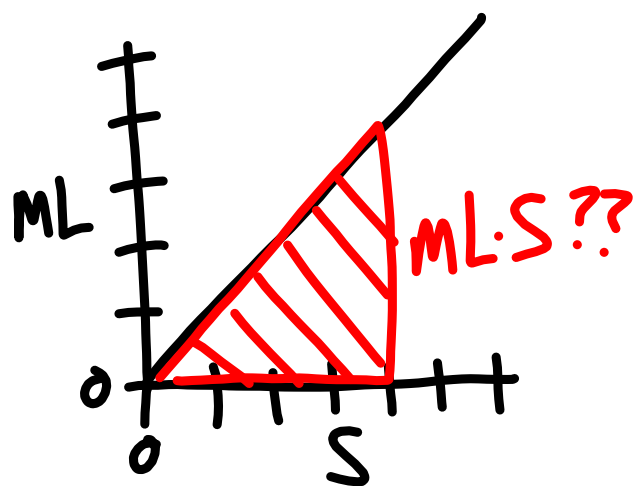
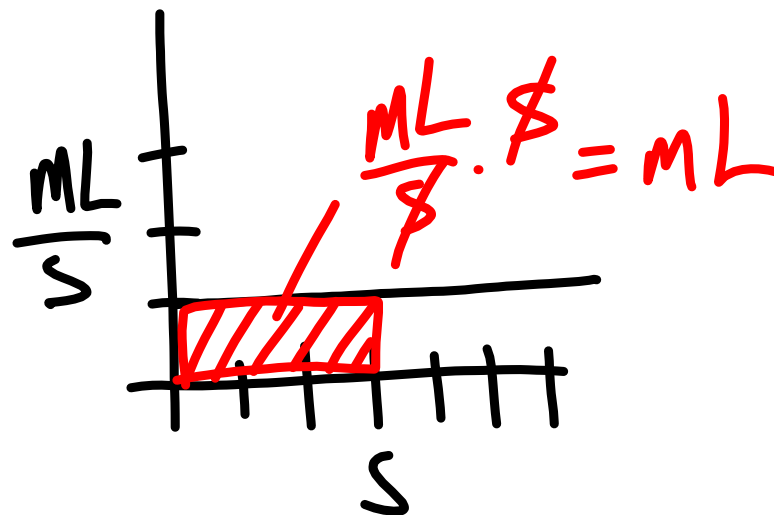


Integrals

Imagine filling a beaker

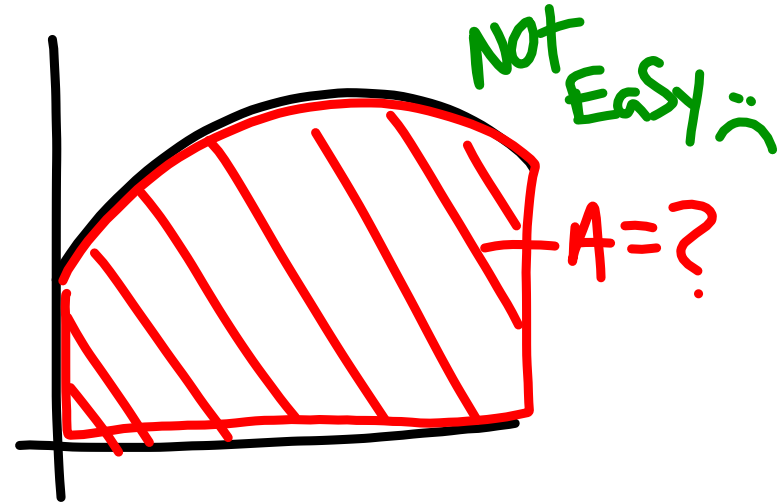
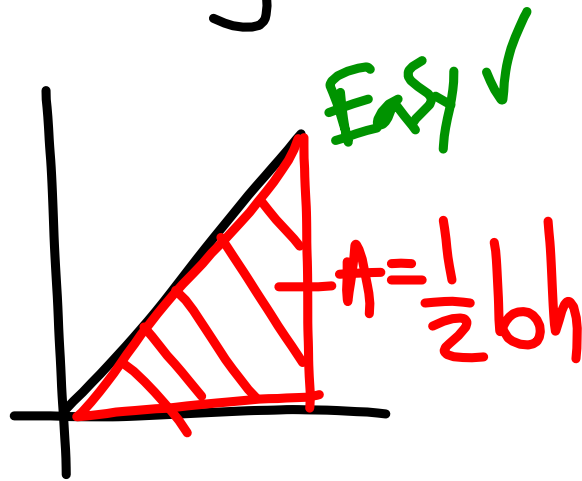


