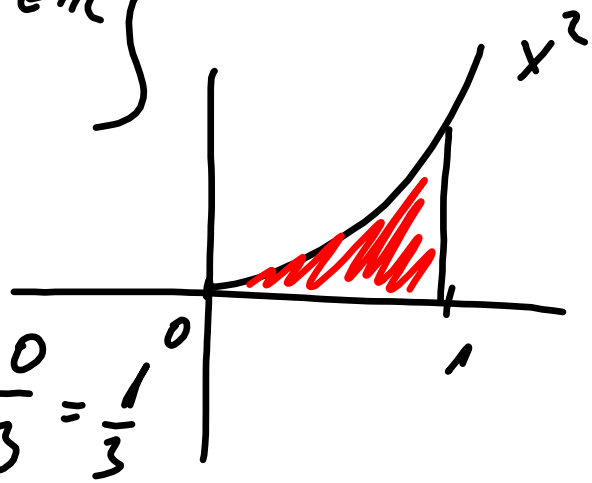
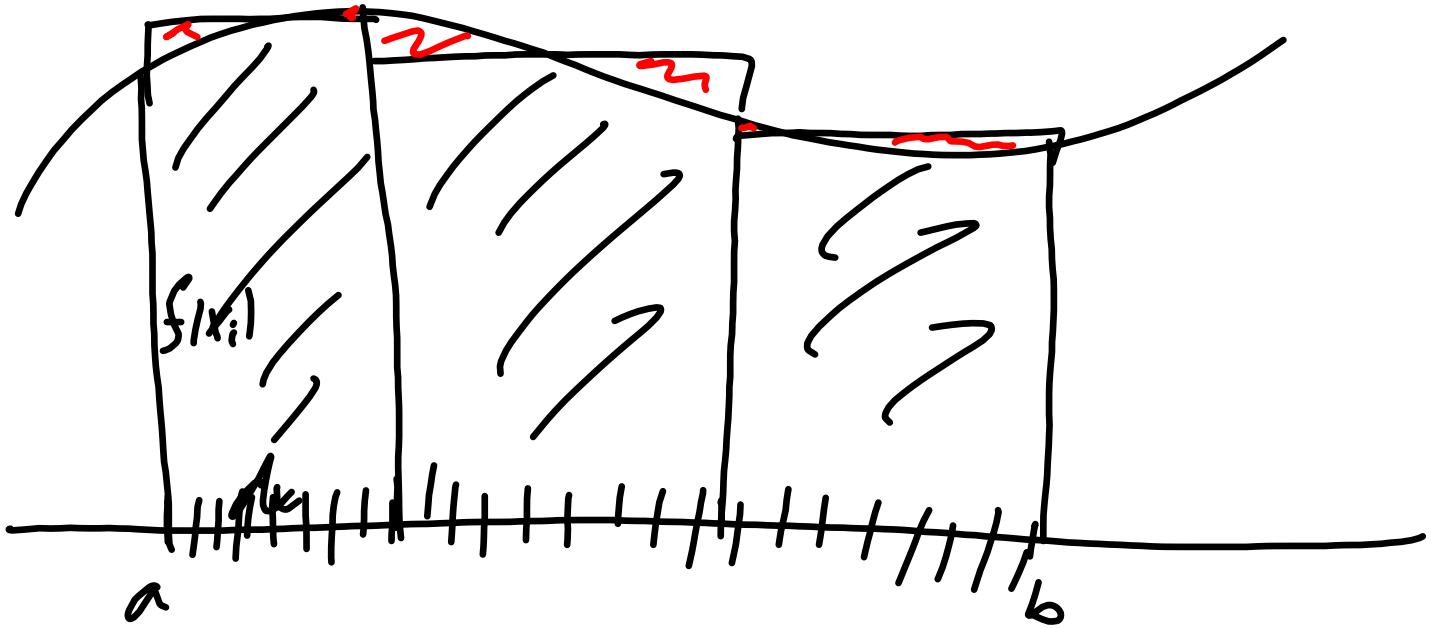
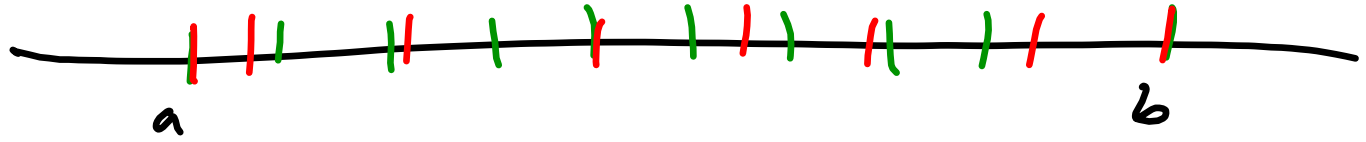
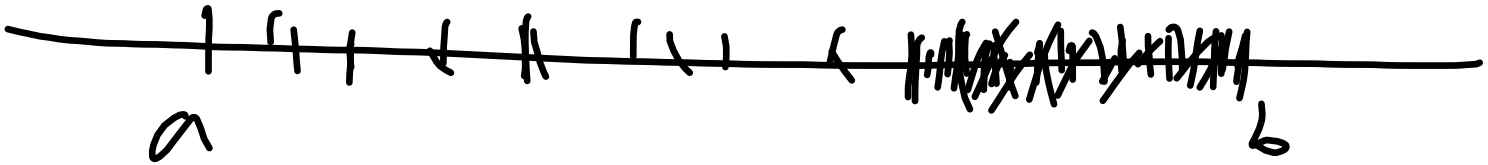
$$\int x^2\,dx = \left\{\frac{x^3}{3} + C,\ C \in \mathbb{R}\right\}$$

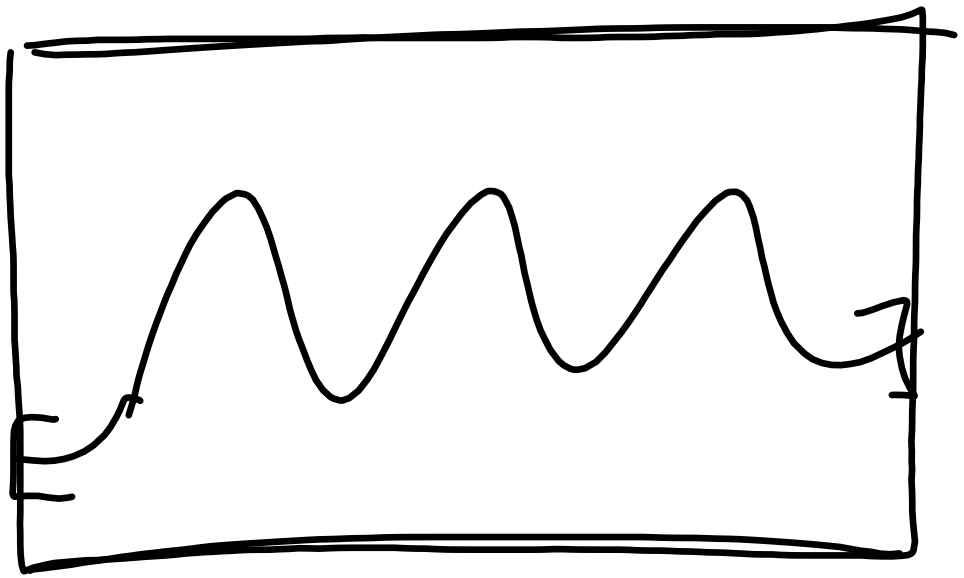
$$\int_0^1 x^2\,dx = \left[\frac{x^3}{3}\right]_0^1 = \frac{1}{3} - \frac{0}{3} = \frac{1}{3}$$

