

Solving the Division by Zero Problem: Unlocking Infinite Horizons in Science and Technology

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Title:

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Introduction:

Division by zero has long been one of the major challenges in mathematics, often considered a forbidden operation in traditional calculations. However, developing methods to handle this problem has opened new and infinite horizons in various fields, including physics, chemistry, engineering, and medicine. This paper explores how addressing division by zero contributes to understanding additional dimensions beyond the traditional three- and four-dimensional framework, and how it has impacted modern science.

Impact of Division by Zero on Various Sciences:

Physics:

Handling undefined values has enabled the study of complex cosmic phenomena, such as black holes, dark energy, and infinite states in quantum mechanics.

It facilitated the visualization of additional dimensions intertwined with space and time, enhancing multi-dimensional theories.

Chemistry:

Enabled modeling chemical reactions under infinite concentrations or extreme energy conditions.

Assisted in understanding chemical processes in environments not replicable by traditional methods, such as stars or ultra-compressed gases.

Engineering:

Paved the way for designing mechanical and engineering systems that handle extreme or boundary values, including AI, robotics, and aerospace engineering.

Contributed to developing tools for simulating physical phenomena in unlimited virtual environments.

Medicine and Life Sciences:

Allowed the modeling of complex systems, such as blood flow under unbounded pressure or neural signal processing in the brain.

Supported the creation of mathematical models to predict rare diseases or drug interactions under extreme conditions.

ZERO

Zero is not a single concept, but a symbol whose meaning varies according to its structural role.

Zero as a numerical value is fundamentally different from zero as a marker of order and scale.

Conflating value-based zero with positional zero leads to deep conceptual errors.

Zero in itself is an active entity, not merely an empty position within a counting system.

The zero in 10 is not a true zero; the number 10 represents a quantity in itself and contains no independent zero. Here, zero serves only as a positional marker for the decimal place. This zero in 10 or 100 is fundamentally different from the standalone 0: while 0 has no value on its own, 10 and 100 are complete numbers with definite value, not merely zero and one.

ZERO

First rule

Multiplying any number by zero equals the same number negatively.

$$5 \times 0 = -5$$

$$7 \times 0 = -7$$

Multiplying by a positional zero is different from multiplying by a standalone zero within a number: the former represents a positional gap defining the decimal place, while the standalone zero has numerical value that affects the result of multiplication.

$$300 \times 5 = 1500$$

Multiplying by the positional zero in 10 yields zero because it represents a positional gap indicating the decimal place, not a value to be multiplied; in other words, no actual multiplication occurs.

$$10 \times 5 = 50$$

ZERO

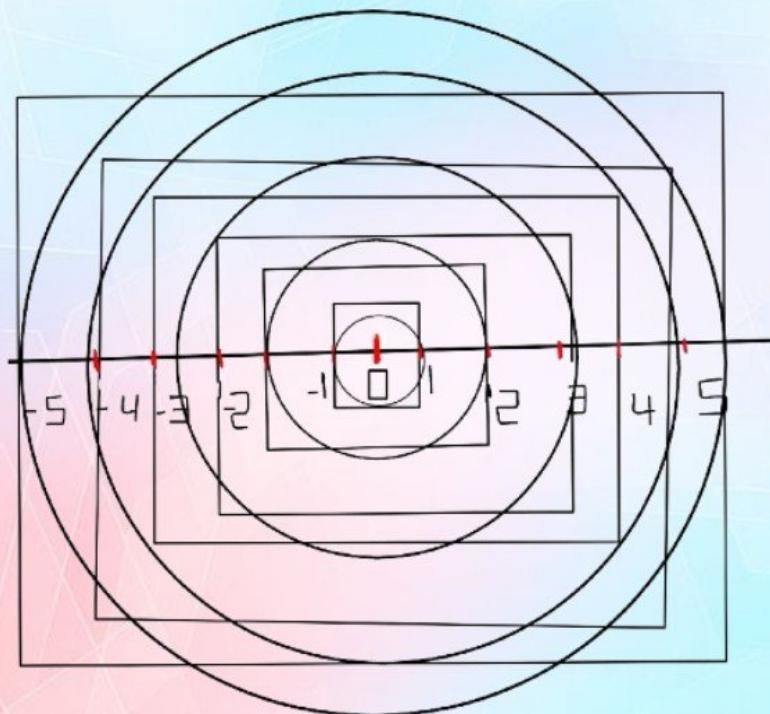
Second rule

Division by zero equals the same number negatively.

$$5/0 = -5$$

$$7/0 = -7$$

Zero can be regarded as a geometric element surrounding a given number, forming circles and squares around it and its counterpart, indicating its position and order within the numeral system.



$$5 \times 0 = -5$$



Emptying

Multiplying by zero is like taking 5 full tanks (or cups) of water and multiplying by zero: you end up with 5 empty tanks (or cups). In other words, nothing remains.