Know: ml added
time



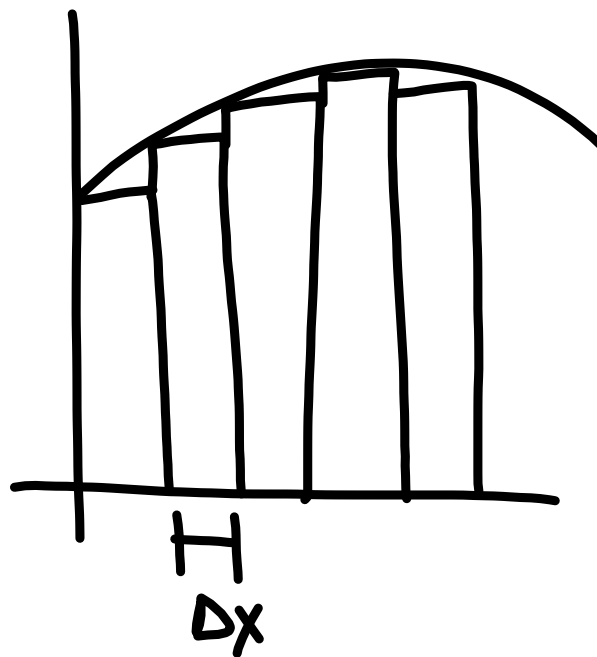
ML/s added
time

Integral \rightarrow area under a Curve.

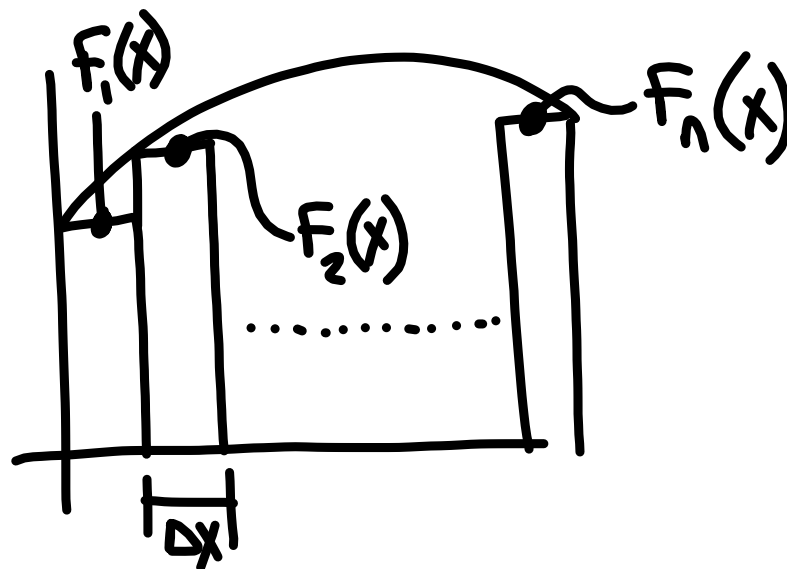


Basic idea:

