A New Method To Instantly Factorize Any Product Of Two Small Or Large Twin Prime Numbers.

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Abstract -

I have found an new method to factorize any certain large numbers p*q = n products of numbers instantly.

This method works for any small or large product integers ‘n’ of any digits may be million, billion or even trillions of digits. This method is all about instantly reversing (factorizing) and knowing the two factors i.e specially of two small or large multiplied **twin prime numbers** or any terms (not divisible by 2 or 3) and having a gap of two.

Introduction -

Factorization is a method of finding factors of any given multiplied products. Various method are used to factorize such as Fermat factorization method, factoring out the GCF, the sum-product pattern, the grouping method etc. It is easy to multiply any two numbers p x q =n but it is hard to reverse it back to know what factors integers are multiplied.

In this paper i have introduce a complete new method that show how to reverse any small or large' n' product integers and find is factors instantly.

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Twin numbers-

This can be any two twin prime numbers such a that is either 2 less or 2 more than another prime numbers.
5, 7
11, 13

Or any numbers that is either 2 less or 2 more than another composite numbers or prime numbers.

23, 25

65, 67

Note - this method works only for any multiplied products 'n' of any above example of numbers,

eg 5 *7 = 35 is the product which we can factorize and know its two twin prime factors. This is just a small example, we can factorize p* q = n product of any size of digits such thousands , millions, billions or even trillions of digits using the explained method in this paper.

p* q = n

Where p and q can be,

Two multiplied twin prime numbers.

One composite numbers & one prime number. (Those composite numbers not divisible by 2 or 3.)

Two composite numbers. (Those composite numbers not divisible by 2 or 3.)

As show in the above eg 5, 7 65, 67 etc.

Method -

72 is the constant integer used in the process to find repeated addition in the series.

First Step –

Repeated Addition Series.

Following the steps ask your colleague to add 72 and 36 as show below.

72 * **1** = 72 + 36 = 108
72 * **2** = 144 + 36 = 180
72 * **3** = 216 + 36 = 252
72 * **4** = 288 + 36 = 324 .... 'Last Sum Of Series'

Counting can be done as many times like 72 *5 , 72 * 6, 72 * 7 .... and one time adding 36 for each series.

Series can go up to infinity.

Last sum of series is **324**.

Second Step -

Finding ‘r ‘ Total Sum Of Series -

Ask your colleague to add all the sums together with number 35 to get total sum of series ' r ' as shown below.

108+ 180 + 252 + 324 + 35 = 899 ...... 35 is the constant to be added at last in total sum of series each time you calculate this series.

Here we get r = 899

Now get this two information from your colleague .

1) Last sum of series ie 324.

2) Total sum of series ie 899 .

You should know this to calculate the formula.

Therefore,

Ask your colleague to show the last sum of series i.e 324 and the total sum of series i.e 899.

Note - Total sum of series is also a product of some two twin prime numbers or prime number and composite number or may be of two composite numbers.

So 899 is the product of p*q = 899 which we don’t know yet and we are going to factorize it to know p & q using formula explained below.

Third step -

Now, ask your colleague that, 'can they immediately guess what is the multiple factors of given total sum of series is, without factorizing ?'

Answer for your colleague must be 'no', since no one can easily guess or reverse the p * q = n if the ''n ' is any large integer.

But wait, using my new researched method you can factor in few minutes, no matter what large integer 'n' is.

So without showing your colleague, calculate the process explained below.

Calculation Process – Finding ‘s’.

There are two method to find ' s ’.

1) First method -

Notice the above 'repeated 72 series', those bold highlighted integers 72 * **1**, 72 * **2**, 72 * **3**, 72 * **4** ....

Series of Integers in line i.e 1,2, 3, 4.....

Find the last integer i.e 4

Substitute 4 with 0 of 0.83 (constant).

We get 4.83

Therefore, **s** = 4.83.

Each time you calculate to find ' **s**’ always find the last integer in the line as explained above.

2) Second Method -

You know that last sum of series is 324. (you got the information from your colleague)

Taking 324 / 72 = 4.5

Get the left hand side integer before the decimal point i.e 4.

Substitute 4 with 0 of 0.83 (constant).

