1 2 3 4 5 ... $\to f(c)$

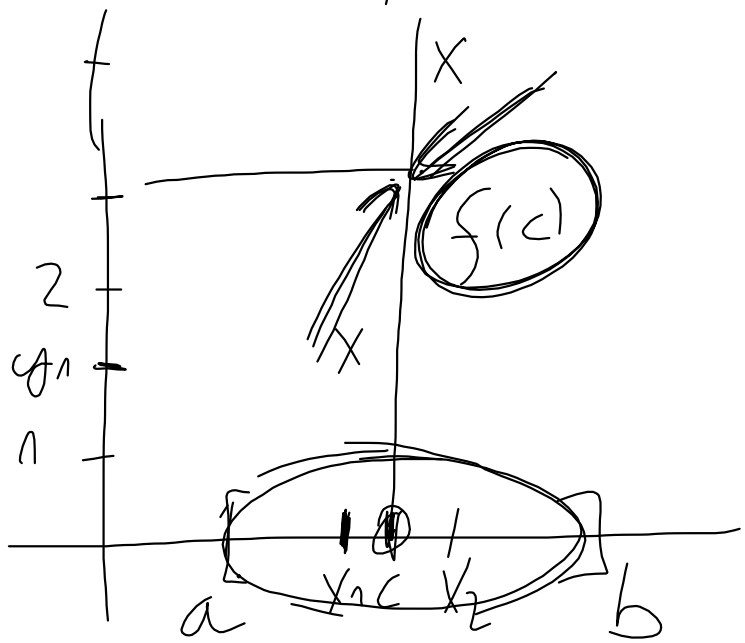
$\downarrow$ $\downarrow$

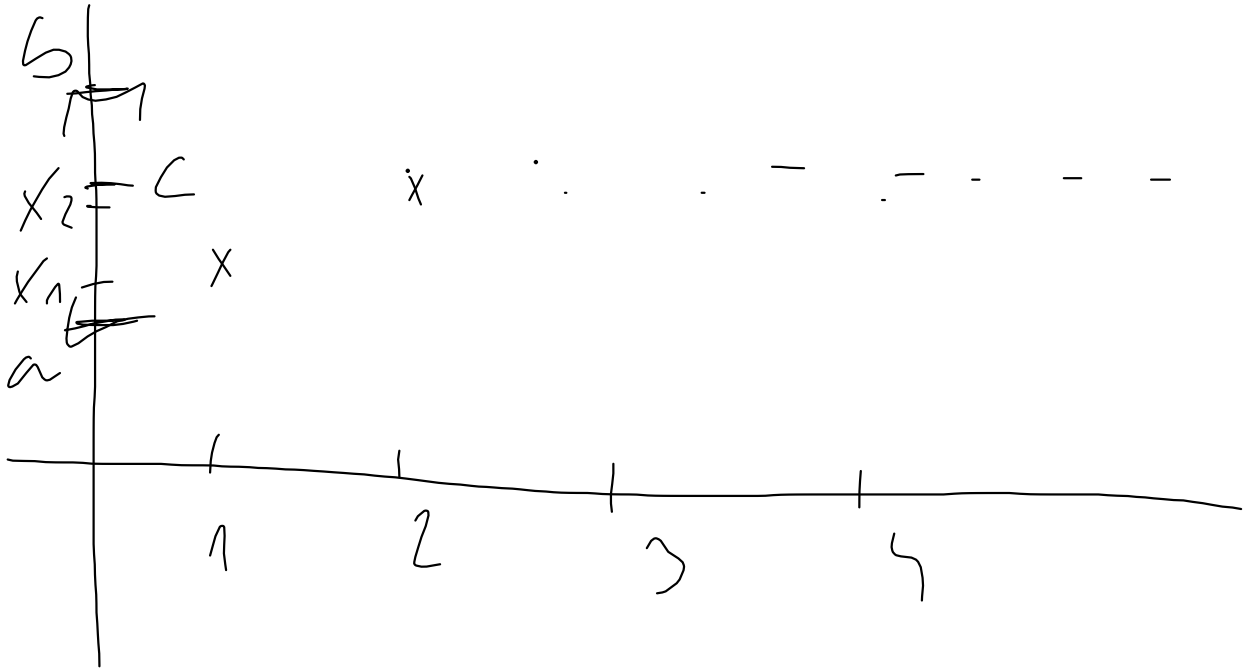
x_1 x_2 ...

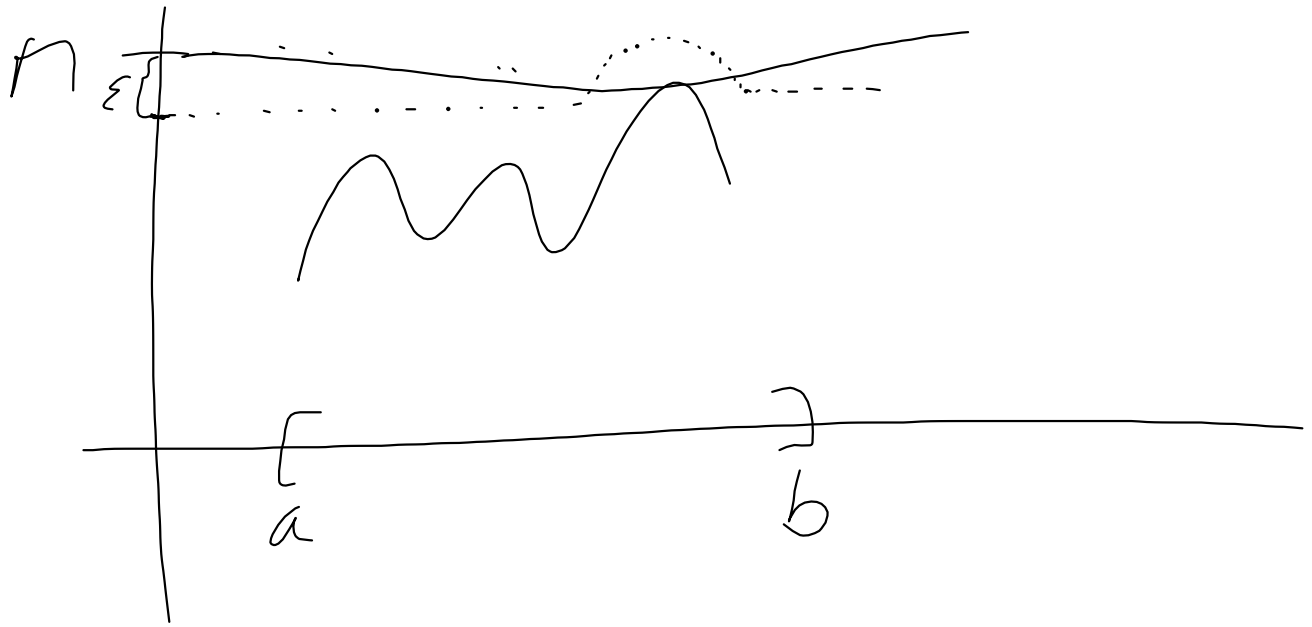
$y_1 \geq 1$ $y_2 > 2$ > 3 ... $\to \infty$

