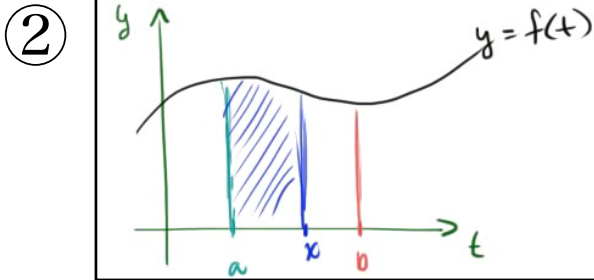


① f continuous on $[a, b]$



Fund. theorem of calculus

$$\frac{dF}{dx} = \frac{d}{dx} \int_a^x f(t) dt = f(x)$$

- Every cont. f has an antiderivative $F(x)$
- Connection between derivatives/integration

③ $F(x) = \int_a^x f(t) dt$, where x in $[a, b]$

$$\frac{d}{dx} \left(\int_a^x \overbrace{\left(\frac{\cos^2 t}{\ln(t - \sqrt{t})} \right)}^{f(t)} dt \right) = \frac{\overbrace{\cos^2 x}^{f(x)}}{\ln(x - \sqrt{x})} \checkmark$$

- Depictive sentence for ①: “Let’s say I have some function f that is continuous on an interval between a and b .”
- Explanatory sentence between ② & ③: “Well, how do we denote the area under the curve between two end points? Well, we just use our definite integral.”