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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 non-zero number is divided by zero then it comes undefined as result, not Infinity. **Result**: According to theory "The Ultimate Zero Theory", when zero is divided by zero it only comes out equal to zero. And it also proves that dividing any non-zero number 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 non-zero number dividing by zero it comes undefined, not infinity. It also describes the basic method of division either number is zero or be any non-zero number. Zero Divided by Zero, The Ultimate Zero Theory, Problems, Undefined, Infinite, Brahmagupta, Basic Method of Division, Mathematics.

INTRODUCTION

Since ancient times there have been a problem of dividing zero by zero or dividing any non-zero number by zero is a very difficult task. Arithmetic of zero in many contexts in mathematics, it is completely attributed to Hindu contributions and especially to Brahma gupta.

"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 Brahma gupta 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 Thought. 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.

A. 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]

B. 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-

i) 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 $1 = 1+1$
$1 = 2$

ii) As we know that if zero multiply by any number it gives zero. Then-
$0 \times 3 = 0$ ...... (1)

$0 \times 5 = 0$ …… (2)

By comparing both equations, we get-

$0 \times 3 = 0 \times 5$

Both sides are dividing by 0-

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

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. 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. Some examples are 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 multiply by that number into both side of equation which is in the denominator. There are several examples is written below-

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

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

$6y \times 5 = 9 \times 10$

$30y = 90$

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

$y = 3$

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

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

$4y \times 5 = 8 \times 25$

$20y = 200$

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

$y = 10$

C. Theoretical Aspects II: There are several mathematicians, who believe that if any non-zero number 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 value".[7]

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

i) It is clearly shows in the following 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.

0.7	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

ii) 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 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.

c) $0.4 \overline{)37} (7.6$
$\underline{28}$
0.27
$\downarrow$
27
$\underline{24}$
0.3

d) $4 \overline{)370} (92.5$
$\underline{36}$
$X10$
$\underline{8}$
$X20$
$\underline{20}$
XX

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

2. Solution: The Ultimate Zero Theory: Since ancient times there has been a problem of dividing zero by zero or dividing any non-zero number by zero is a very difficult task. To solve the problem dividing zero by zero or dividing any non-zero number 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).

$$\text{Formula: -} \frac{m}{n} = o, \text{where } o \leq m$$

- 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 non-zero 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 non-zero number divided by zero is undefined. We cannot define that number because there are many numbers below that dividend. So that any non-zero number 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

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

4. 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 non-zero number dividing by zero it makes undefined, not infinity. It also describes the basic method of division either the number is zero or be any non-zero number.

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