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Calculator: Divide by 0 gives Infinity (3/94)

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TOPIC -----

When I divide the number 1 by the number 0, using the Calculator DA, I get the answer 'infinity.' Why does the calculator give me this answer?

DISCUSSION -----

Any number divided by "nothing," or "zero" is undefined.

You can take the limit of $1/n$ as $n \rightarrow 0$ and you'll see that as "n" is in the whole number domain and decreases from + toward 1, and that the result approaches "1." As "n" decreases from 1 toward 0 (.9,.8,.7,.....0000003,00000000002, etc.) the result gets larger (for example: $1/.2 = 5$, $1/.02 = 50$, $1/.002 = 500$, etc.). As the "n" gets smaller, the result gets larger. As "n" approaches 0, the result approaches + .

In Calculus, $\lim (1/n)$ as $n \rightarrow 0 \Rightarrow +$ which is undefined, so either "infinity" () or "undefined" is the correct answer.

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