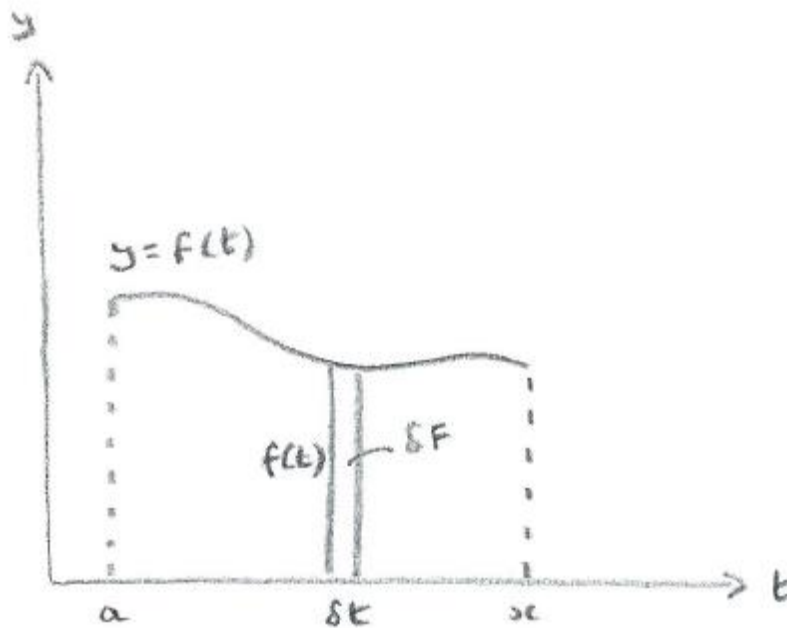


Fundamental Theorem of Calculus (1 page; 10/7/21)

The Fundamental Theorem of Calculus states that

if $F(x) = \int_a^x f(t) dt$, then $F'(x) = f(x)$

Proof



$$\delta F \approx f(t)\delta t \Rightarrow \frac{\delta F}{\delta t} \approx f(t)$$

$$F'(t) \text{ or } \frac{dF}{dt} = \lim_{\delta t \rightarrow 0} \frac{\delta F}{\delta t} = f(t)$$

and at $t = x$, $F'(x) = f(x)$