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THE ULTIMATE ZERO THEORY

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ABSTRACT

Objective: There are several proofs has been collected to show that *zero* divided by *zero* is equal to *zero*. And it also shows that if any number (except *zero*) is divided by *zero* then it comes undefined as result, not Infinity. **Result**: According to this theory, when *zero* is divided by *zero* it only comes out equal to *zero*. And it also proves that dividing any number (except *zero*) by *zero* gives undefined as result. **Conclusion**: I have come to the conclusion that when *zero* is divided by *zero* it comes out equal to *zero*, neither it comes one nor undefined. And also shows that if any number (except *zero*) dividing by *zero* it comes undefined, not infinity. It also describes the basic method of division either number is *zero* or be any other number.

KEYWORD: *Zero* Divided by *Zero*, The Ultimate *Zero* Theory, Problems, Except *Zero*, Undefined, Infinite, Brahmagupta, Basic Method of Division, Mathematics.

INTRODUCTION

Since ancient times there has been a problem of dividing *zero* by *zero* or dividing other numbers by *zero* is a very difficult task. Arithmetic of *zero* in many contexts in mathematics, it is completely attributed to Hindu contributions and specially to Brahmagupta.

"The arithmetic of *zero* is entirely the Hindu contribution to the development of mathematical science, with no other early nations do we find any treatment of *zero*".[1]

Brahmagupta was an Indian mathematician and astronomer. In 628 AD Brahmagupta described the division by *zero* in Brahmphutasiddhanta and he wrote.

"Positive, divided by positive, or negative by negative, is affirmative. Cipher, divided by cipher, is nought. Positive, divided by negative, is negative. Negative, divided by affirmative, is negative. Positive, or negative, divided by cipher, is a fraction with that for denominator: or cipher divided by negative or affirmative".[2]

In 2001, Fischbein, Efraim describes about the concept of infinity and several problems which is directly related to the process of infinity and he wrote:
"Infinity is a concept that mankind has struggled to grapple with throughout ancient time. Humans are better equipped to handle the finite processes create contradictions".[3]

1. The Theoretical Aspects and Their Problems

- **Theoretical Aspects I:** In mathematics, from ancient time to these days, *zero* divided by *zero* according to various circumstances it gives several results such as- *zero*, one, undefined, indeterminate. There are several mathematicians, they believe that if *zero* divided by *zero* is equal to one and one of them is written below.

In 2018, Ilija Barukčić introduced a theory related to division of *zero* by *zero*. According to Ilija Barukčić
"The findings of this study suggest that *zero* divided by *zero* equals one".[4]

- **Problem:** There are some problems with previous theory which describes the *zero* divided by *zero* is equal to one. If so, then all numbers are equal to each other. To prove this argument, I have written some examples below-

a) Let 1 = m.
Both sides multiply by m

$$m = m^2$$

Subtract 1 from both side

$$m-1 = m^2-1$$

Both sides are dividing by (m-1)

$$\frac{m-1}{m-1} = \frac{m^2-1}{m-1}$$

$$\frac{m-1}{m-1} = \frac{(m+1)(m-1)}{(m-1)}$$

By simplifying both sides and we get that

1 = m+1

But there is we had let that m = 1,
Then 1 = 1+1

1 = 2.

b) Let, 0 = 0

20-20 = 30-30.

Figure out common factor from the equation

4(5-5) = 6(5-5)

Divide both sides by (5-5)

$$4\,\frac{(5-5)}{(5-5)} = 6\,\frac{(5-5)}{(5-5)}$$

By applying *zero* divided by *zero* is equal to 1 and then

4=6.

Simplify it and we get

2=3.

c) As we know that if *zero* multiply by any number it gives *zero*. Then

0×3=0 …… (1)
0×5=0 …… (2)

By comparing both equations, we get

0×3=0×5.

Both sides are dividing by 0

$$\frac{0\times 3}{0} = \frac{0\times 5}{0}$$

By applying *zero* divided by *zero* is equal to 1 and then

3=5.

After the observation of above examples, we can say that if we allow to *zero* divided by *zero* is equal to one. Then all numbers on the number line are equals to each other.