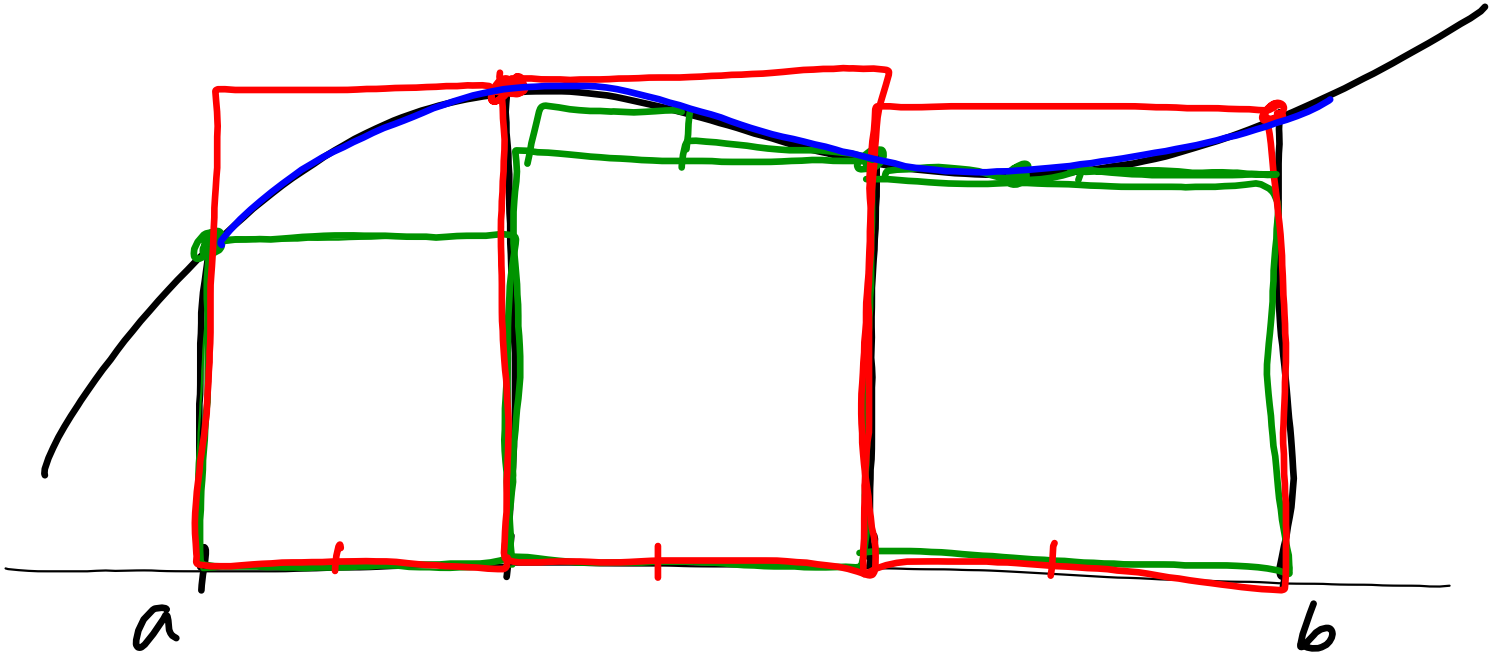


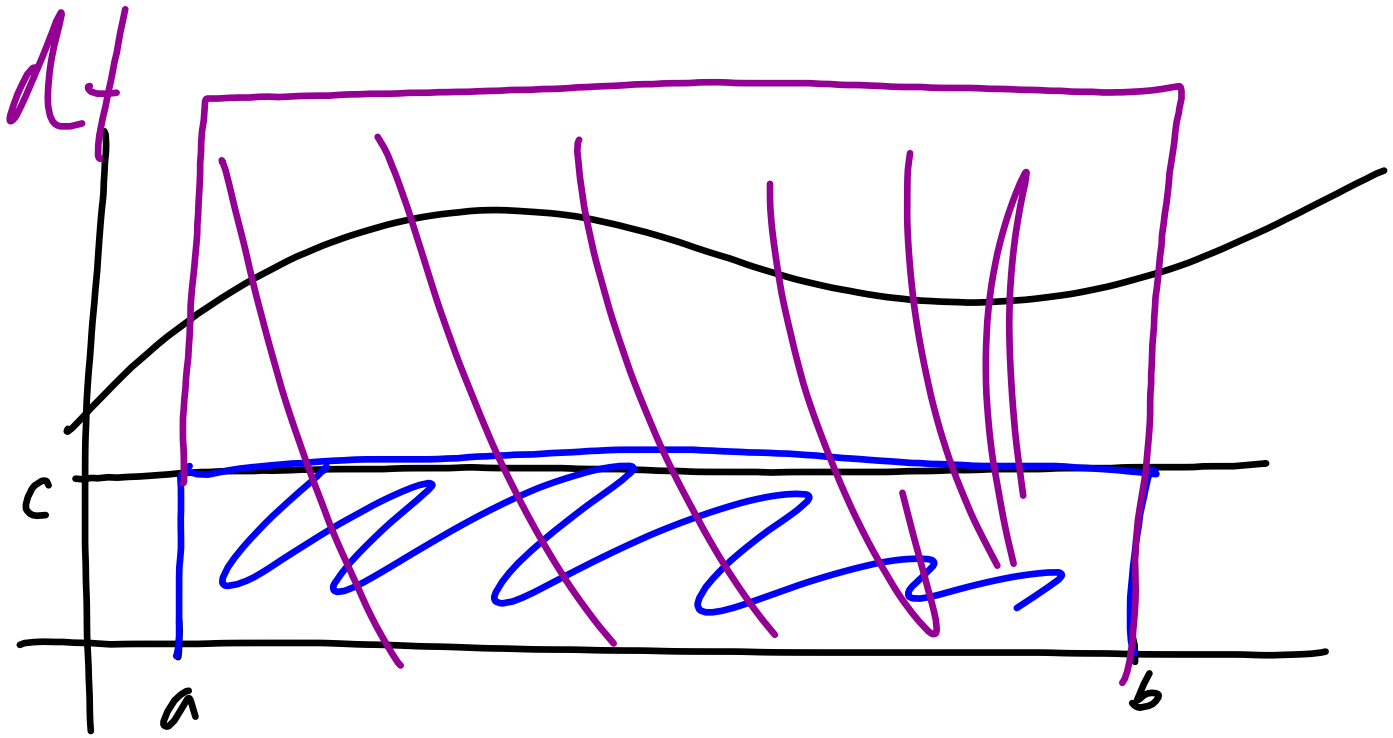

f(x_i)
Δx
a
b


a
b


a
b

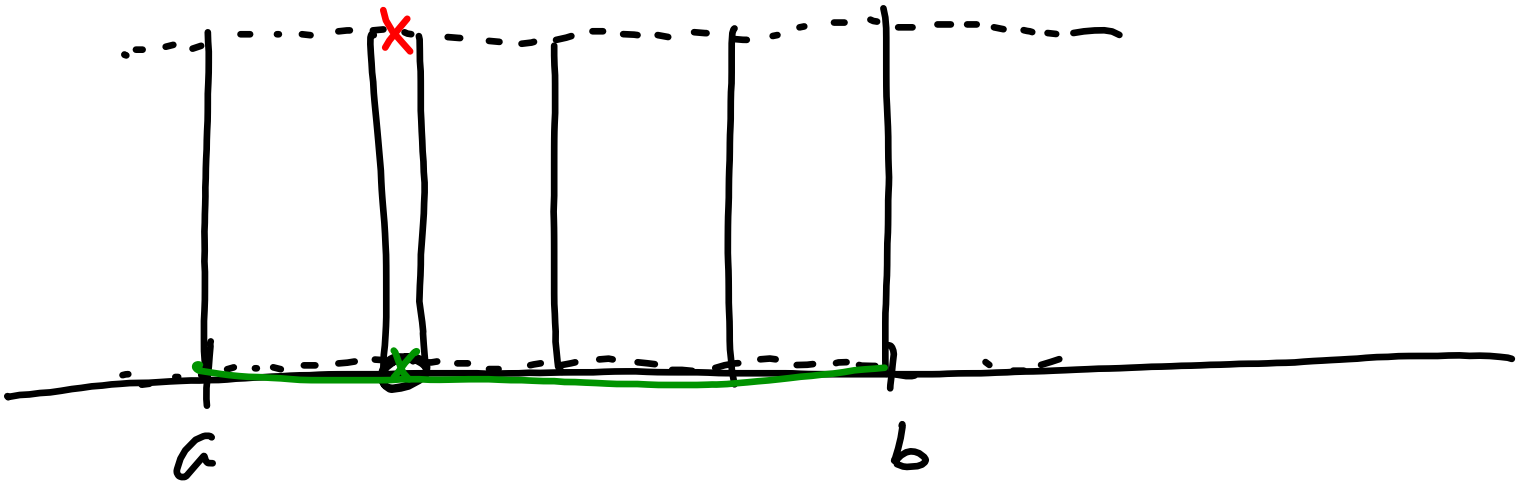


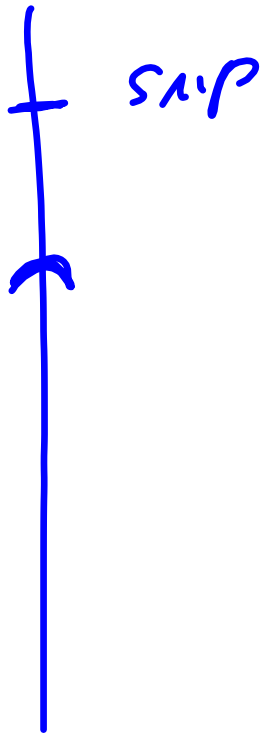

a
b

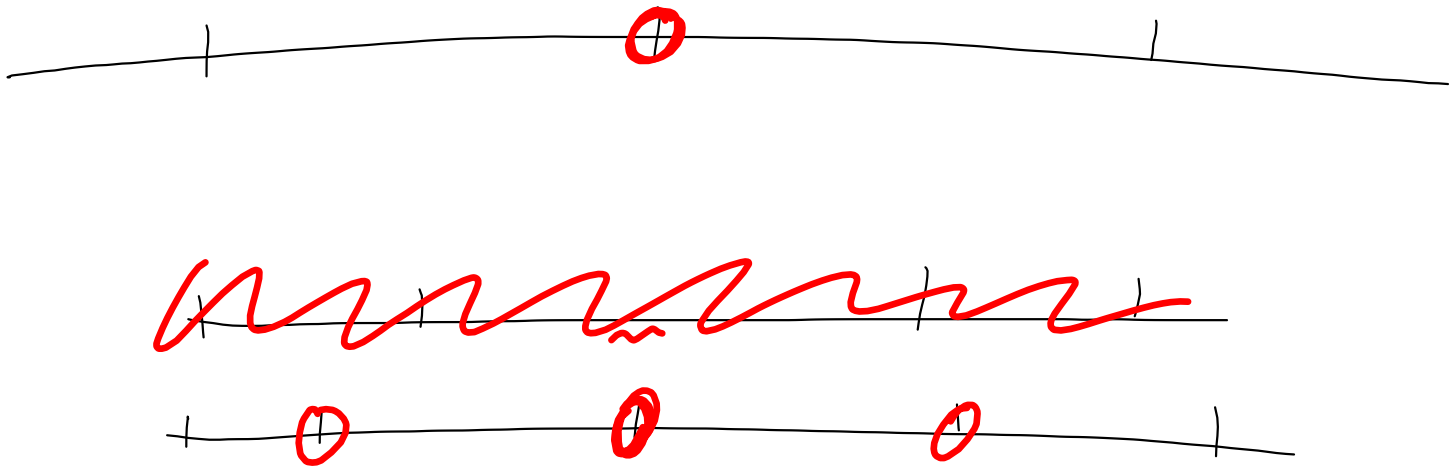