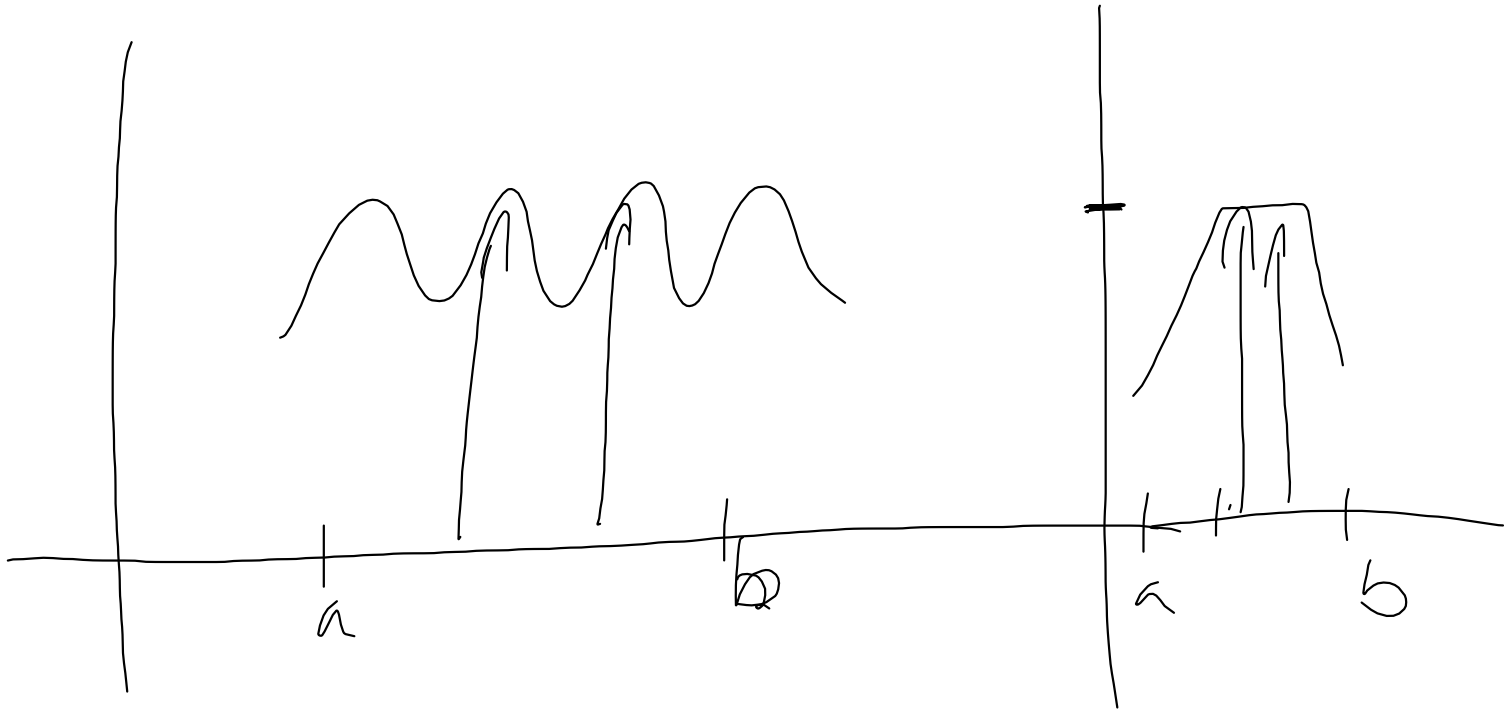
$\|$ $\|$

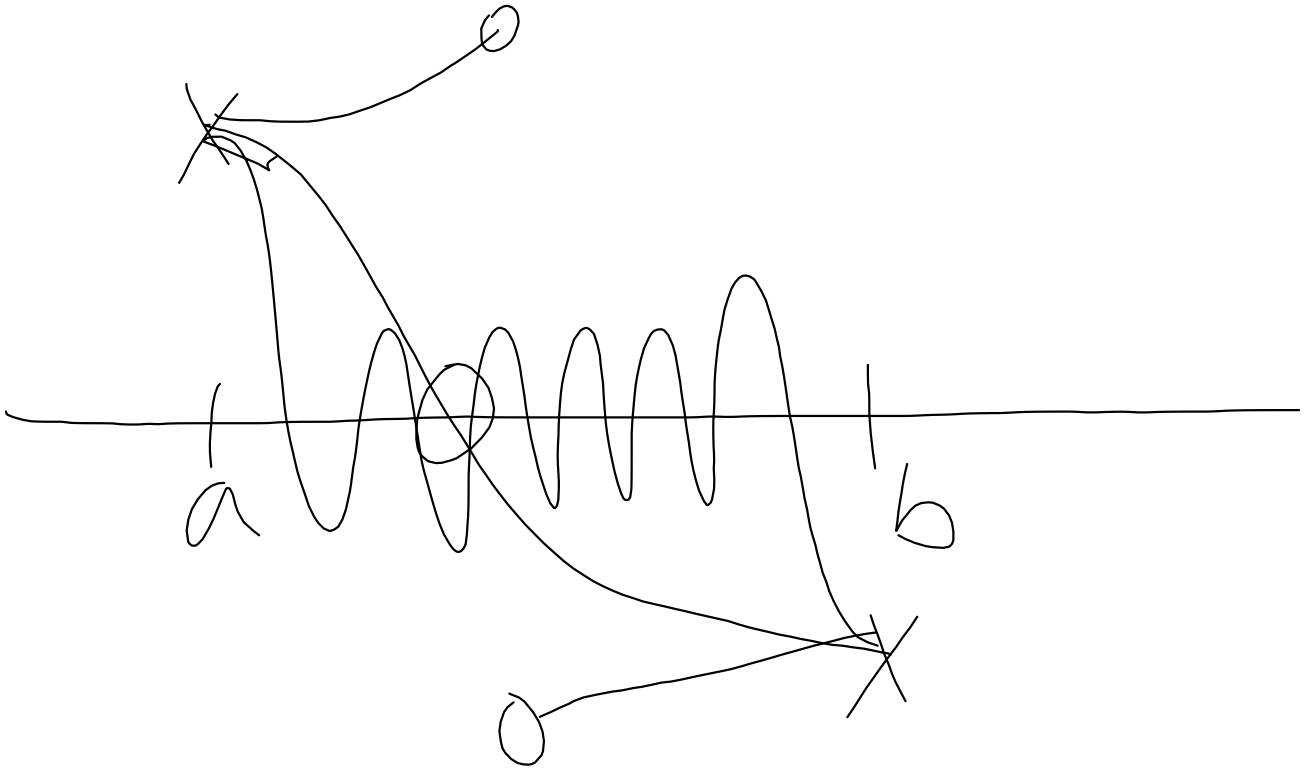
$f(y_1)$ $f(y_2)$

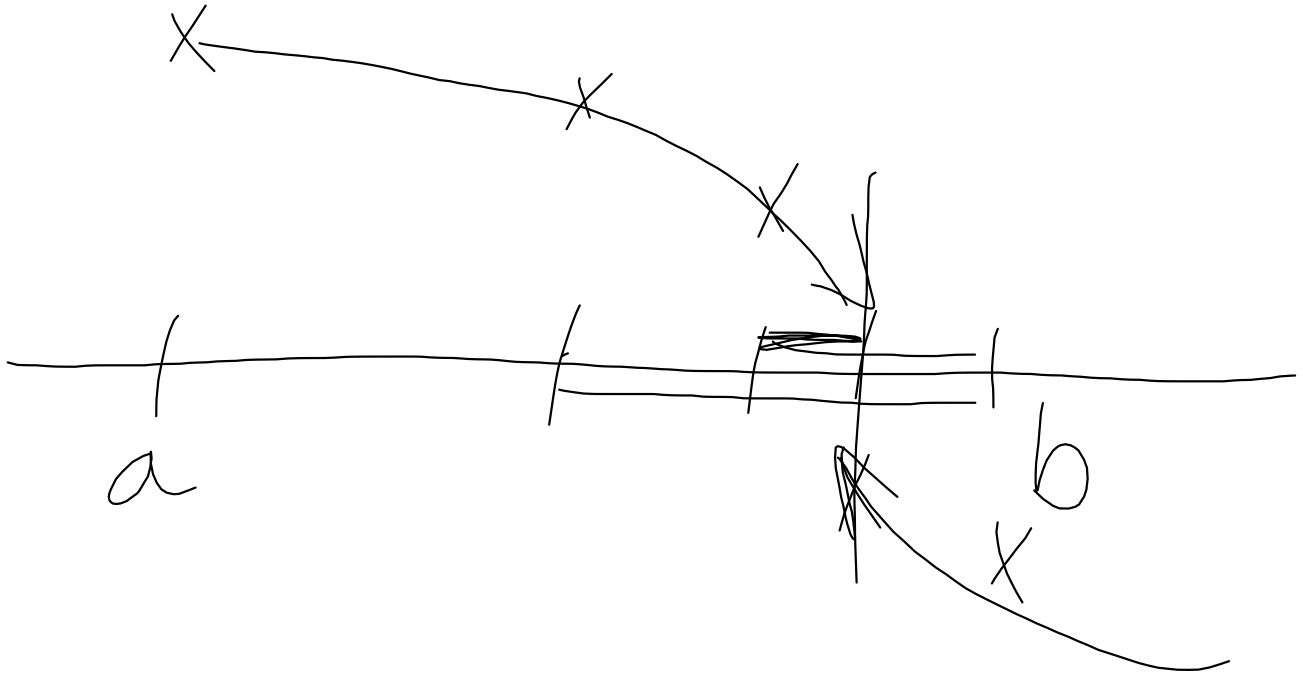