In above given example (a) it shows that 1=2, example (b) it shows that 2=3 and in example (c) it shows that 3=5. After the comparison of above examples- a, b, and c we can say that 1=3, 1=5 and 2=5.

To solve this problem, we have to avoid or not allow to *zero* divided by *zero* is equal to one.

Note: We cannot do cross multiplication in any equation. There is no such type of rule in the mathematics. In mathematics or in physics, if any equation which can take more time to get its solution, then people use cross multiplication so that they can reduce the time taken into the solutions of any equation. That is why they do cross multiplication in the equations. There are some examples is written below

a) $\frac{3y}{8} = \frac{15}{4}$

12y = 120

$y = \frac{120}{12}$

y = 10

b) $\frac{5y}{18} = \frac{5}{3}$

15y = 90

$y = \frac{90}{15}$

y = 6.

But the right way of multiplication in any equation is that we have to multiplication by that number into both side of equation which is in the denominator. There are several examples is written below

a) $\frac{6y}{10} = \frac{9}{5}$

$\frac{6y}{10} \times 5\times 10 = \frac{9}{5} \times 5\times 10$

6y×5 = 9×10

30y = 90

$y = \frac{90}{30}$

y = 3

b) $\frac{4y}{25} = \frac{8}{5}$

$\frac{4y}{25} \times 5\times 25 = \frac{8}{5} \times 5\times 25$

4y×5 = 8×25

20y = 200

$y = \frac{200}{20}$

y = 10.

- **Theoretical Aspects II:** There are several mathematicians, who believe that if any number *(*except *zero)* divided by *zero* is equal to infinity. Some of them favour in *zero* divided by *zero* is equal to indeterminate and some of them is written below

After Brahmagupta, Mahavira attempted to modify the Brahmasphutasiddhanta of Brahmagupta. Bhaskar also worked on dividing by *zero*. He describes the division by *zero* in 1152 AD is written following
"Statement: Dividend 3. Divisor 0. Quotient the fraction 3/0. This fraction, of which the denominator is cipher, is termed an infinite quantity".[5]

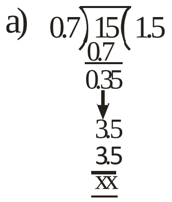
In 1744, Isaac Newton introduces the division by *zero* and he wrote that "1/0 = Infinitae".[6]

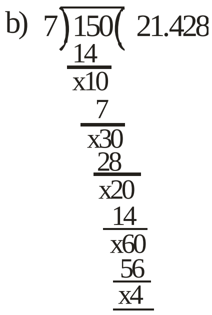
In 2016, Jaan Pavo Barukčić and Ilija Barukčić wrote about the division *zero* by *zero* in their journal and which is written below

"When *zero* divided by *zero* (0/0) is called as an indeterminate and further it also claims that division of *zero* by *zero* (0/0) is called as no defined".[7]

- **Problem:** There are several problems with previous theories which describes that any number (except *zero*) divided by *zero* is equal to infinite. But actually, we cannot divide by any numbers smaller than one. So, if any number (except *zero*) divided by *zero*, then answer is not infinity, rather it is undefined. To prove this argument, I have written some examples below

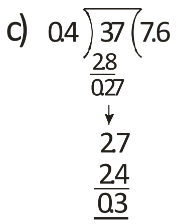
0.7	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7.0
07	14	21	28	35	42	49	56	63	70

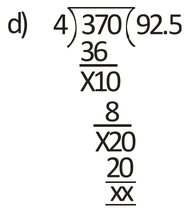




It is clearly shows in the above given examples that when we try to divide into any number by number which is less than one. Then the incorrect answer comes out. But when we change their forms by multiplication by 10 and this multiplication may be varied or differ according to the dividend. Then divisor is greater than one. Now, we can divide easily and correct answer comes out. We can easily understand through the above given examples that we cannot divide by numbers which is smaller than one. We have to change their form so that we can easily perform division.

0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2	3.6	4.0
4	8	12	16	20	24	28	32	36	40





We cannot directly come to conclusion, so I introduce some more examples of division by number less than one. When we try to divide into any number by number which is less than one. Then the incorrect answer comes out. But when we change their forms by multiplication by 10 and this multiplication may be different- different according to the dividend. Now we have a divisor that is greater than one. We can divide easily by new divisor and then correct answer comes out.

