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Math\_Questions\_0047

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Brain Teaser Time!

Let 'x' and 'y' be two variables that are equal ( $x=y$ ). From these two variables, I can prove that 2 is equal to 1:

steps

1	$x = y$	Given.
2	$x*x = x*y$	Left-multiply both sides by x
3	$x*x-y*y = x*y-y*y$	Subtract $(y*y)$ from both sides
4	$(x-y)*(x+y) = (x-y)*y$	Factor $(x-y)$ from both sides
5	$(x+y) = y$	Cancel $(x-y)$ from both sides
6	$(y+y) = y$	Replace x with y (given, see line 1)
7	$2y = y$	Simplify $(y+y)$ to $2y$
8	$2 = 1$	Answer: 2 is equal to 1

**What is wrong with this logic (besides that 2 is equal 1, that much is true!)? Name the step or steps and why it is wrong.**

- Discuss how the integration of a function can be viewed as the limit of an infinite sum.
- Explain with example integration by parts.