c
a
b

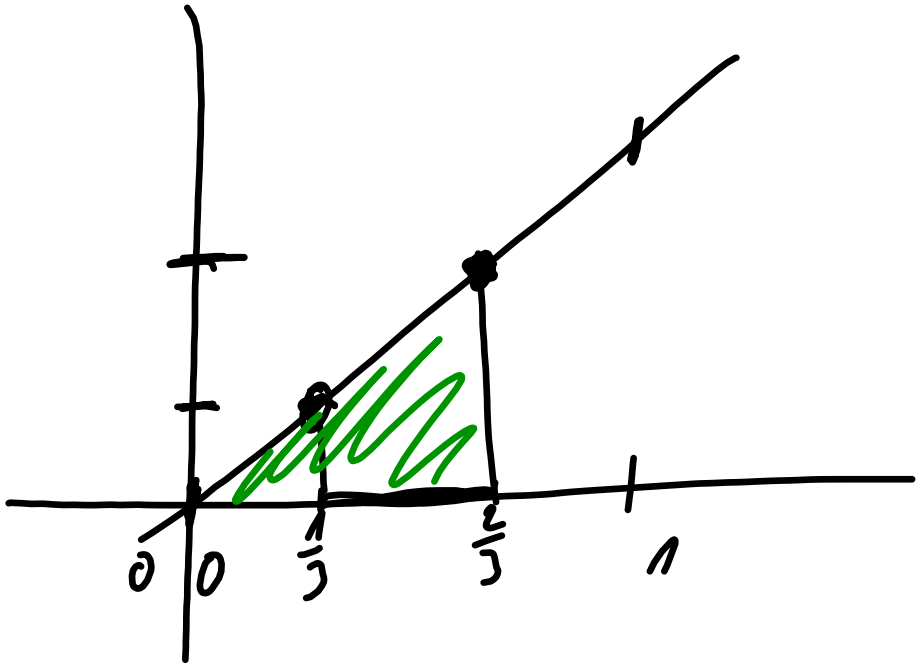
$$\int_a^b$$

$s = 0 \neq S = b - a$




sup

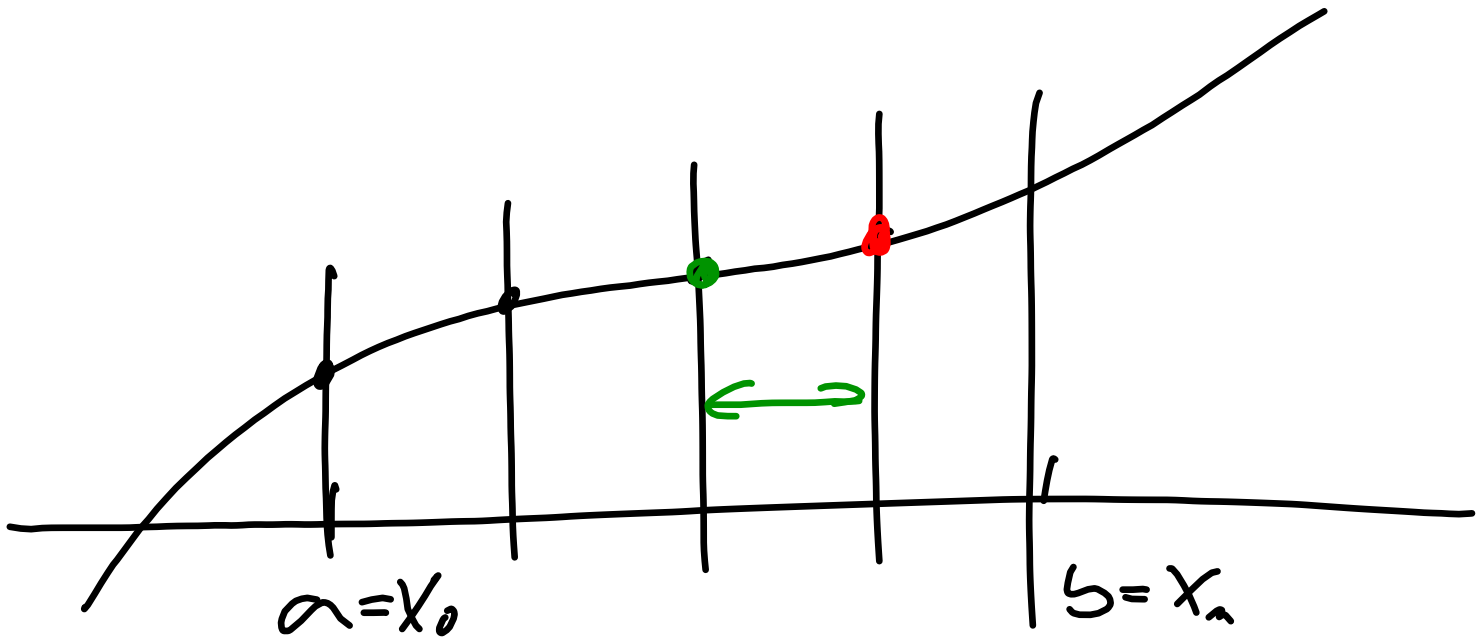


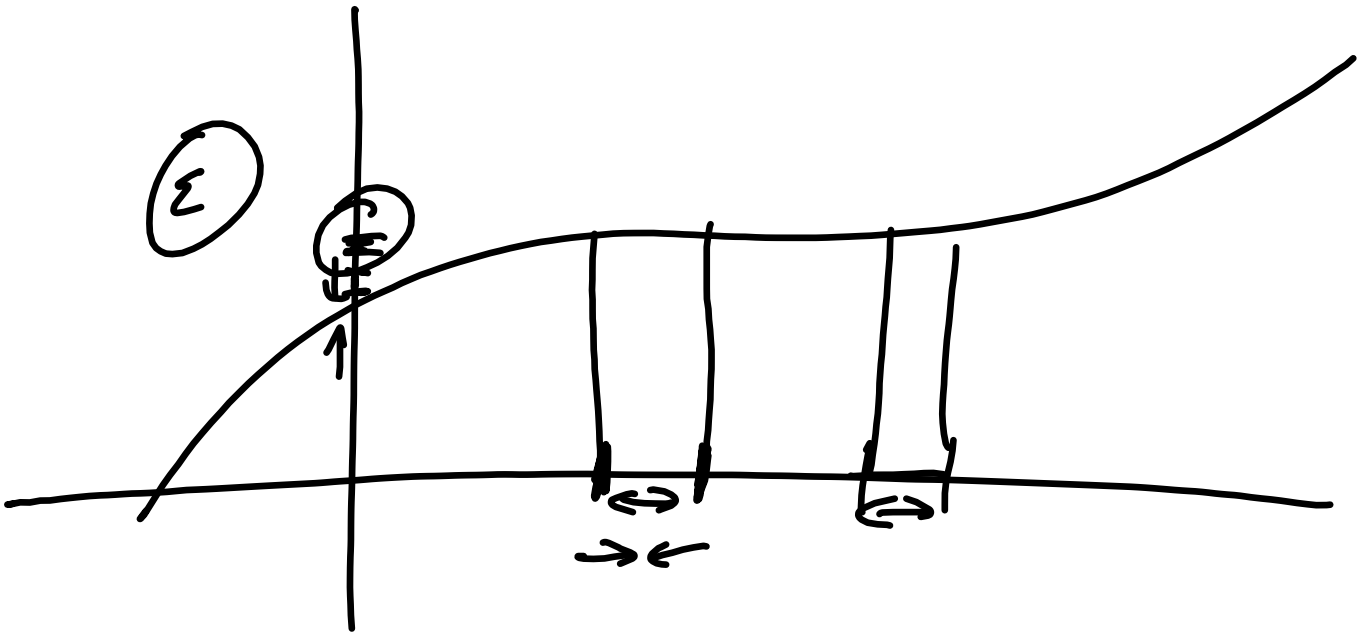

1
0
0
1/3
2/3
1

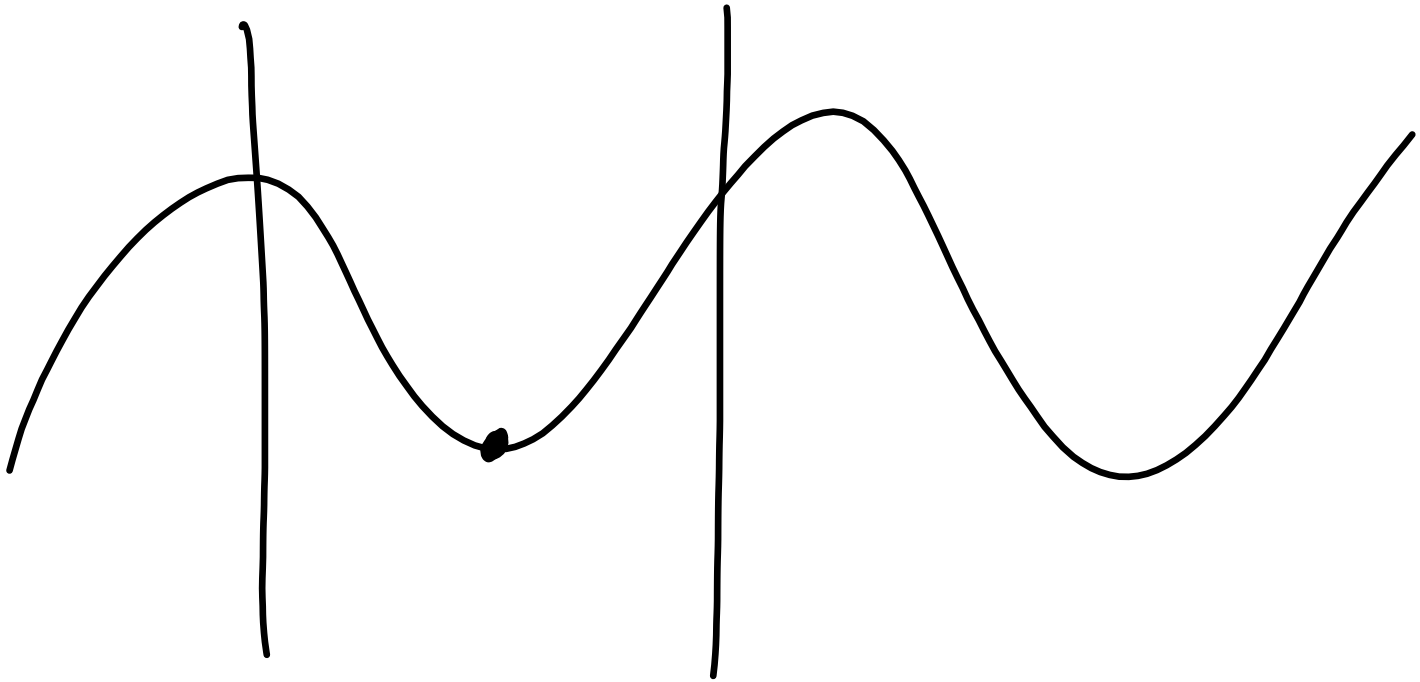