b
x_2
c
x
x
x_1
a
1
2
3
4

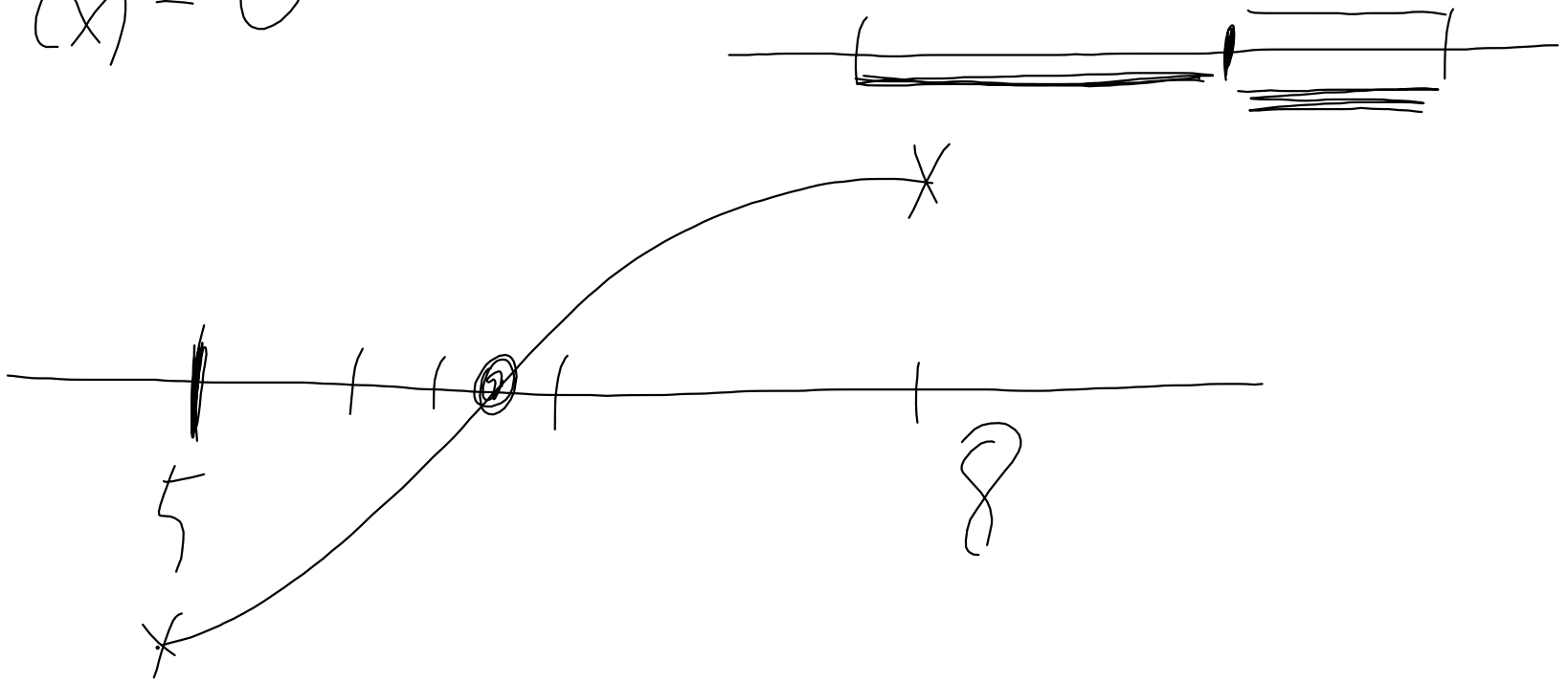

f
ε
a
b

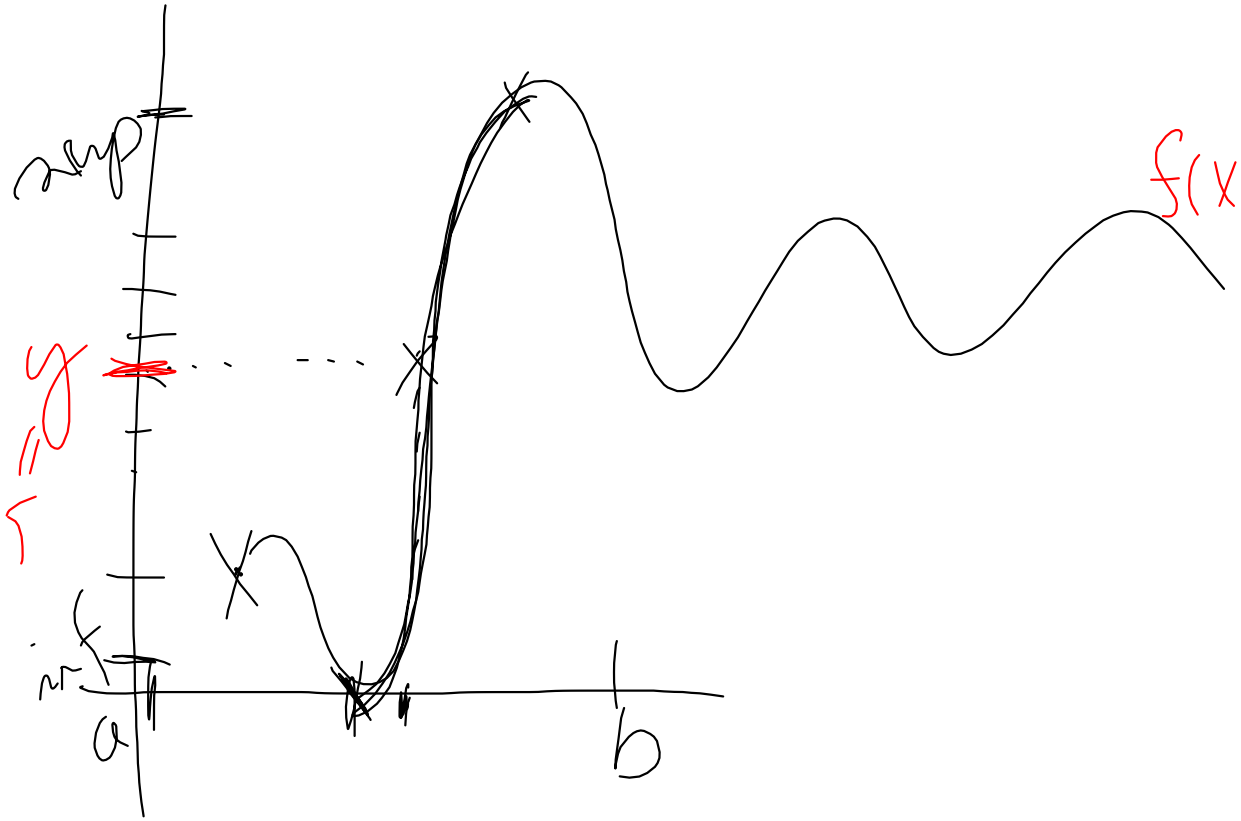

