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# A New Way to see Infinite Mathematical Problem

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**Abstract:** Math is known as queen of science. Without math we can't imagine our world. we are covered with math. In daily life we can't survive without math. Day by day, math is growing up. Math is not bound in its main area. Math is applicable in various subject like physics, chemistry, computer science, geography etc. Without math we can't explain our world.

**Keywords:** complex number, iota

## I. INTRODUCTIONS

Math is playing biggest role to explain the universe. It has a mysterious area which is called complex number. Who's main keyword is iota (in short i). We can't think the value of  $\sqrt{-1}$  in current number system. So mathematicians are denoting it as iota or in short i. Iota called the main theme of complex field. If we put power of iota's head then we get four possibilities like-

- 1)  $i^1=i$
- 2)  $i^2=-1$
- 3)  $i^3=-i$
- 4)  $i^4=1$

If we put any integer number in place of power we get result between above four possibilities. But, in this area many problem is not discovered. In this paper we try to discover one problem

## II. METHOD

Let, m which is tense to infinity, we can present it as sum of m times 1-----(i)

Now, we try to solve the value of  $(-1)^m$

We solve the problem by the help of Riemann hypothesis.

Now, Riemann zeta equation,

$$\sum_{k=1}^{\infty} \frac{1}{k^s} = \frac{1}{1^s} + \frac{1}{2^s} \dots\dots\dots$$

Now, we put 0 in the value of s

So we get,

$$\sum_{k=1}^{\infty} \frac{1}{k^0} = \frac{1}{1^0} + \frac{1}{2^0} \dots\dots\dots$$

We know that, something to the power of 0 is 1

Now, the equation is  $1+1+1+1+1+1+1+1+1+1+\dots\dots\dots$

Which is have finite value according to riemann hypothesis. The value of above equation is  $-1/2=-0.5$ -----(ii)

Now

$$\begin{aligned} & (-1)^m \\ &= (-1)^{\text{sum of } m \text{ times } 1} \{\text{according to statement number (i)}\} \\ &= (-1)^{1+1+1+1+\dots\dots\dots} \{\text{Because m tense to infinity}\} \end{aligned}$$

$$= (-1)^{-1/2} \{\text{according to statement number (ii)}\}$$

$$= -i$$

In other way,

$$\begin{aligned} & (-1)^m \\ &= (-1)^{\text{sum of } m \text{ times } 1} \{\text{according to statement number (i)}\} \\ &= (i^2)^{1+1+1+1+\dots\dots\dots} \{\text{Because m tense to infinity}\} \end{aligned}$$



$$=(i^2)^{-1/2} \text{ \{ according to statement number (ii) \}}$$

$$=(i)^{2*(-\frac{1}{2})}$$

$$=i^{-1} = \frac{1}{i} = \frac{i^4}{i} = i^3 = -i$$

### III. RESULT

By the help of this method we can get value of  $(-1)^m$  where m tense to infinite

Which is not a real number. By this method open a new concept of math .

### IV. CONCLUSION

The main intention of this presentation is to open the new thinking of math. By the help of Riemann hypothesis, we can solve various unsolved math problem and this method will help many researcher for their research work.

### REFERENCES

- [1] Riemann Zeta function



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