$$1+2+3+\ \ldots\ +99+100$$

$$100+99+\ \ldots\ -2+1$$

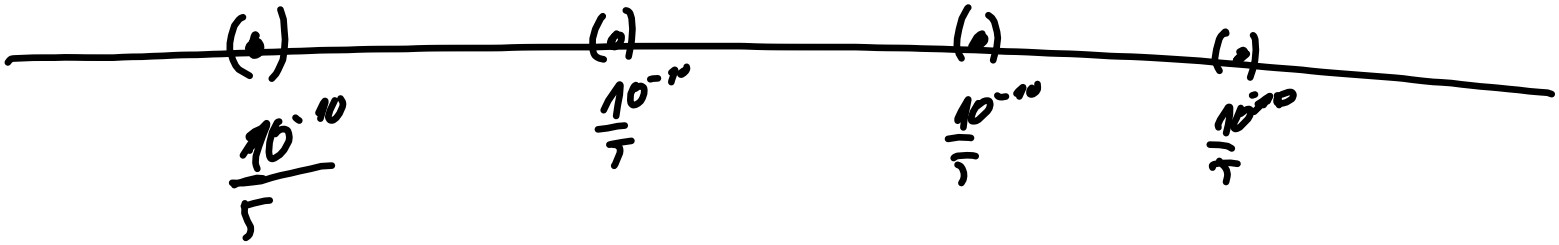
$$\frac{100\times 101}{2}$$


a=X0
b=Xn

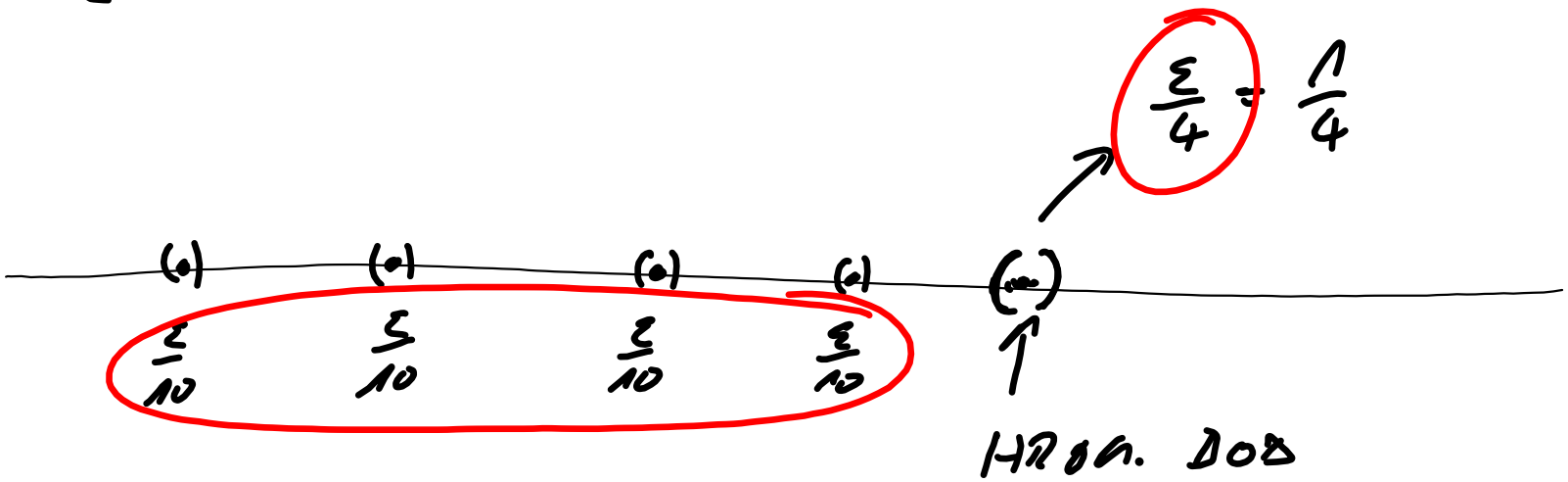

ε

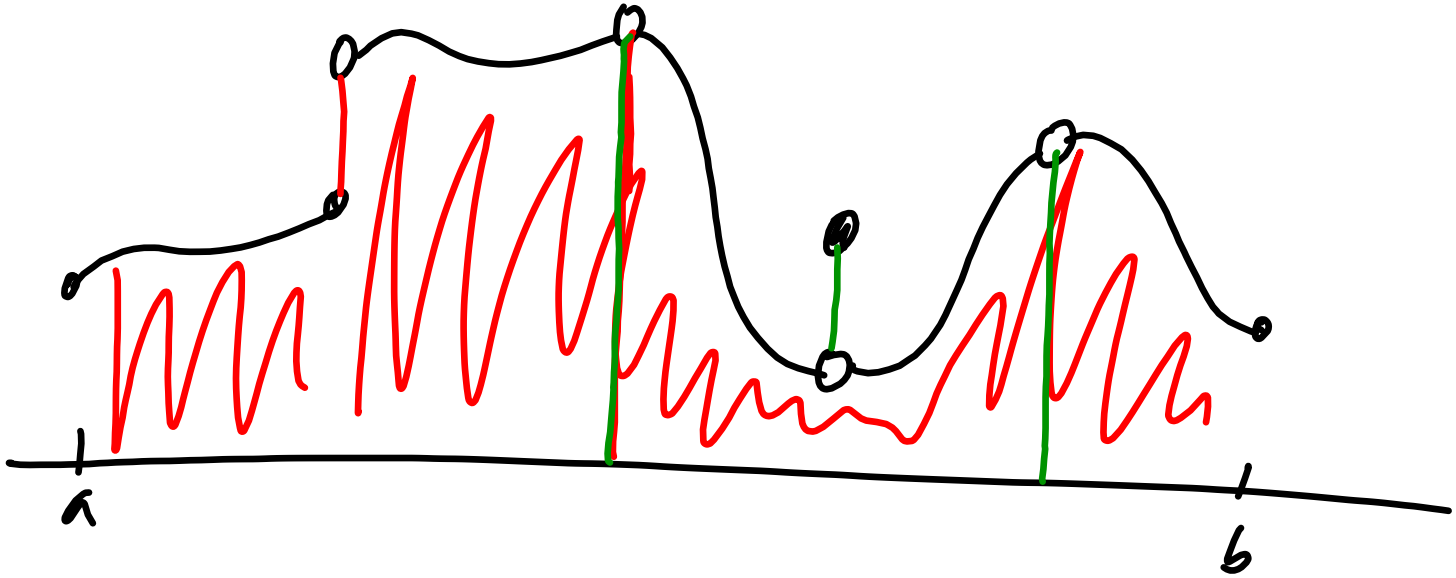


