

Integration by using derivative

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Has anyone seen anything like this before:

$$\lim_{(\|dx\| \rightarrow 0)} (\sum_{k=0}^{n-1} f(a+k \cdot dx) \cdot dx) = \int_a^b f(x) dx$$

it looks like a way to integrate a function by using its derivative "in one go" (instead of having to integrate twice).

I believe there's probably a way to transform it into a Riemann integral like sum but I can't figure out how to turn the summand into something like $f(a+k \cdot dx) dx$.

Thanks,
AD

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