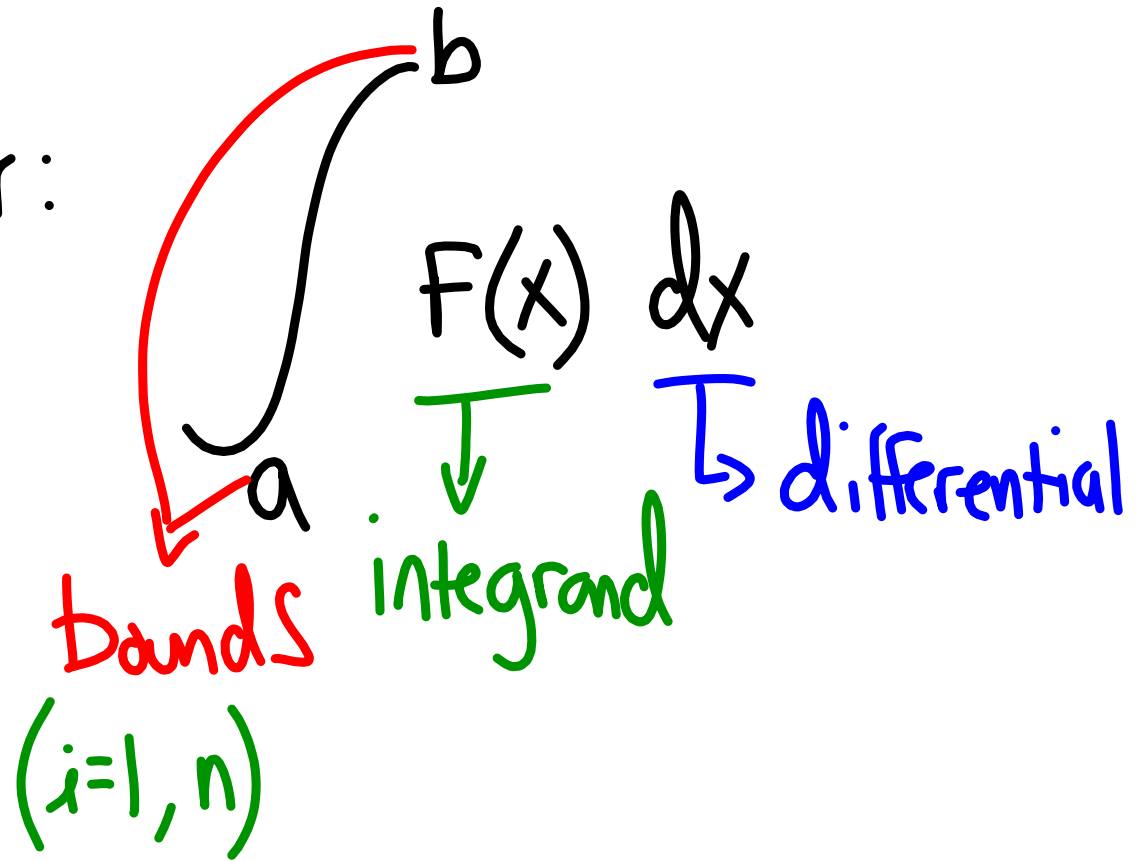
- Add up area of all boxes
- let Δx go to zero



$$\lim_{\Delta x \rightarrow 0} \sum_{i=1}^n F_i(x) \Delta x$$



More better:



Ex: $f(x) = 3x^3 \rightarrow f'(x) = 9x^2$
derivative

$3x^3 \checkmark \leftarrow \frac{9x^3}{3}$ \leftarrow integral $\int 9x^2 dx$

What about Constants?

$$f(x) = 2x^2 + 3x^0 \rightarrow f'(x) = 4x'$$

$$\frac{4x^2}{2} + C \leftarrow \int 4x' dx \leftarrow f'(x) = 4x'$$

↳ constant of integration
↳ Need extra info.

Indefinite integral \rightarrow No bounds
definite integral \rightarrow bounds

