320,2323,2330,2333,2346,2349,2354,2355,2358,2363,2364,2369,2378,2397,2402,2405,2406,2429,2432,2433,2442,2453,2454,2463,2470,2475,2480,2485,2502,2507,2510,2511,2522,2531,2542,2549,2564,2577,2582,2585,2586,2589,2590,2599,2610,2615,2620,2637,2638,2653,2654,2675,2680,2687,2692,2695,2696,2699,2706,2711,2720,2721,2730,2743,2752,2757,2768,2769,2772,2773,2782,2793,2794,2809,2810,2815,2818,2819,2828,2835,2852,2875,2878,2883,2890,2905,2906,2909,2916,2931,2932,2935,2942,2947,2952,2955,2966,2967,2988,2993,2994,2999,3002,3007,3020,3025,3028,3029,3034,3037,3042,3053,3058,3063,3076,3079,3084,3095,3102,3107,3110,3135,3152,3161,3168,3171,3176,3177,3182,3203,3214,3215,3230,3237,3240,3251,3264,3273,3274,3277,3284,3289,3294,3297,3298,3301,3306,3313,3316,3317,3322,3331,3332,3341,3348,3351,3364,3373,3384,3385,3390,3393,3394,3409,3422,3425,3430,3437,3442,3445,3462,3469,3478,3483,3488,3495,3504,3515,3528,3531,3536,3541,3542,3569,3570,3579,3586,3589,3602,3605,3612,3623,3628,3639,3642,3647,3666,3675,3676,3691,3716,3719,3720,3731,3736,3739,3750,3755,3762,3765,3772,3793,3794,3797,3798,3809,3836,3837,3842,3847,3852,3855,3860,3861,3872,3875,3886,3887,3896,3897,3912,3913,3928,3933,3952,3967,3974,3977,3978,3981,3982,4003,4010,4021,4026,4035,4036,4039,4044,4045,4050,4059,4060,4071,4080,4081,4090,4103,4108,4111,4116,4123,4128,4133,4148,4159,4160,4163,4176,4181,4184,4191,4200,4207,4212,4217,4238,4243,4244,4253,4266,4269,4274,4291,4292,4301,4314,4317,4318,4327,4340,4343,4350,4367,4370,4375,4376,4379,4384,4385,4396,4399,4418,4439,4450,4451,4454,4459,4464,4465,4470,4491,4492,4497,4512,4517,4528,4529,4534,4545,4560,4561,4564,4569,4582,4585,4586,4603,4626,4635,4640,4641,4650,4651,4660,4661,4670,4675,4676,4685,4686,46

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as-as={-999,-998,-997,-996,-995,-994,-993,-992,-991,-990,-989,-988,-987,-986,-985,-984,-983,-
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1,0}