a
b
a
b


a
b

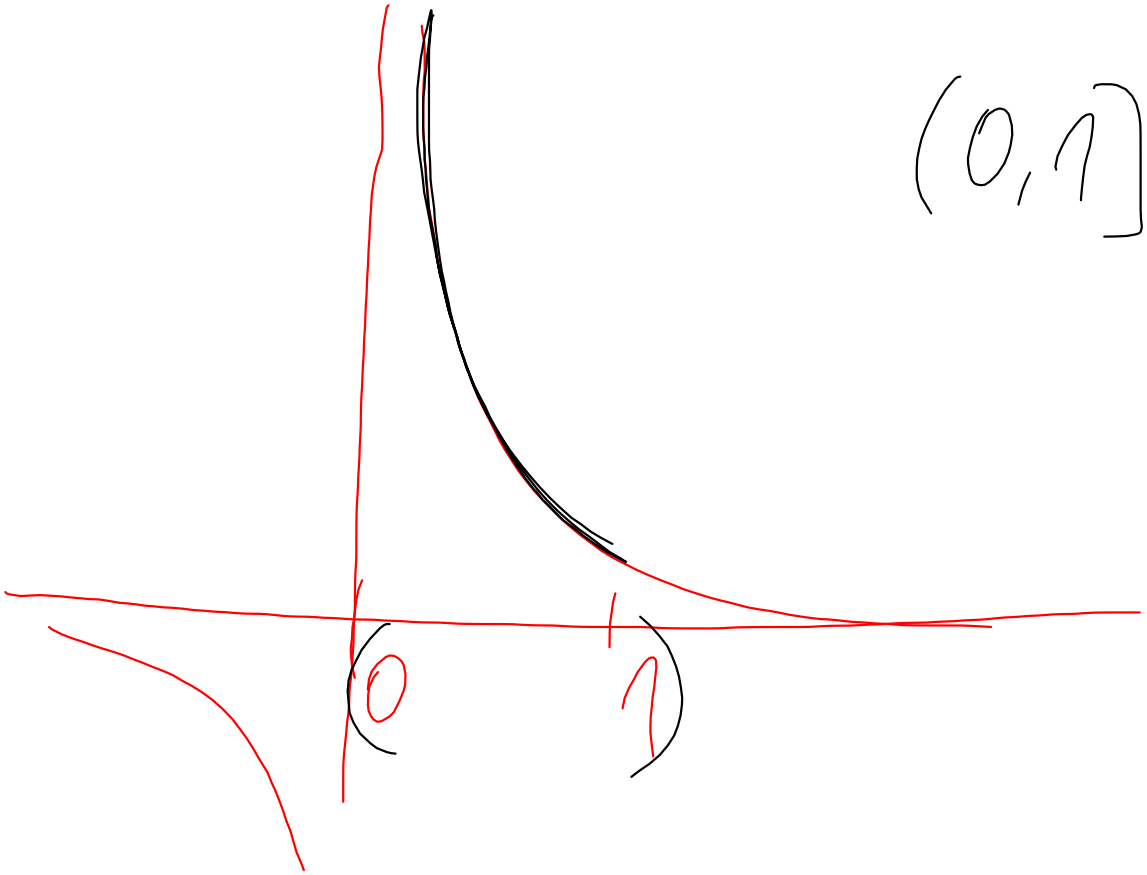

a
b

$P(x) = 0$

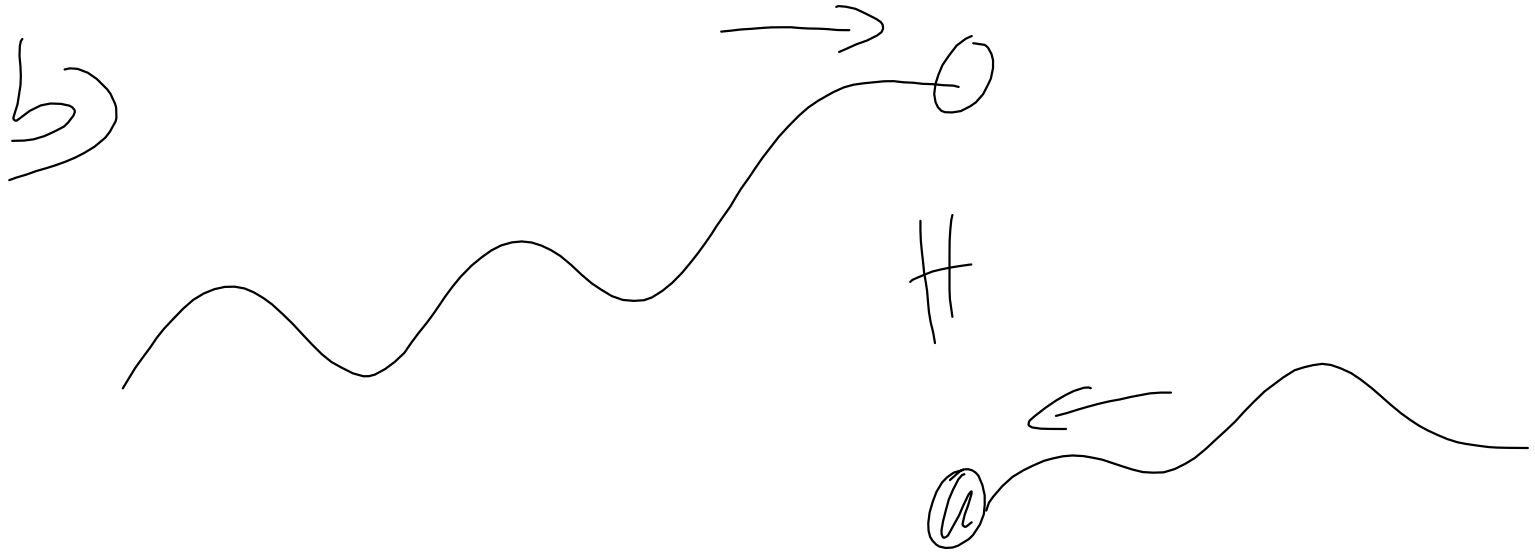