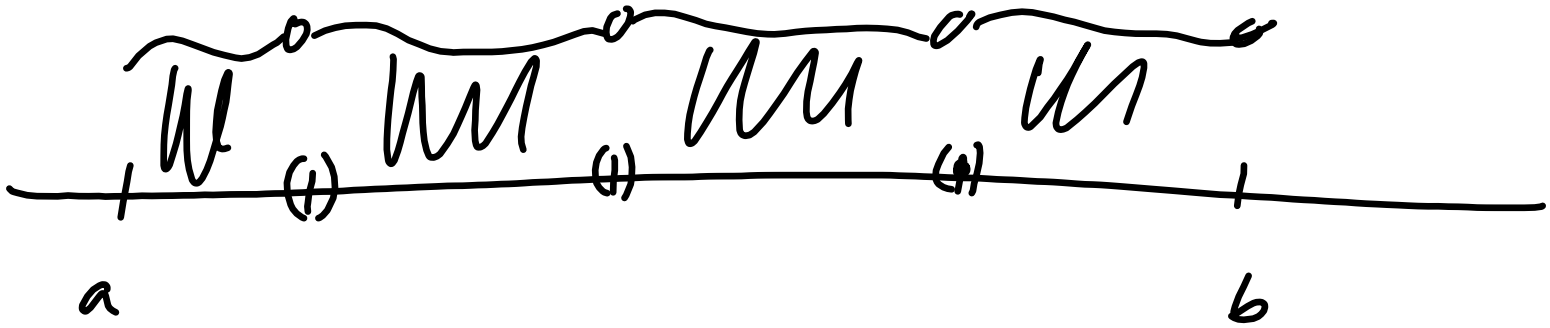
$\varepsilon = 10^{-10}$

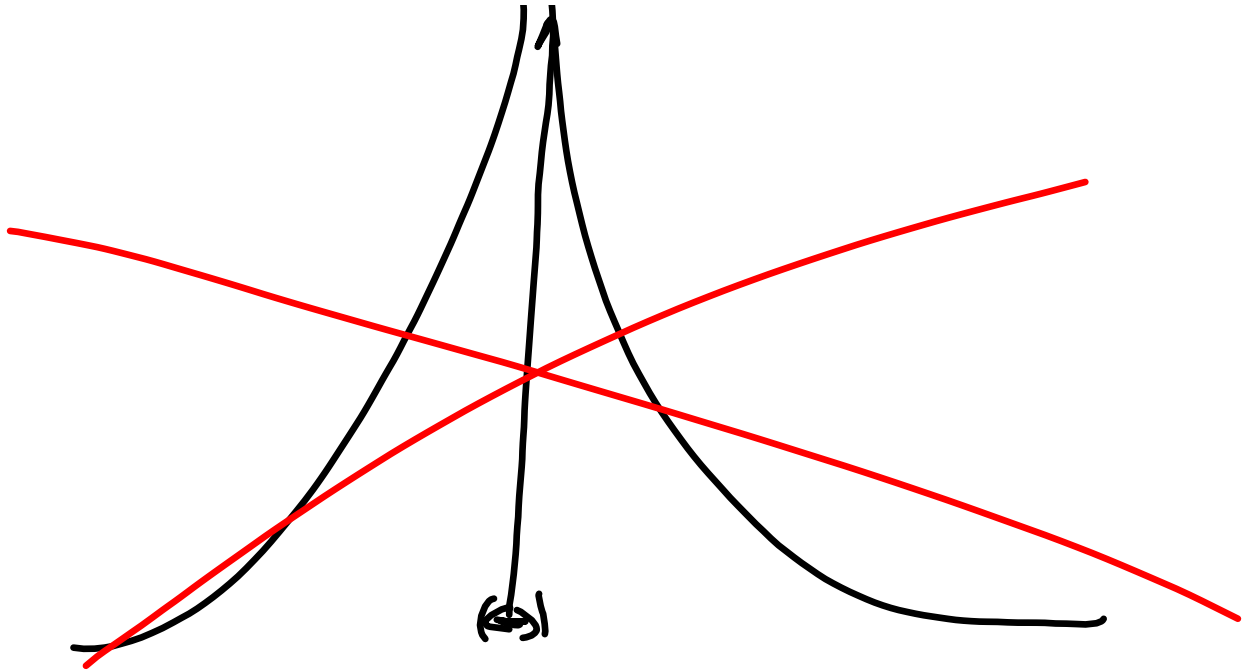


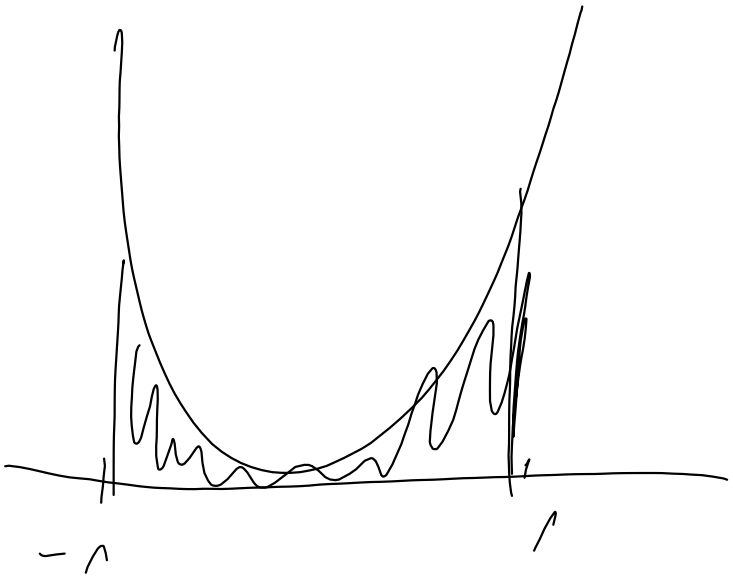
$\varepsilon = 1$

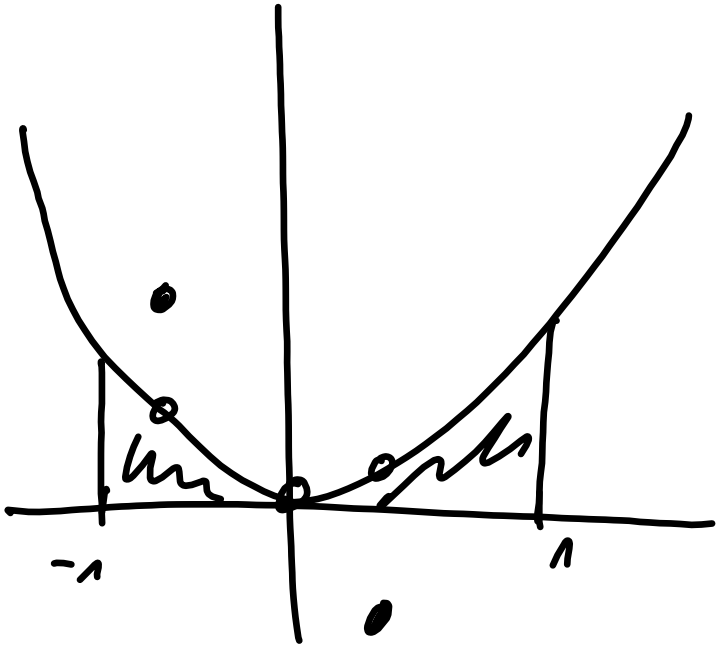



a
b


a
b




−1
1

