IJNRD.ORG ISSN : 2456-4184

INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG

An International Open Access, Peer-reviewed, Refereed Journal

SOME NOVEL THOUGHTS ON ARITHMETIC PROGRESSION

[1] V. Annantha Padmanabhan

[1]Retired Government servant

9 N.G.O Colony, Pollachi-6, Coimbatore, Tamilnadu.

Abstract : Mathematical Philosophy, Mathematical Principles-Numbers-Progressions- Arithmetic Progressions-Different Between A term of an Arithmetic Progressions and A Number-And A Method to calculate The Number of Terms in more than on Arithmetic Progressions-Suggested-Conclusion.

***IndexTerms* - Numbers- Progressions- Arithmetic Progressions-Some Novel Thoughts**

INTRODUCTION:

In his famous book 'The principles of Mathematics" Betrand Russel says that "No Mathematical Subject as made in Recent Years grater advance than the Theory of Arithmetic" (Page: 111) He also says that "It is Often held that both Numbers and particular numbers are indefinable" (Page: 111) . At page number 116 is sum up-mathematically a number is nothing but a less or similar causes.

In his book Russel said that we cannot enumerate of all irrational numbers of all of any other collection. when we look other authors definition on numbers in the book philosophy of Arithmetic Edmund Husseral (Translated by Dabbis Willard) says that the deffanition of numbers obviously applicable only to the numbers of number sequence from two on wards. Zero and oneto be excluded from the concept of numbers.

ARTICLE:

In this paper I am not going into mathematical logic or set theory. Nor am not going to discuss about zero. I wish some attention to the definition on one. Really one represents what?

In normal course we can says that one is notation as well as notion. There is one apple, one mango, one tree etc... But there is no one separately with out the association of the physical object. So one serves as a notation. The 'One Ness' is the notion.

But when we considered the sequences, very particularly arithmetic Progressions one as a relative meaning.

Considered Two A.P s
(1) 10, 20, 30, 40, 50...
(2) 35, 65, 95, 125...

The first A.P the common difference is 10. So 10/10 is equal to one. In this second A.P the common difference is 30. So 30/30 is equal to one. The interval between one term and next one is considered as C.D customarily. So a term of A.P is total different from Number one. So as far as the A.P are concerned a term one is relative this is the definition I draw into.

Again let us considered two other A.P s

(1) 35 65 95 125 ...
(2) 77 119 161 203 ...

The common different of the first A.P is 30 and the second being 42. The first number are 35 and 77 respectively.

Usually we count or calculate the number of term in A single A.P by using the N th Term formula. So N th Term formulae for the above said A.P s are N-5 /30 and N+35 /42 respectively.

When we calculate and when the given N=125, The number of terms of the First A.P is 125-5 /30 = 4.Similarly 4 is the term when the given N=203, in the second A.P i.e 203-35 /42 =4. Now, The question is can we calculate the total number of term in the above to A.P s or A set of A.P s more than one, by using a single formula or method. The divisors of Nth term are varying.

On application side such a formula is essentially needed to calculate the total number of primes less than or equal to given N. The above set to A.P are developed on 5th and 7th order i.e 5=> 35, 65, 95 ... are α_1 except 5 all other numbers are composite. i.e 5x7, 5x13... are the terms.

The seventh order numbers are 7=> 77, 119... are 7x11, 7x17 are the terms. More details are available on α numbers in the paper authored by V. Anantha Padmanabhan by name Generation of Primes- IJNRD2310036.

Now (N-5 /30) + (N-35 /42) are two terms to arrive the answers. To arrive the results of these formula, we are generally ignore the fraction value. We can count term by term upto N number of Nth term such as 10,000 or 1,00,000 N th terms individually. When we use cross multiplication methods to obtain results of fractions or mixed fraction the work is very tedious. For example: it is very is to obtain the value of 30x42. The divisor of the said Nth term. But if it is 30x42x66x78x102x114... If we take 6 A.P s for calculation together the results of the multiplications will be a larger number.