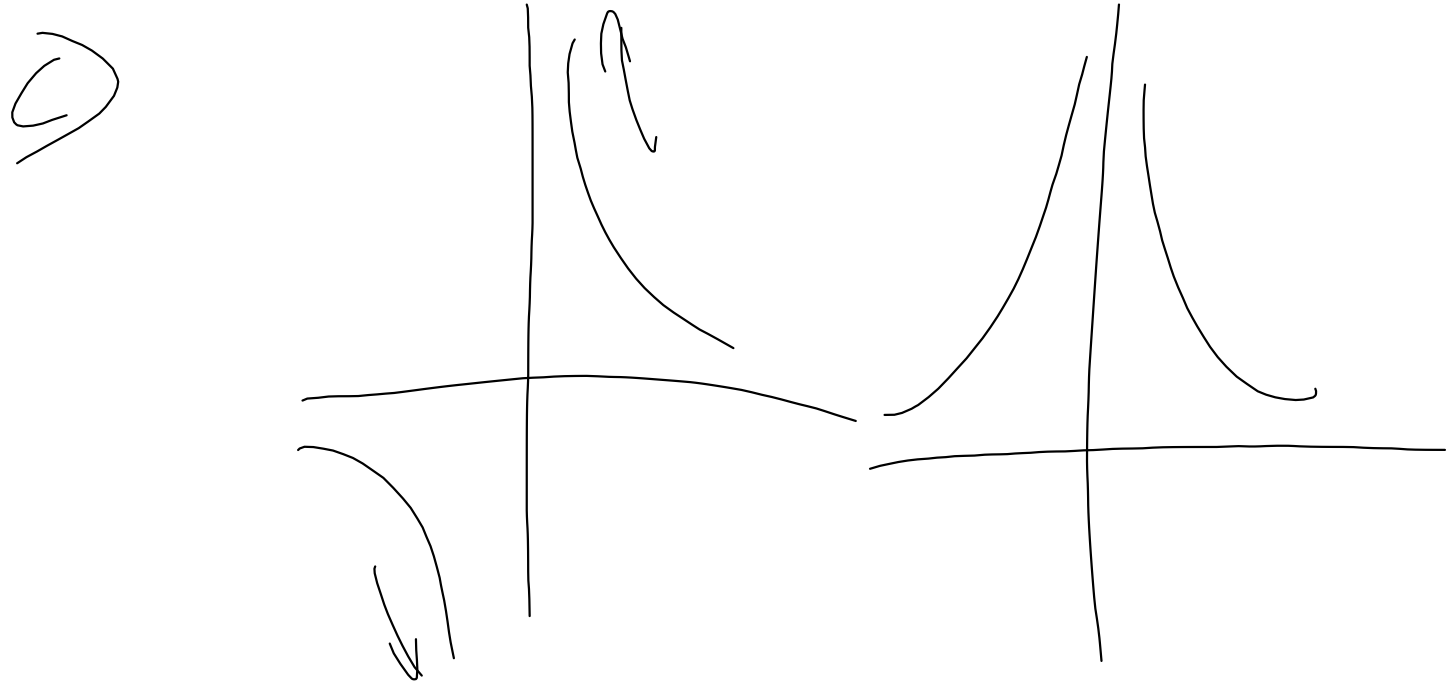


$f(x)-y = f(x)-5$


(0,1]
0
1


+∞
[1, ∞)
−∞
+∞
−∞

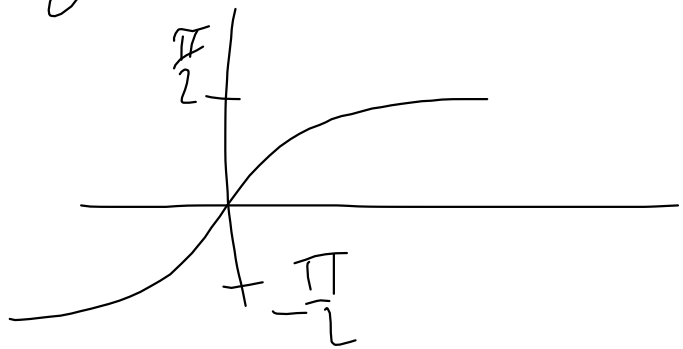

b
a