Multiplying by zero is like taking 5 full tanks (or cups) of water and multiplying by zero: you end up with 5 empty tanks — nothing remains.

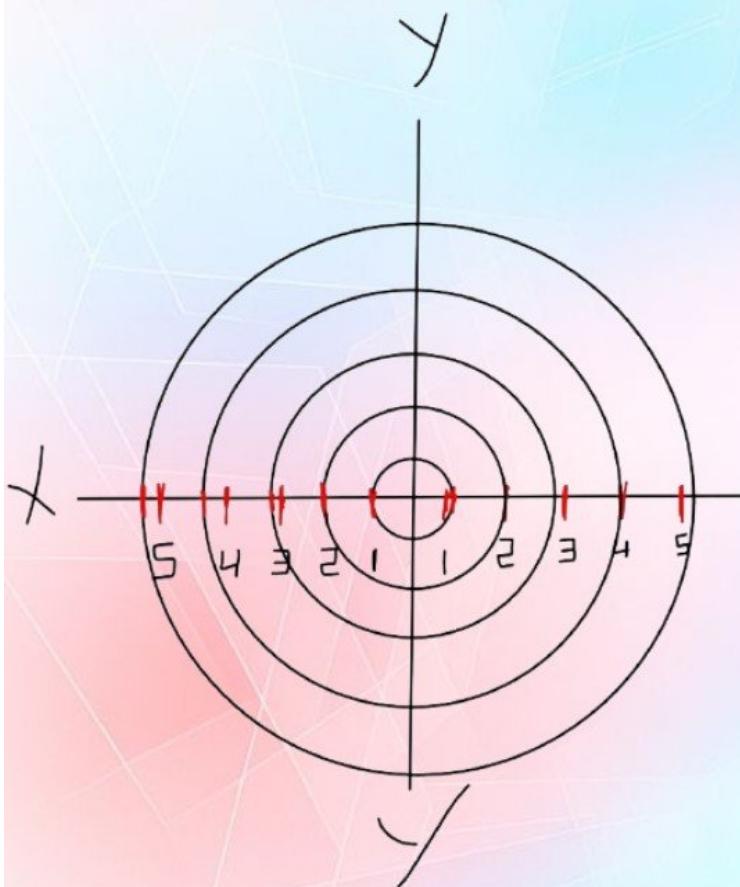
Dividing by zero is like trying to split 5 full tanks among zero tanks: you also end up with 5 empty tanks — nothing