Novel Method

As for as the first A.P we need not change the add factor. But for the second in this method we have to make some operation to the add factors.

(1008-35/42)=(973/42)=23. 23+1=24 i.e there are 24 Interval between F.N 77 to 108.

77 119 161 203...
1 2 3

The interval between 77 to 119 is 1 and so on again the different between the divisor 42 to 30 is 12. So you have to add 24x12=288 to the already known add factor i.e 35 the result is 323.

Again, the 30 has been taken as common divisor since which is the smaller one.
Now, we move to the next step in this model which called as 'Analytical Base Step'

Analytical Base

	(1)	(2)	(3)
(1)	1008-5	1003/30	33 13/30
(2)	1008-323	685/30	22 25/30
	328	1688	55 38/30 i.e 1 8/30

(1) One is named as Base Column
(2) 2 is named as divisor by 30 column
(3) 3 is named as result column and fraction arrived is named as Fraction 1
(4) The total of the fraction arrived 38/30 is separately shown for the following purpose
(5) It is not exhibited as 56 8/30

Now the total of add factor and F_1 is 328+38 = 366=q
The next step is called as form i.e 2N-q / 30 = T.
2x1008=2016. 2016-366=1650. 1650/30=55.

So there may be 55 terms both of the A.P s.
When we calculate by other method that is term by term counting method

(1008-5)/30 =33 13/30
(1008+35)/42=24 23/42
57

We get 57 term, the fraction are being omitted.
But in the form we get only 55 as the result .
The different two Accor because of the reason that the second A.P commences at 77. i.e after the first two terms 35 and 65.

In the natural number sequences of A.P-35 is the first number.
Now let us considered the intervals or phases

77 119 161 203....
1 2 3

We here already counted for the second A.P and arrived the additional factor for it. Now the first A.P is starting

35 65 95 ...
1 2

Number 77 fitting only after two term in the first term 35 and 65. (Since we consider the 30 as common divisor we may construe that we are fitting the second A.P in the first A.P It requires psychologically a deep imagination to understand this particular area of operation so this part is explained in detail so that the reader may understand this novel topic so clearly). We have calculated (1008-35)/42 = 23.=1=24, In the secondary A.P to obtain the number of phases or intervals thus add factor is arrived as 24x12=288. Plus 35 is 323 but actually it should as 263. For two term i.e 35 and 65-2x30=60 should be reduced.

Now the new Analytical base is

	(1)	(2)	(3)
(1)	1008-5 = 1003	1003/30	33 13/30
(2)	1008-263= 745	745/30	24 25/30
	268	1688	38

268+38=306
Form 2x1008=2016. 2016-306=1710.

1710/30=57 which tally's to the actual result.

Further Notes:

1) In this method any number of A.P s may be consolidated and Nth term of them may be added together without giving much room for very large numbers.
2) On application side while considering the topic that we took is calculating number of prime less than or equal to given N. While doing this operation to this sum one will face a lot of A.P s. All the composite numbers of all orders both in α_1 and α_2 areas consist of a lot of arithmetic progression similarly the common points also forms a lot of arithmetical Progressions.

   Such Progressions may be consolidated by using in novel technique it is needless to say (N+1)/6 + (N-1)/6- (Composites –Common Points) will yield the number of prime. A practical example may be given here. But considering the length of the paper such an example is avoided. Thus it may be conclude that the calculation of the number of primes problem may also get solved analytically also.

CONCLUSION:

Thus we establish a new definition to a number as it is relative while we consider A.P s. Also we are established a new technique to consolidated a set of A.P s and arrive a total number of term in it.

REFERENCES

[1] Principles of Mathematics A Book by Betrand Russel
[2] Philosophy of Mathematics A book by Betrand Russel
[3] Philosophy of Arithmetic by Edmunt Husserl
[4] Generation of Prime Numbers A Paper by V. Anantha Padmanabhan - IJNRD2310036
[5] Total Number Of Prime Less Than Or Equal To Given N Numbers A Paper by V. Anantha Padmanabhan - IJNRD2310217