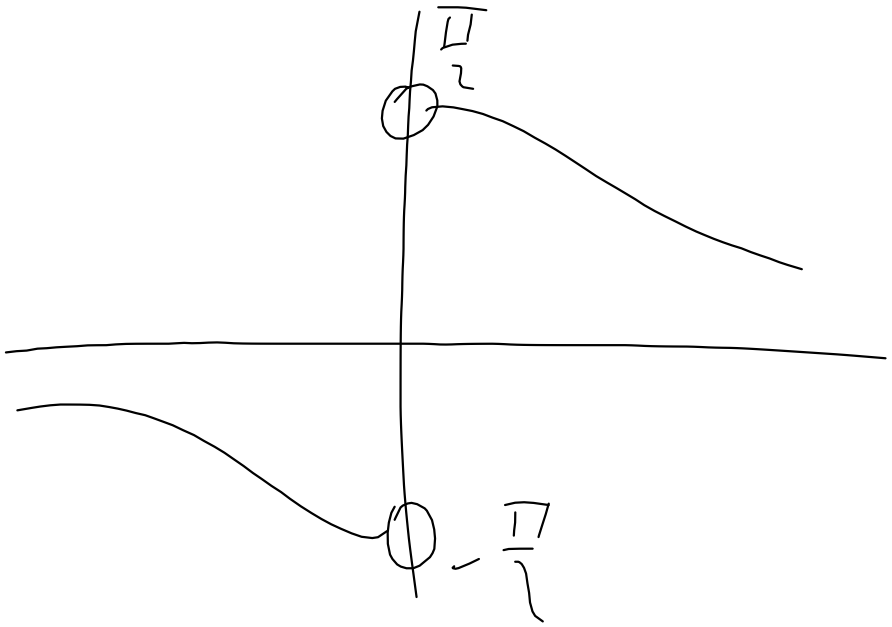


$$\operatorname{arctg}\frac{1}{x} \xrightarrow{x \to 0^+} \operatorname{arctg}(+\infty) = \frac{\pi}{2}$$