As per second method, we get s = 4.83

Next,

Apply the **‘r’** and **‘s’** in the below formula.

r / s = m
m/ 6 = n

Where,

‘r’ is the total sum of series.

‘s’ in this case is the substitution of 4 with 0 of 0.83 constant to get as 4.83.
6 is the constant in the formula.

We got r = 899, s = 4.83

Finding ' m ' -
r / s = m
899 / 4.83 = 186.12836....
Notice integer on the left hand side before the decimal point i.e 186
So, consider only those integers as ' m ' and ignore integers on the right hand side of decimal point.
Therefore, m = 186

Finding ' n ' -
m / 6 = n
186 / 6 = 31
n = 31   .... is the answer.

Check it dividing 899 by 31.

899/ 31 = 29

So the factors of 899 is 31, 29.

Immediately show and surprise your colleague with the answer i.e 31 , 29.

Another example of method having increase of counting at repeated 72 series up till 10 times -

First Step –
Repeated 72 Series.

72 * **1** =   72   + 36 = 108

72 * **2** = 72 + 36 = 180

72 * **3** = 72 + 36 = 252

72 * **4** = 72 + 36 = 324

72 * **5** = 72 + 36= 396

72 * **6** = 72 + 36 = 468

72 * **7** = 72 + 36 = 540

72 * **8** = 72 + 36 = 612

72 * **9** = 72 + 36 = 684

72 * **10** = 72 + 36 = **756** ....Last sum of series is **756**.

Second Step -
Calculation Process –
Finding' r', Total Sum Of Series.

108+ 180 + 252 + 324 + 396 + 468 + 540 + 612 + 684 + 756 + 35 = 4355 ......35 is the constant to be added at last in total sum of series.

Here we get r = 4355

Third Step - Finding '**s**'.

1) First method-
Notice the above 'repeated 72 series' bold highlighted integers 72 * **1**, 72 * **2**, 72 * **3**, 72 * **4** ....
Series of Integers in line i.e 1,2, 3, 4.....10
Find the last integer i.e 10
Substitute 10 with 0 of 0.83 (constant).

We get 10.83

Therefore, **s** = 10.83.

Each time you calculate to find ' s ' always find the last integer in the line as explained above.

2) Second Method -

Last sum of series is 756.

Taking 756 / 72 = 10.5

Get the left hand side integer before the decimal point i.e 10.

Substitute 10 with 0 of 0.83 (constant).

We get s = 10.83

Next,

Apply the ‘r’ and ‘s’ in the below formula.

r / s = m

m / 6 = n

Where,

‘r’ is the total sum of series.

‘s’ in this case is the substitution of 10 with 0 of 0.83 constant to get as 10.83.

We got r = 4355, s = 10.83

Finding ' m ' -

r / s = m

4355 / 10.83 = 402.12373.....

Consider only those integers as ' m ' that is on the left hand side and ignore integers on the right hand side of decimal point.

So, get the integer left hand side before the decimal point i.e 402

Therefore, m = 402

Finding ' n ' -
m / 6 = n
402 / 6 = 67
n = 67 .... is the answer.

Check it dividing 4355 by 67.

4355/ 67 = 65

So the factors of 4355 is 65, 67.

Factorizing larger digits of product of two multiplied factors. -

Here explained examples is just a product of small digits which we factorize using the method. As we can see the more the 'repeated 72 series' increases, 'the total sum of series' increases, thereby ' **r** ' the product also gets larger in digits which we can factorize those product easily using the same method explained above. One can try and check by further increasing the counting of 'repeated 72 series' and 'the total sum of series' to get larger digits of product to factorize it.

Conclusion -

This method works only for terms like twin prime numbers or any terms (not divisible by 2 and 3) having a gap of two e.g . 5, 7... 65, 67.

This new method explained above sheds the light that it is possible to reverse any large multiplied prime numbers of any given product integer ‘n’.

I have reversed many other product integers of two multiplied prime factor in an instant. small e.g 113 * 127 with different process but similar to above explain process. It works for some numbers but doesn’t work for others. Once i find the right solution i will publish the another new method that can reverse any 'n' (largest multiplied p * q =n) in an instant, few minutes, hours or at least in polynomial time.

Reference-

https://en.wikipedia.org/wiki/Factorization

https://mathworld.wolfram.com/TwinPrimes.htm