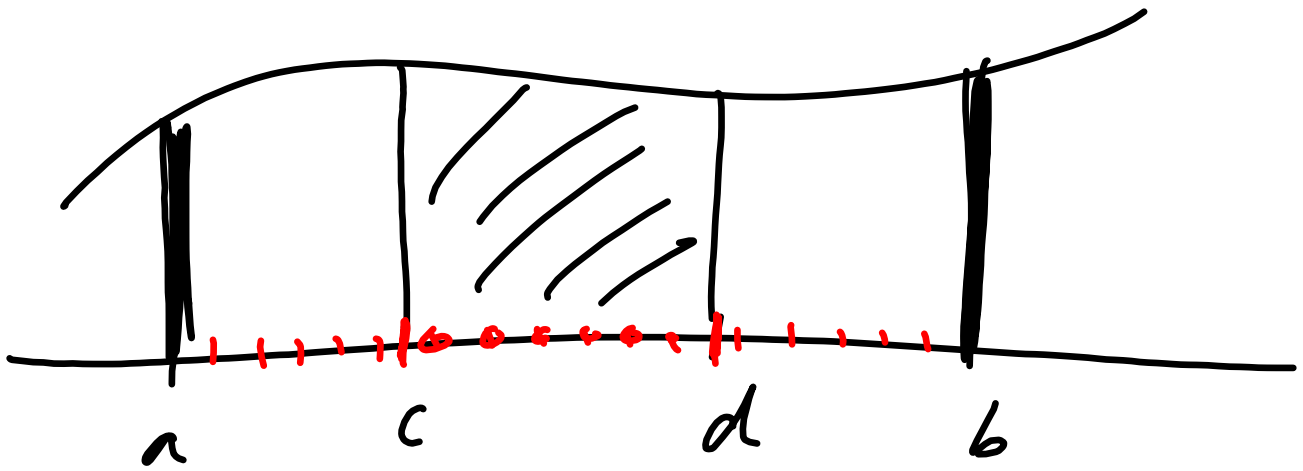

−1
1

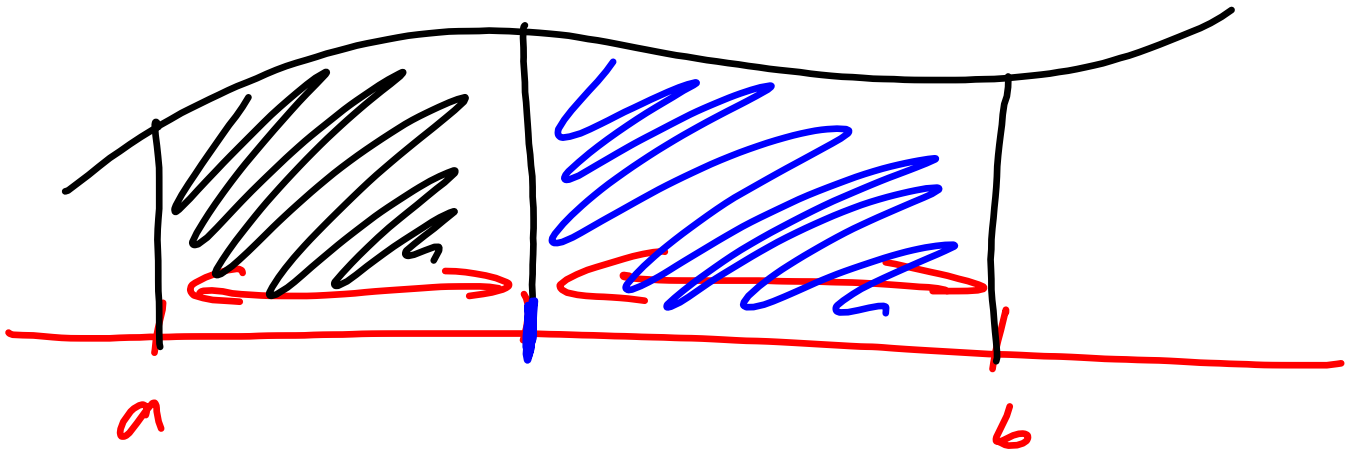
$g > 0$ vs. $g \geq c > 0$

$$\min(f+g) \geq \underbrace{\min f}_{5} + \underbrace{\min g}_{7}$$

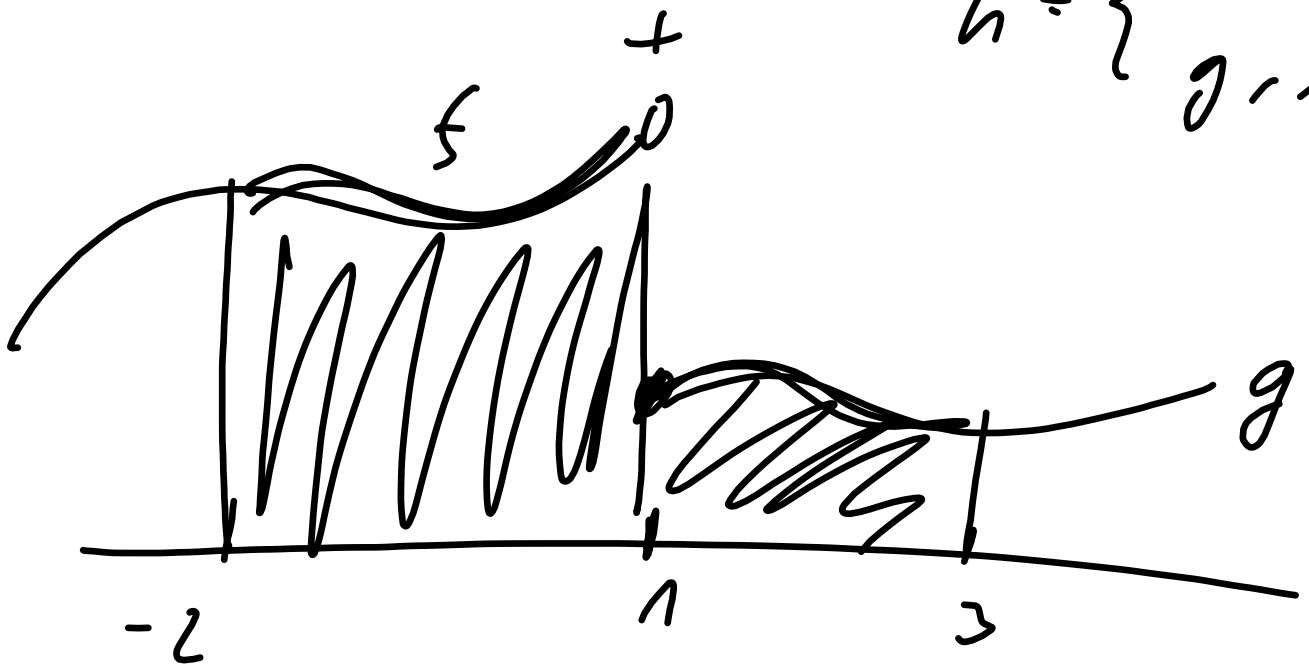
$$5 \leq A \leq B \leq 5$$

