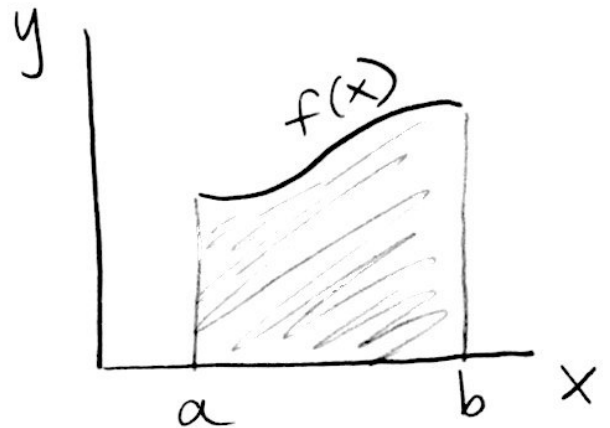# 4.3 Definite Integrals and Properties of Integrals

If f is continuous and non-negative on $[a,b]$, then the area of the region bounded by f, the x-axis, and vertical lines $x=a$ and $x=b$ is:
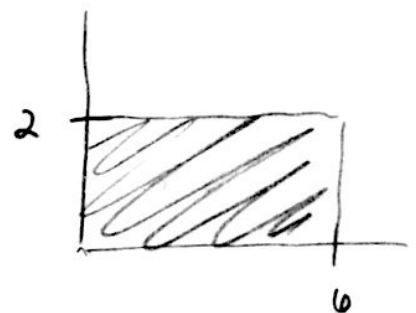
$$Area = \int_a^b f(x)\,dx$$

$\uparrow$

DEFINITE INTEGRAL

Find area analytically/graphically.

① $\int_0^6 2\,dx = 2x\Big|_0^6$

$2(6) - 2(0)$

$= 12$

$Area = 6 \cdot 2 = 12$