ZERO

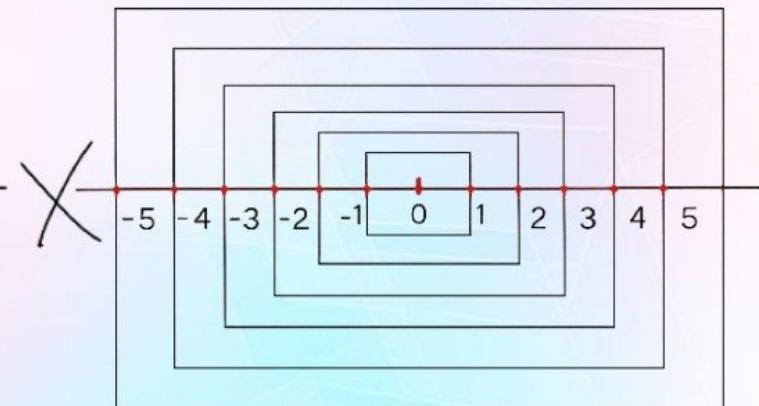
$$0^0 = 1$$

$$\frac{0}{0} = 1$$

$$5 \times 0 = -5$$



$$5/0 = -5$$



Exploring Limits and Gaps: Geometric Shapes at Zero Points and Novel Insights

$$f(x) = \frac{(x-1)(x-3)}{(x-1)(x-3)}$$

$$f(1) = \frac{(1-1)(1-3)}{(1-1)(1-3)} = \frac{0(-2)}{0(-2)} = 1$$

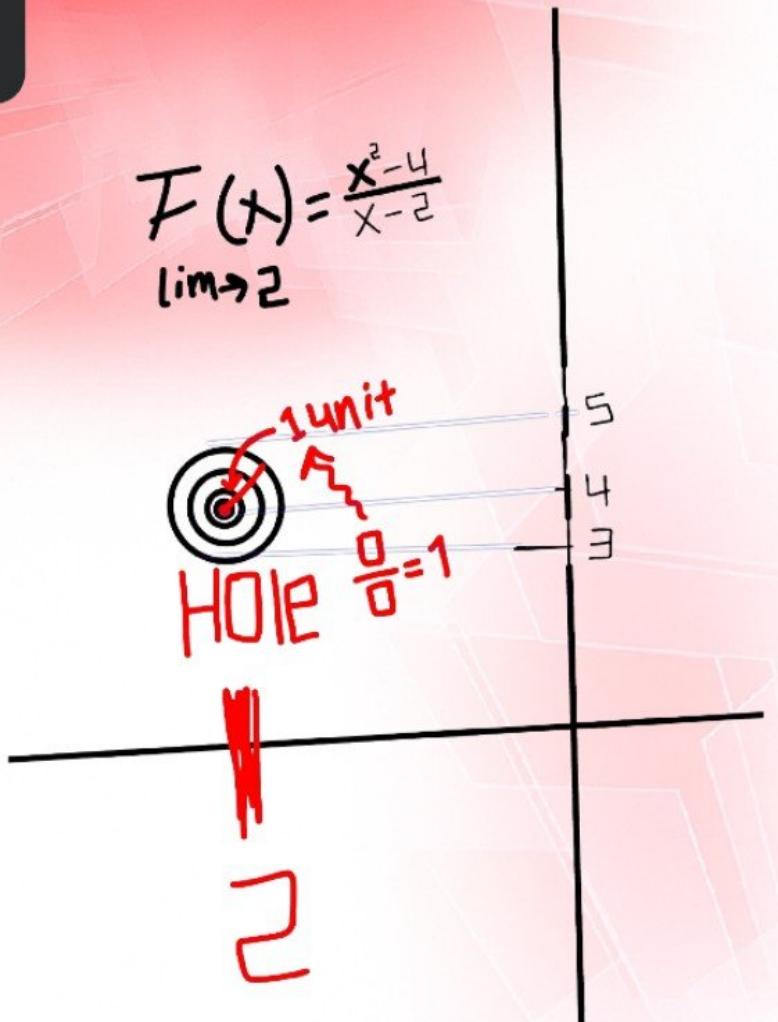
$$f(3) = \frac{(3-1)(3-3)}{(3-1)(3-3)} = \frac{(2)(0)}{(2)(0)} = 1$$



$$f(x) = \frac{x^2-4}{x-2}$$
$$\lim_{x \rightarrow 2}$$



From the diagram, we observe that the range of the gap is 1 unit; that is, the center of the gap is at approximately level 4, its upper bound is near level 5, and its lower bound is near level 3.



ZERO

This discovery is no longer merely a mathematical solution; it has opened boundless horizons in physics, chemistry, engineering, quantum mechanics, and dynamics. It enables the conceptual unification of spacetime forces and the exploration of multiple dimensions, granting mathematics unprecedented rigor after decades of fragility in confronting extreme phenomena. In this way, resolving division by zero transforms from a formal problem into a key for understanding the universe at the deepest levels of structure and natural law.

Exploring New Dimensions:

By overcoming division by zero, it has become possible to explore dimensions beyond the traditional three- and four-dimensional spaces, enabling scientists to conceptualize space and time in a deeper and more diverse manner. These new dimensions may open doors to understanding cosmic and biological phenomena from an infinite perspective.

Conclusion:

Solving the division by zero problem is no longer merely a theoretical mathematical issue but a key to unlocking new scientific horizons. From physics to medicine, and from chemistry to engineering, this solution has expanded the limits of human knowledge and paved the way for exploring infinitely dimensional worlds.