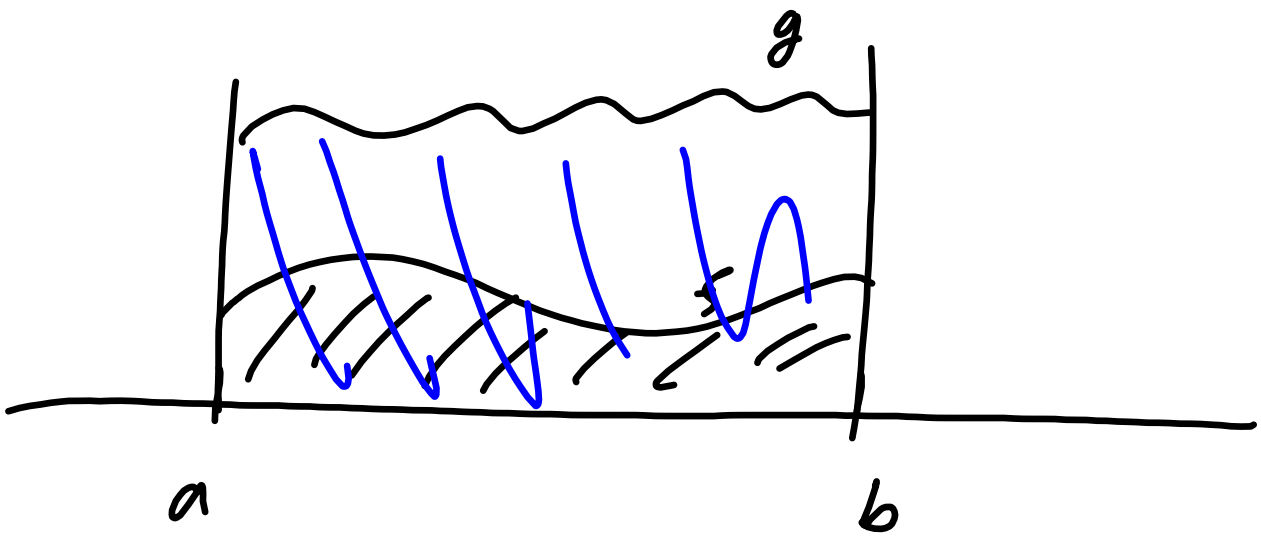
$$A = B = 5$$


a
c
d
b

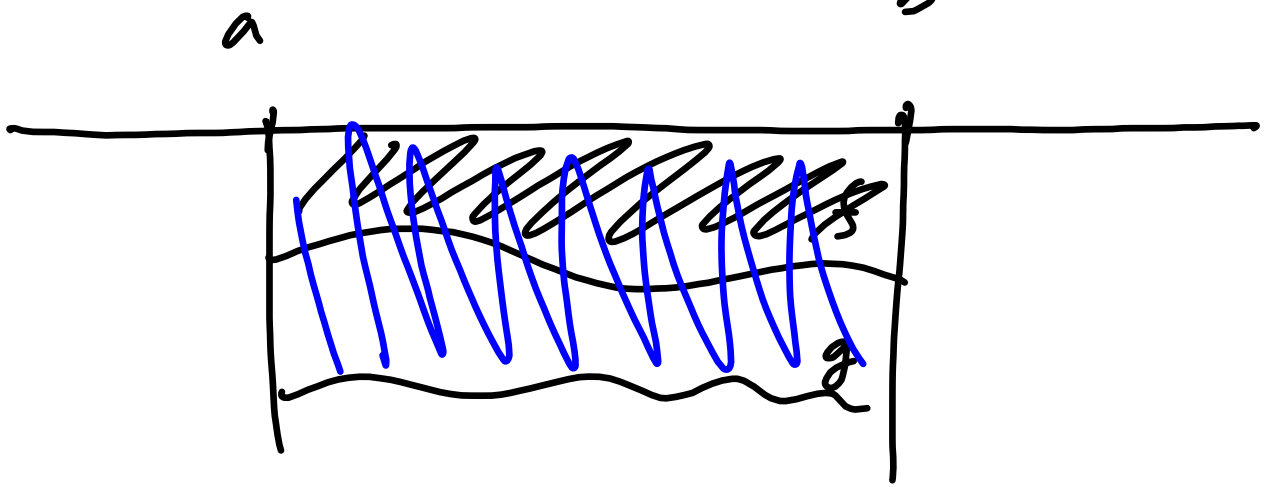

a
b

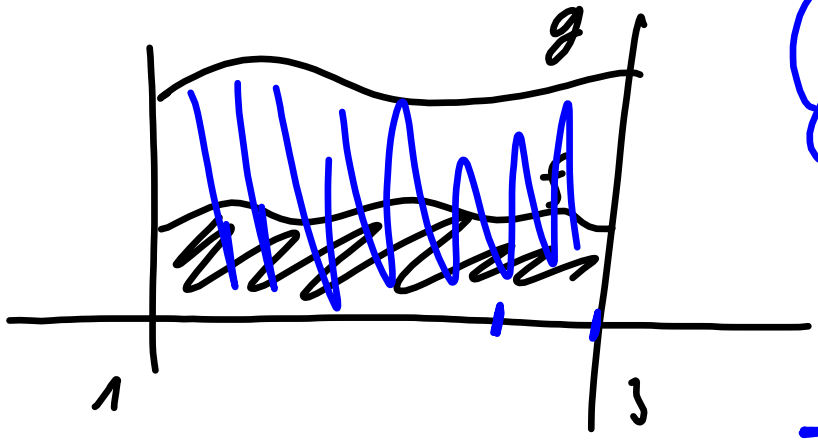
$$h = \begin{cases} f, & x \in [-2, 1) \\ g, & x \in [1, 3] \end{cases}$$




