Two different prime counting mod polynomials

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Abstract

Two different polynomials render two distinct counting methods of the respective mods, the first is indirectly related to the list of mods of integers and the second more accurate gives the exact position of the number inquired be it either in the listo f primes or be it in the list of integers.

Introdcution

The search for a pattern of primes comes up against several practical impossibilities if the numbers in question are used directly, but there are indirect and direct ways of arranging the numbers so that they begin to exhibit predictable behavior, one of which is the inclusion of prime numbers in polynomial variables that, when equated by the Mod of distinct numbers, can give results that, although they do not have a regularity, resemble the distribution of these numbers, often referring to an unprecedented relationship that allows the precise location of their positions, either in lists of exclusively prime numbers or among integers. As with the second polynomial, the numbers referring to the obtained sequence of mods are organized in such a way that the last number of the integers is precisely the position of the prime number in question that repeats itself in the exclusive list of prime numbers, a coincidence that is almost impossible to perceive in any other way than by using this subterfuge of polynomials and their variables, which with luck can accurately obtain the referred and sought position. Furthermore, the count is made of the transposed sequence of different mods, and 47 numbers are counted as in the example given until the position of a list of integers is reached that is 1953 the verified number, an unprecedented, precise and fast way to count a position of a prime number, which by its accuracy reveals the underlying pattern of these numbers.

First approach , first program

```
nn=Range[1,10000000]

n=Select[nn,PrimeQ,(2500)]

n2=Select[nn,IntegerQ,(200)]

k=(n^2)-1+(n)+(2-4n)

d=n^4-1+n^2

c=n^3+2

e=Mod[c,3]

f=Mod[d,3]

g=Mod[k,3]

h=Mod[c,7]

i=Mod[d,7]

j=Mod[k,7]

l=Mod[c,4]

m=Mod[d,4]

o=Mod[k,4]

r=Mod[c,5]

s=Mod[d,5]

t=Mod[k,5]

QQ=Transpose[{e,f,g,h,i,j,l,m,o,r,s,t}]

n2=16931

k1=(n2^2)-1+(n2)+(2-4n2)

d1=n2^4-1+n2^2

c1=n2^3+2

e1=Mod[c1,3]

f1=Mod[d1,3]

g1=Mod[k1,3]

h1=Mod[c1,7]

i1=Mod[d1,7]
```

```
j1=Mod[k1,7]
l1=Mod[c1,4]
m1=Mod[d1,4]
o1=Mod[k1,4]
r1=Mod[c1,5]
s1=Mod[d1,5]
t1=Mod[k1,5]
QQ=Transpose[{e,f,g,h,i,j,l,m,o,r,s,t}]
a={e1,f1,g1,h1,i1,j1,l1,m1,o1,r1,s1,t1}
existeSublista = MemberQ[QQ,a]
Position[QQ,a]
n2=Select[nn,IntegerQ,(16931)]
k1=(n2^2)-1+(n2)+(2-4n2)
d1=n2^4-1+n2^2
c1=n2^3+2
e1=Mod[c1,3]
f1=Mod[d1,3]
g1=Mod[k1,3]
h1=Mod[c1,7]
i1=Mod[d1,7]
j1=Mod[k1,7]
l1=Mod[c1,4]
m1=Mod[d1,4]
o1=Mod[k1,4]
r1=Mod[c1,5]
s1=Mod[d1,5]
t1=Mod[k1,5]
QQ=Transpose[{e,f,g,h,i,j,l,m,o,r,s,t}]
qq=Transpose[{e1,f1,g1,h1,i1,j1,l1,m1,o1,r1,s1,t1}]
existeSublista = MemberQ[qq,a]
gh=Position[qq,a]
```

```
jh=Flatten[gh]

Differences[%]

Length[%]

bg=PrimeQ[gh]

AbsoluteTiming[Count[jh, _?PrimeQ]]

AbsoluteTiming[PrimePi[16931]]
```

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True

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{0.0000164,23}

{0.0009311,1953}

Second approach ,second program

```
nn=Range[1,10000000]

n=Select[nn,PrimeQ,(2500)]

n2=Select[nn,IntegerQ,(500)]

n=Select[sq,PrimeQ,(10000)]

z=(n-1)^2*(n+1)^3

z1=(n-1)^2*(n+5)^3

g=Mod[z,3]

g2=Mod[z,5]

g3=Mod[z,7]

g4=Mod[z,11]

g1=Mod[z1,3]

g5=Mod[z1,11]

QQ=Transpose[{g,g1,g2,g3,g4,g5}]

n2=104729

z=(n2-1)^2*(n2+1)^3

z1=(n2-1)^2*(n2+5)^3

gg=Mod[z,3]

gg2=Mod[z,5]

gg3=Mod[z,7]

gg4=Mod[z,11]

gg1=Mod[z1,3]

gg5=Mod[z1,11]

QQ=Transpose[{g,g1,g2,g3,g4,g5}]

a={gg,gg1,gg2,gg3,gg4,gg5}

existeSublista = MemberQ[QQ,a]

Position[QQ,a]

n2=Select[nn,IntegerQ,(104729)]

z=(n2-1)^2*(n2+1)^3

z1=(n2-1)^2*(n2+5)^3
```

```
gg=Mod[z,3]

gg2=Mod[z,5]

gg3=Mod[z,7]

gg4=Mod[z,11]

gg1=Mod[z1,3]

gg5=Mod[z1,11]

QQ=Transpose[{g,g1,g2,g3,g4,g5}]

qq=Transpose[{gg,gg1,gg2,gg3,gg4,gg5}]

existeSublista = MemberQ[qq,a]

gh=Position[qq,a]

jh=Flatten[gh]

Differences[%]

Length[%]

bg=PrimeQ[gh]

AbsoluteTiming[Count[jh, _?PrimeQ]]

AbsoluteTiming[PrimePi[16931]]


{0,1,0,6,2,1}

True

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181

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