Prime Number Theory & New Method to Find Prime Numbers & Prime Factors

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Abstract -

We introduce Alfa Prime Theory and Alfa Prime Series, a new method to find prime numbers and their prime factors. We highlight the key property that is the additive property of natural numbers which is direct responsible for behavior of prime and composite numbers in natural number line.

**Alfa Prime Number Theory –**

We introduce a new theory – Alfa Prime Theory.

Theory states that,

Composite numbers (multiple of two prime numbers) are the sum of one specific even number and one specific prime number.

Composite numbers (multiple of two prime numbers.) are also the sum of one specific even number and one specific composite number.

We know that there are multiplicative property of composites numbers

(5*5 = 25 ) (5 * 7 = 35) (5*11 =55 ) ( 5*13 = 65)…. Multiple of 5.

(7 * 7 = 49) (7 * 11 = 77)……. Multiple of 7 etc.

But this theory also states that there are additive property for all composite numbers (multiple of two prime numbers.)

Where p is prime number, n is even number c is composite number (multiple of two prime numbers.)

p + n = c

c + n = c

Inputting specific prime number 7 and specific even number 16 we get

7 + 16 = 23 and with this simple equation we generate below series.

Explained below is the 'Series Multiples of 5' which shows clearly how adding one specific natural number 16 and prime number 7 creates a series and using this series one can find composites numbers and prime numbers.

Using this series one can,

1) Know what prime number, the divisible factor is for given composite numbers.

2) What composite numbers would come next in the line etc.

3) Unlike Mersenne prime number finding method, one can use this method to find composite numbers along with their two or more prime factors.

**Alfa Prime Series -**

Follow below instructions-

Generating series.

7 + 16 = 23

23 + 16 = 39

39 + 16 = 55

55 + 16 = 71

71 + 16 = 87

87 + 16 =103

103 + 16 =119

Go on adding number 16 to each sum in sequence to generate alfa series.

Consider the left hand side vertical columns of above series.

7, 23, 39, 55, 71, 87……

7

23

39 (3*13)

55 (5 * 11)

71

87 (3*29)

103

119 ( 7*17 )

135 ( 5*35)(3*45)

151

167

183 (3*61)

199

215 (5 * 43)

439

455 (13*35)(5*91)(7*65)

471

487

503

519 (3*173)

535 ( 5*107)

551

567 (7* 81) (3*189)

583 ( 11*53)

599

615 (5* 123)(3*205)(5*41=205)

631

647

871 (13*67)

887

903 (7*129)(3*301)

919

935 (11*85)(5*17=85)

951 (3*317)

| | |
|---|---|
| 231 (7 *33)(11*3=33) | 663 (13*51)(17*39) (3*21) |
| 247 (13*19) | 679 (7*97) |
| 263 | 695 (5*139) |
| 279 (3*93) | 711 (3*237)(3*79=237) |
| 295 (5* 59) | 727 |
| 311 | 745 |
| 327 (3*109) | 759 (11*69)(3*253) |
| 343 ( 7*49)(7*7=49) | 775 (5*155)(5*31 = 155) |
| 359 | 791 (7*119)(7*17=119) |
| 375 (5*75)(5*15)3) | 807 (3*269) |
| 391 (17* 23) | 823 |
| 407 (11*37) | 839 |
| 423 (3*141)(3 *47=141) | 855 (5*171)3*285)(3*95=285) |

This series goes towards infinity. After series numbers 951 one can continue the series by adding 16 to each sum in sequence and find more results.

Notice the pattern –

| | | |
|---|---|---|
| 39 is divisible by 3 | 55 is divisible by 5 | 119 is divisible by 7 |
| 87 is divisible by 3 | 135 is divisible by 5 | 231 is divisible by 7 |
| 135 is divisible by 3 | 215 is divisible by 5 | 343 is divisible by 7 |

This pattern makes sure that every third numbers in this series are divisible by number 3, that every 5th numbers in this series are divisible by number 5, that every $7^{th}$ numbers in this series are divisible by number 7 and so on…

This pattens follows all the way towards infinity. This shows that, before only we would know which composite is divisible by what numbers and thereby we can easily find prime numbers.

Follow the instruction and find prime numbers -

Steps -

As we know 7, 2, 3 is prime so start checking from number 39.

Check number 39 by Dividing it by 3, 5 , 7

39 is divisible by 3. We get prime factor 13. Remember that from number 39, every 3rd number is a composite number in a column and must be divisible by 3. This shows number 3 is having pattern in this series and will reveal many prime factors.

Check number 55 by Dividing it by 3, 5 , 7

55 is divisible by 5. We get prime factor 11. Remember that starting from number 55, every 5th number in a column must be divisible by 5 and starting from number 55, every 11th number in a column must be divisible by 11.

Check number 71

Check number 71  by Dividing it by 3, 5 , 7

It is not divisible by any of this number therefore it is prime.

Check number 87

After number 39, number 87 is third number in the column.

Therefore 87 is divisible by 3. Dividing 87 by 3 we get prime factor 29. Now remember that starting from number 11, every 11th number is a composite number in a column and must be divisible by 11.

Check number 87 dividing it by 3, 5 , 7

It is not divisible by any of this number therefore it is prime.

Check number 103 dividing it by 3, 5 , 7

It is not divisible by any of this number therefore it is prime.

Check number 119 by Dividing it by 3, 5 , 7

119 is divisible by 7. Dividing 119 by 7 we get prime factor 17. Remember that starting from number 119, every 17th number is a composite number in a column and must be divisible by 17. Also Remember that from number 119, every 7th number is a composite number in a column and must be divisible by 7.

Check number 135

After number 55, number 135 is 5th number in the column and after number 87, number 135 is 3rd number in the column. Therefore 135 is divisible by both by 5 and 3. Dividing 87 by 5 & 3 we get prime factor 45 and composite 35 which is also divisible by 5. Also Remember that starting from number 135, every 45th number is a composite number in a column and must be divisible by 45.

Check number 151 , 167 by Dividing it by 3, 5 , 7

None of the number is divisible 3, 5 , 7 therefore it is prime.

Check number 183

After number 135, number 183 is third number in the column.

Therefore 183 is divisible by 3. Dividing 183 by 3 we get prime factor 61. Now remember that starting from number 183, every 61th number is a composite number in a column must be divisible by 61.

One continue go on generating series and follow the above explained process to find more results. Any doubt? contact us.

**Prime numbers are not randomly distributed -**

Notice how the whole series follows pattern each after the other. This pattern is the real proof that prime and composite numbers are not randomly distributed in natural number line. Series also exclude all even numbers and produce only prime numbers, composite numbers, and numbers divisible by 3. It is not a coincident, that's all because of pattern following system by series.

**Mersenne Prime Number –**

Mersenne prime number $M_n = 2n – 1$ is good to find any largest prime numbers but Alfa Omega prime numbers is best to find largest prime numbers along with their prime factors. There is no other method or way to find prime numbers and prime factors in such an easy way that this new method provides.

**Conclusion –**

This is how one can further count the series, follow the process and find as many prime and composite numbers with 100 % guarantee. Notice how the whole series follows pattern each after the other. This pattern is the real proof that prime numbers are not randomly distributed in natural number line. Therefore, we conclude that prime and composite numbers distribution is the result of additive property along with multiplicative property.

**Reference –**


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