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A multivalued infinity

Open Mathematics Collaboration*†

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Abstract

We define 0/0 as the complex function f(z) = z.

keywords: infinity, multivalued, zero divided by zero

Introduction

1. Does zero divide zero? [1]

Divisibility

2. <u>Definition</u>: $a|b \leftrightarrow \exists z \in \mathbb{Z}(az = b)$.

3. According to (2), $0|0$, i.e., zero divides zero.

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Zero divided by zero

4. From (2) and (3), $z = \frac{0}{0}$.

5. Therefore,
$$\frac{0}{0} = \{z : z \in \mathbb{C}\}.$$

Final Remarks

6. The $\frac{0}{0}$ *infinity* is **multivalued**; it can assume *infinite values.*

7. $\frac{0}{0}$ is defined by the set in (5).

Open Invitation

Review, add content, and **co-author** this paper [2, 3].
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Ethical conduct of research

This original work was pre-registered under the OSF Preprints [4], please cite it accordingly [5]. This will ensure that researches are conducted with integrity and intellectual honesty at all times and by all means.

References

[1] Lobo, Matheus P. "Does Zero Divide Zero?." *OSF Preprints*, 3 Jan. 2020. https://doi.org/10.31219/osf.io/5txzg

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