$$x \to 0^-$$

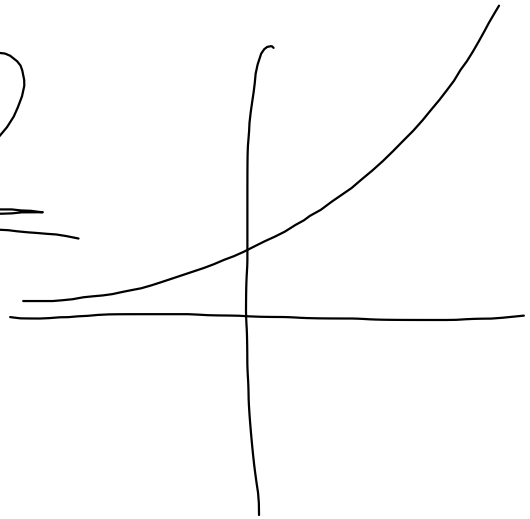
$$\operatorname{arctg}(-\infty) = -\frac{\pi}{2}$$

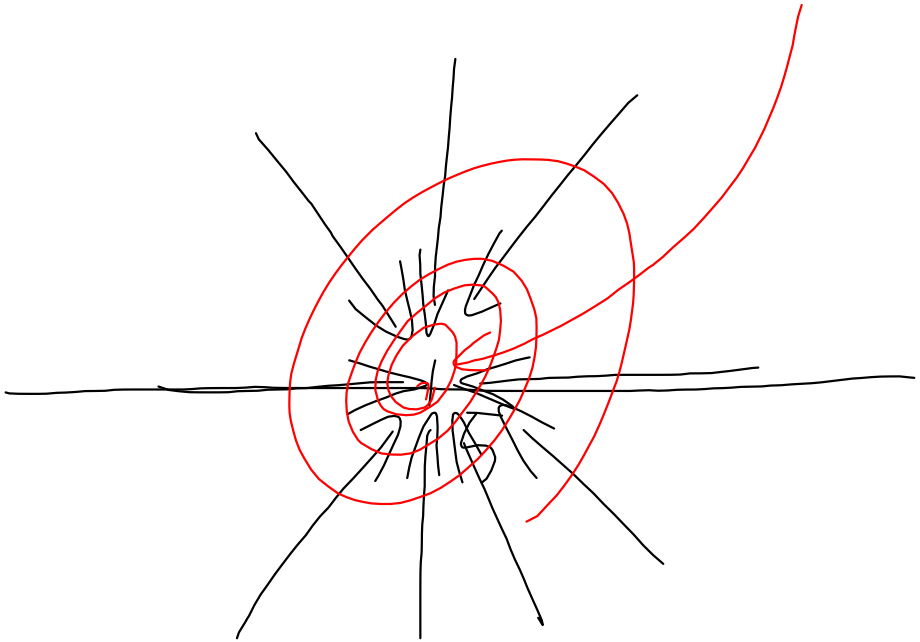




$e^{\frac{1}{x}}$ $\xrightarrow{x \to 0^+}$ $e^{+\infty}$ $= \infty$

$\xrightarrow{x \to 0^-}$ $e^{-\infty} = 0$





$$f(x,y,r,w) = \frac{x^2 \cdot r^3 \cdot \sin w}{\sqrt{y}} =$$

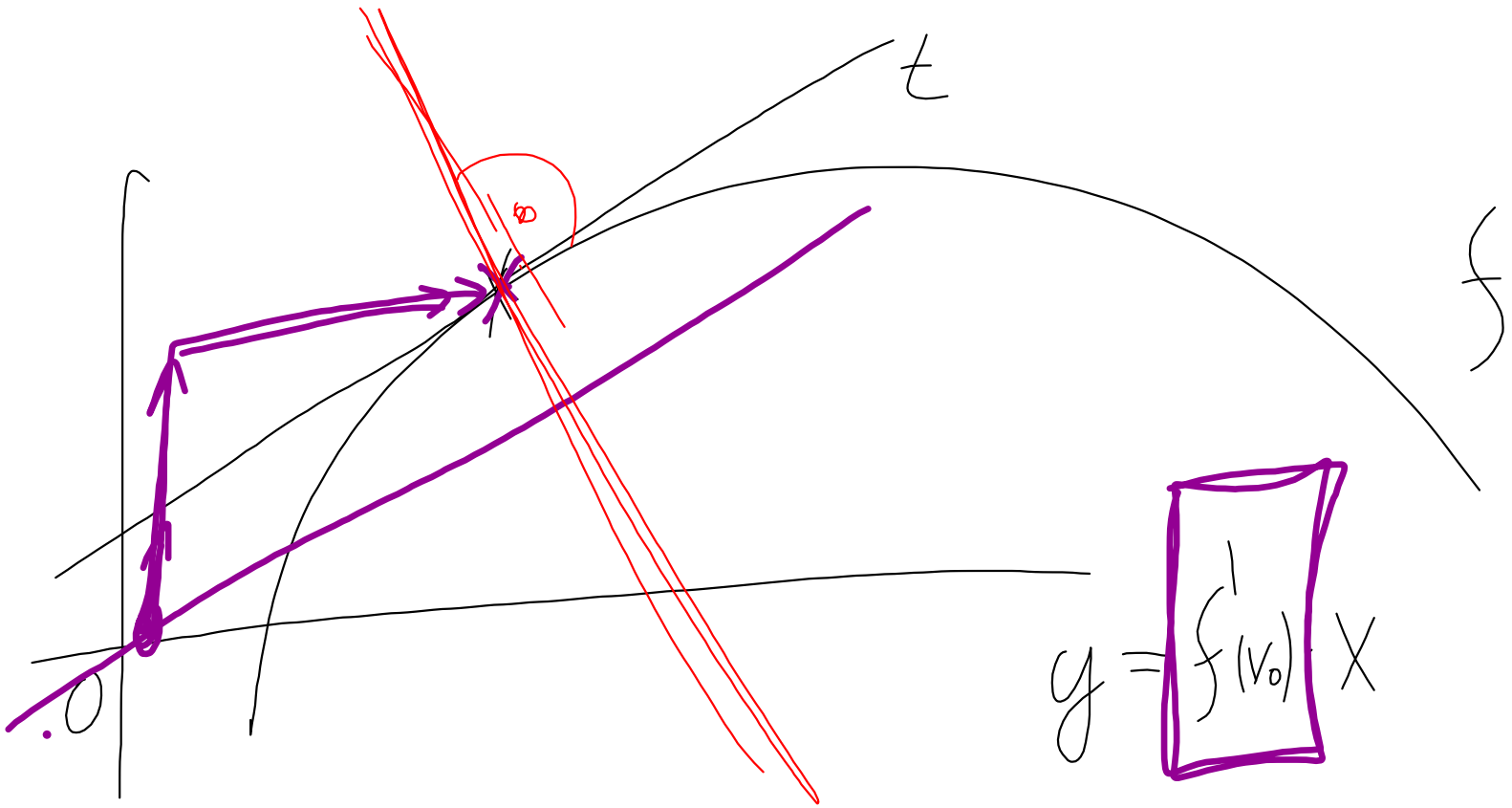
$$= \frac{x^2 \sin w}{\sqrt{y}} \cdot r^3$$