I have picked a new example to show that we cannot divide into any number by that number which is less than one. There is a potato on the plate, if we will divide the potato into 4, 2, 1, and 0.5 person respectively. Then how much potato could obtain by the people?

Solution: When we divide a potato into 4 people then,

$$\frac{1}{4} = 0.25$$

When we divide a potato into 2 people then,

$$\frac{1}{2} = 0.5$$

When we divide a potato into 1 people then,

$$\frac{1}{1} = 1$$

When we divide a potato into 0.5 people then,

$$\frac{1}{0.5} = 2$$

In the above example first three steps could be understand by any people but in the last step there is answer comes out 2, but there is only one potato, the answer tells us that there are 2 potatoes. That is why we cannot allow division by any number which is less than one.

2. Solution: The Ultimate Zero Theory

Since ancient times there has been a problem of dividing *zero* by *zero* or dividing other numbers by *zero* is a very difficult task. To solve the problem dividing *zero* by *zero* or dividing other numbers by *zero*, I have discovered a new theory this can prove that if *zero* divided by *zero*, then the answer will be only one number not many numbers. **The Ultimate *Zero* theory** is defined as "if we divide a number (m) by another number (n), then the answer number (o) and this number (o) is less or equal to number (m).

Formula: $\frac{m}{n}$=o, where o≤m.

- This theory proves that the *zero* divided by *zero* is equal to *zero*. It also describes the basic method of division either number is *zero* or any other number. There are several examples are written below

i) $\frac{100}{25}$ = 4, $\frac{m}{n}$ =o, where o<m

ii) $\frac{30}{30}$ = 1, $\frac{m}{n}$ =o, where o<m

iii) $\frac{25}{1}$ = 25, $\frac{m}{n}$ =o, where o=m

iv) $\frac{17}{1}$ = 17, $\frac{m}{n}$ =o, where o=m

v) So, $\frac{0}{0}$ = 0, $\frac{m}{n}$ =o, where o=m.

- **The Ultimate *Zero* Theory** also describes that any number (except *zero*) divided by *zero* is undefined. We cannot define that number because there are many numbers below that dividend. So that any number (except *zero*) divided by *zero*, it is undefined. There are some examples are given below

i) $\frac{10}{0}$ = undefined

ii) $\frac{1}{0}$ = undefined

iii) $\frac{9}{0}$ = undefined.

RESULTS

According to this theory "**The Ultimate Zero Theory**", it proves that dividing any number (except *zero*) by *zero* it makes undefined as result and whenever we make, *zero* is divided by *zero* it comes out equal to *zero* as result.

CONCLUSION

I have explained about the topic "**The Ultimate *Zero* Theory**" by providing all appropriate details on it. I have come to the conclusion that when *zero* is divided by *zero* it comes out equal to *zero*, it is neither equal to one nor undefined or even not indeterminate. And it also shows that if any number (except *zero*) dividing by *zero* it makes undefined, not infinity. It also describes the basic method of division either the number is *zero* or be any other number.

REFERENCES

1. Datta, B. Early history of the Arithmetic of *Zero* and Infinity in India. Bulletin of the Calcutta Mathematical Society, 1927; 18: 165-176.
2. Colebrooke, H.T. Algebra, with Arithmetic and Mensuration, from the Sanscrit of Brahmagupta and Bhaskara. John Murray, London, 1817; 339-340.
3. Fischbein, Efraim. "Tacit models and infinity." *Educational studies in Mathematics*, 2001; 48(2-3): 309-329.
4. Barukčić, I. *Zero* divided by *zero* equals one. Journal of Applied Mathematics and Physics, 2018; 6(04): 836.
5. Colebrooke, H.T. Algebra, with Arithmetic and Mensuration, from the Sanscrit of Brahmagupta and Bhaskara. John Murray, London, 1817; 137-138.
6. Newton, I. Opuscula mathematica, philosophica et philologica. apud Marcum-Michaelem Bousquet & socios, 1744; 3.
7. Barukčić, J. P., & Barukčić, I. Anti aristotle—The division of *zero* by *zero*. *Journal of Applied Mathematics and Physics*, 2016; *4*(4): 749-761.