

An interesting pattern of primes

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If you observe below there is a correlation between x and y . x will always be a positive even number and y will always be a positive odd number and its subtraction will give 7 until a certain prime number and there after it will be a different correlation where the result is 8 and after a while it will be 9 and so on. Later i will repost its new correlation, for now it is enough to see that this pattern holds until the 1062 nd prime.

mathematica

(Defining the ordered pairs)

```
pairs = {{8, 1}, {10, 3}, {12, 5}, {14, 7}, {16, 9}, {18, 11}, {20, 13}, {22, 15}, {24, 17}, {26, 19}, {28, 21}, {30, 23}};
```

(Function to verify if a is prime)

```
isPrimeZ[x_, y_] := Module[{z},  
  z = 7000 + 914 + y;  
  z == 7907 + x && PrimeQ[z]  
];
```

(Filttering the pairs that satisfy the condition)

```
results = Select[pairs, isPrimeZ[#[[1]], #[[2]]] &];
```

(Exhibiting the results)

```
results
```

```
{{12,5}, {20,13}, {26,19}, {30,23}}
```

mathematica

(Defining the ordered pairs)

```
pairs =  
{{10,2},{12,4},{14,6},{16,8},{18,10},{20,12},{22,14},{24,16},{26,18},{28,20},{30,22},  
{32,24},{34,26},{36,28},{38,30},{40,32},{42,34},{44,36},{46,38},{48,40},{50,42},{  
52,44},{54,46},{56,48},{58,50},{60,52},{62,54},{64,56},{66,58},{68,60},{70,62},{72,64},  
{74,66},{76,68},{78,70},{80,72},{82,74},{84,76},{86,78},{88,80},{90,82}};
```

(Function to verify if a is prime)

```
isPrimeZ[x_, y_] := Module[{z},  
  z = 16000 + 1395 + y;  
  z == 17387 + x && PrimeQ[z]  
];
```

(Filttering the pairs that satisfy the condition)

```
results = Select[pairs, isPrimeZ[#[[1]], #[[2]]] &];
```

(Exhibiting the results)
Results

```
{{14,6},{30,22},{32,24},{44,36},{56,48},{62,54},{80,72},{84,76},{90,82}}
```

mathematica

```
AS=Cases[Tuples[Range[190],2],{p_,i_}/;EvenQ@p && OddQ@i && p-i==7]
```

(Defining the ordered pairs)

```
pairs = AS;
```

(Function to verify if a is prime)

```
isPrimeZ[x_, y_] := Module[{z},
```

```
z = 7000 + 914 + y;
```

```
z == 7907 + x && PrimeQ[z]
```

```
];
```

(Filtering the pairs that satisfy the condition)

```
results = Select[pairs, isPrimeZ#[[1]], #[[2]] &];
```

(Exhibiting the results)

```
results
```

```
po = results[[All, 1]]
```

```
Differences[%]
```

```
pp=results[[All, 2]]
```

```
pc=pairs[[All,1]]
```

```
ListLinePlot[results]
```

```
a=ListLinePlot[po,PlotStyle->Red]
```

```
b=ListLinePlot[pp,PlotStyle->Green]
```

```
d=ListLinePlot[pc,PlotStyle->Blue]
```

```
c=Show[a,b,d]
```

```
{{12,5},{20,13},{26,19},{30,23},{42,35},{44,37},{56,49},{86,79},{102,95},{104,97},  
{110,103},{132,125},{146,139},{152,145},{162,155},{174,167},{180,173},{182,17  
5},{186,179}}
```

```
{12,20,26,30,42,44,56,86,102,104,110,132,146,152,162,174,180,182,186}
```

```
{8,6,4,12,2,12,30,16,2,6,22,14,6,10,12,6,2,4} THE DISTANCE BETWEEN  
EVERY ORDERED PAIR THAT GIVES A PRIME GIVES BY SUM THE NEXT  
ODD NUMBER IN THE PAIRS
```

```
{5,13,19,23,35,37,49,79,95,97,103,125,139,145,155,167,173,175,179}
```

8+5=13 ,13+6=19,19+4=23,23+12=35 AND SO ON