g
a
b

$$\int_a^b f\,dx \geq \int_a^b g\,dx$$





$$\int_3^1 f\,dx \qquad \int_1^3 g\,dx$$

$$\| \qquad\qquad \|$$

$$-\int_1^3 f\,dx \geq -\int_1^3 g\,dx$$

$$|5+(-3)| \leq |5|+|-3|$$

$$|2| \leq 5+3$$

$$2 \leq 8$$

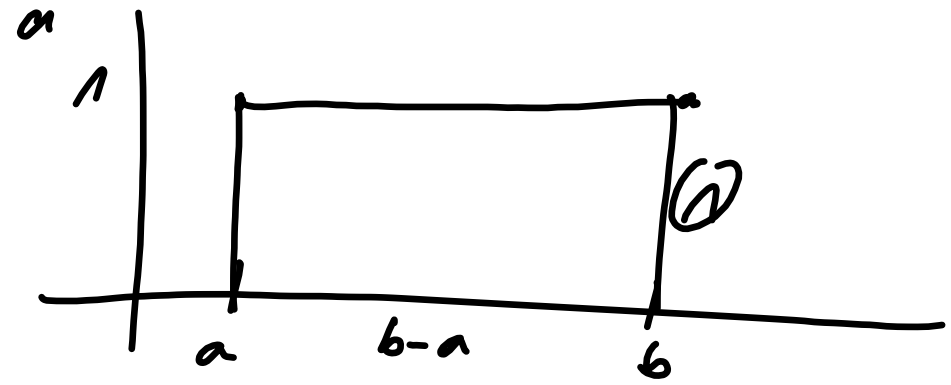
$$\sum f(y_i) \cdot (x_i - x_{i-1})$$

$$\sum f(x_i)\,dx \qquad n \to \infty$$

$$\int_a^b f(x)\,dx$$

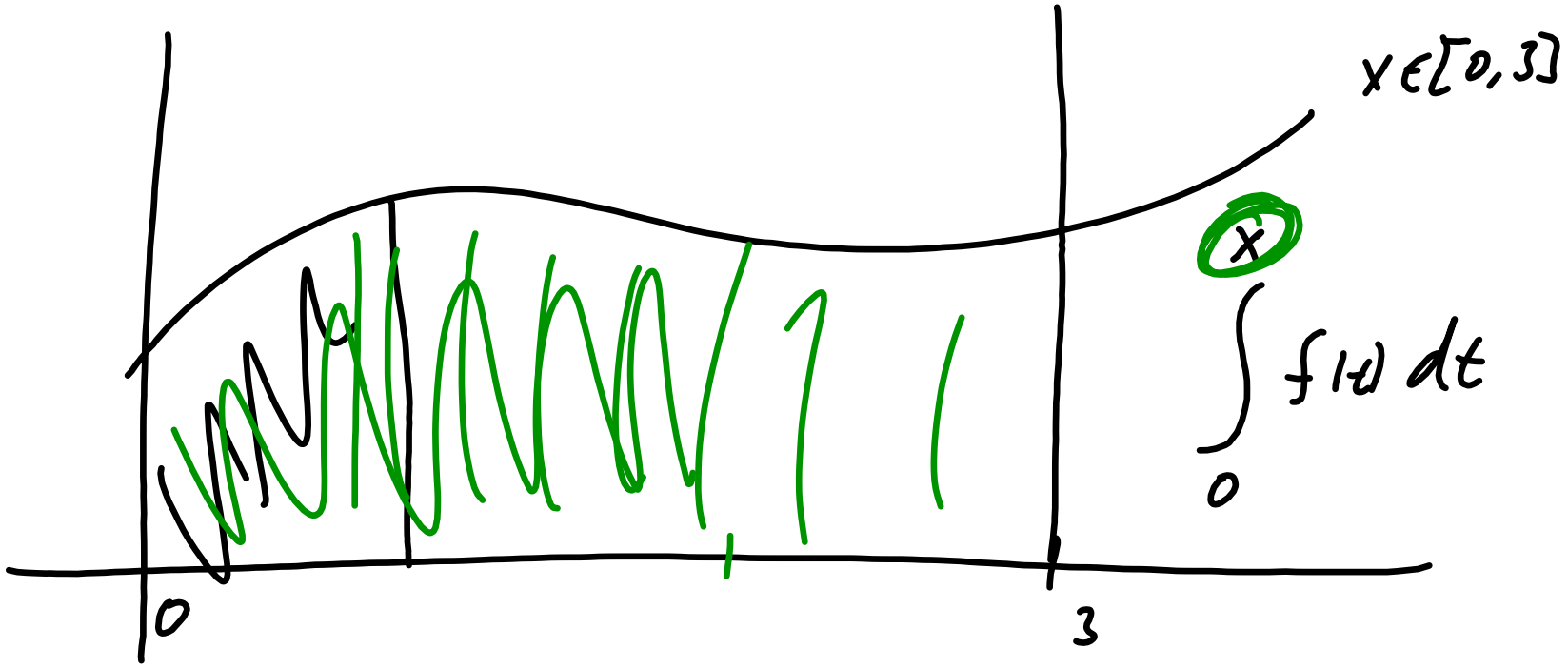
$$\int$$

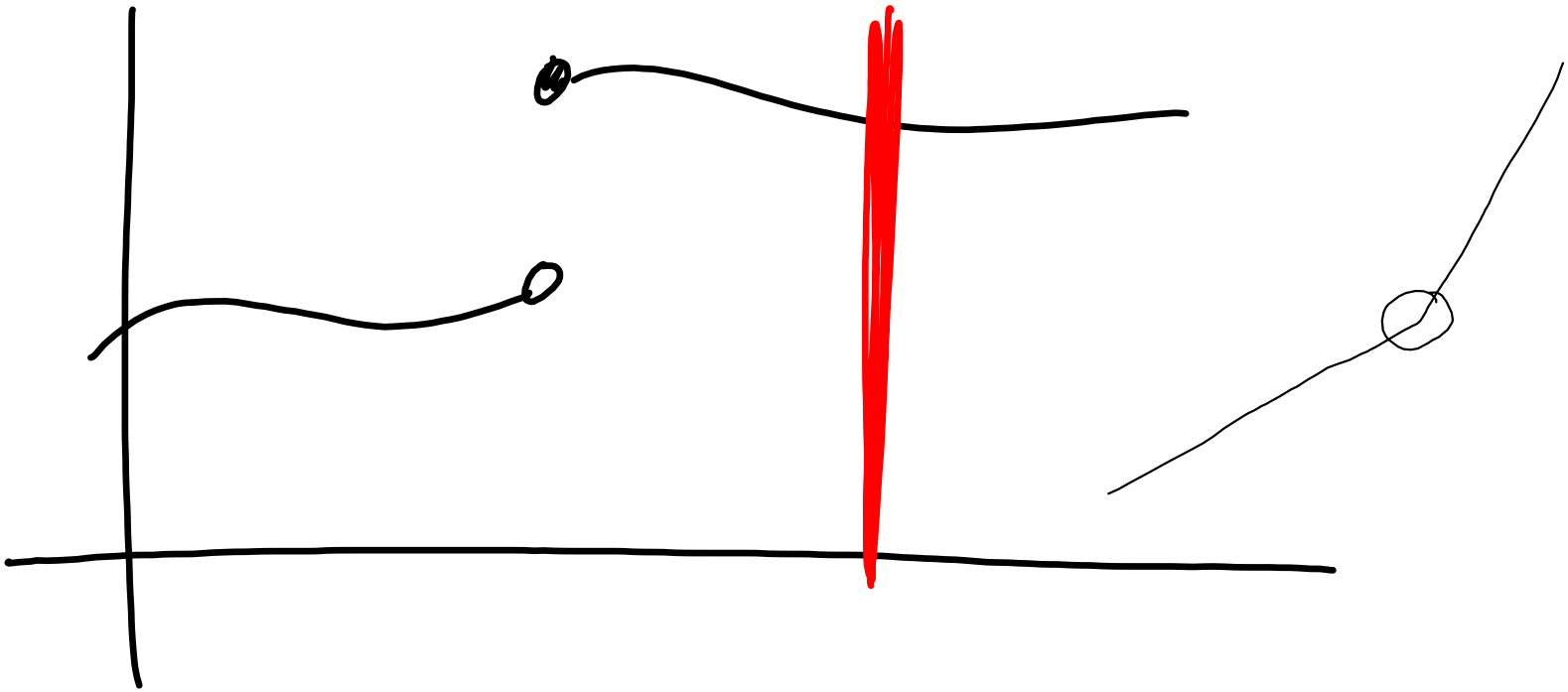
$$\int_a^b 1 \, dx$$



$$av(f) = \frac{\int_0^1 x^2\,dx}{1-0} = \frac{\left[\frac{x^3}{3}\right]_0^1}{1-0} = \frac{\frac{1}{3}}{1} = \frac{1}{3}$$

$$f(x) = x^2 \quad , \quad [0,1]$$


x ∈ [0, 3]
x
∫ f(t) dt
0
0
3



$$-\int_b^x = \int_x^b = \int_a^b - \int_a^x$$