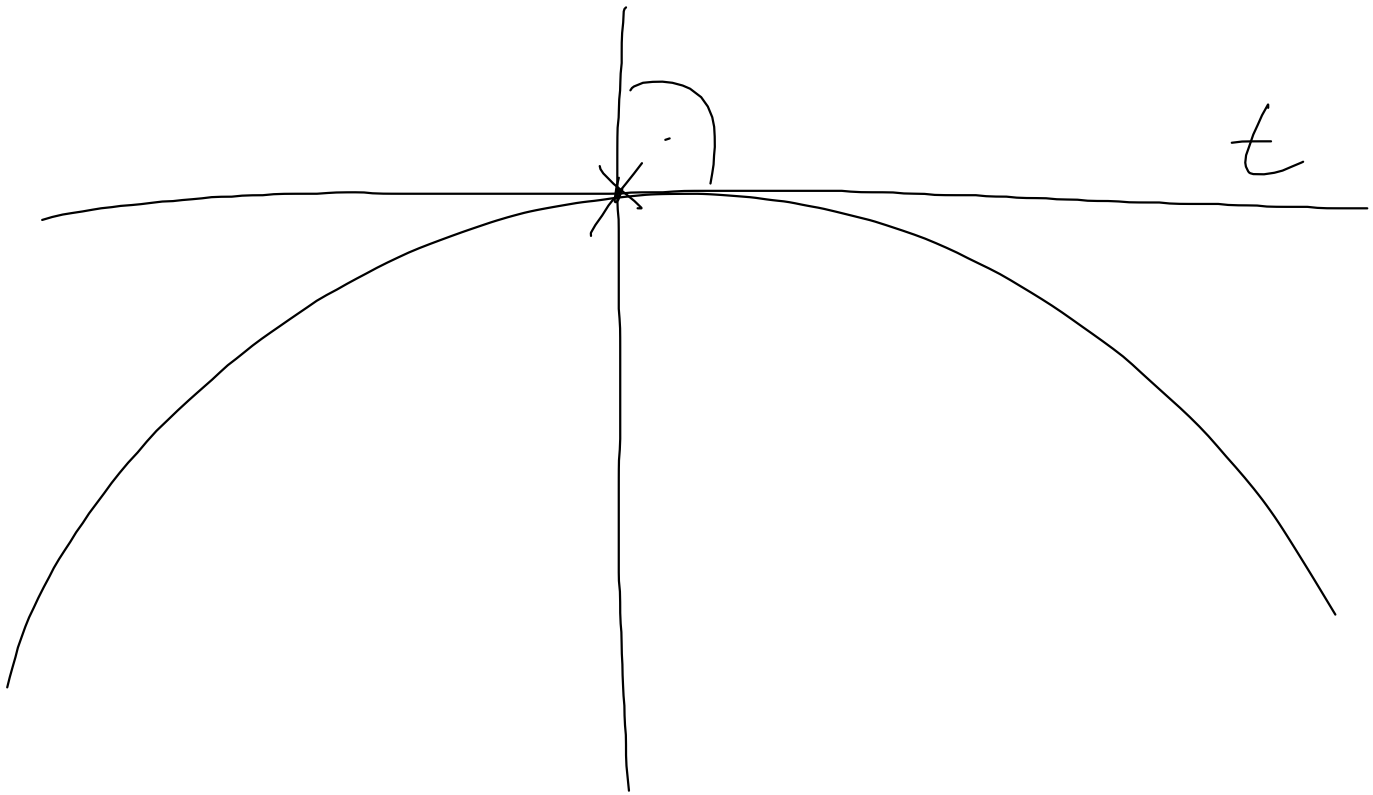
$$\frac{\partial f}{\partial r} = \frac{x^2 \cdot \sin w}{\sqrt{y}} \cdot 3r^2$$

$$f \cdot g \Big| \quad \frac{f(x)-f(x_0)}{x-x_0} \cdot \frac{g(x)-g(x_0)}{x-x_0} =$$

$$= \frac{f(x)\cdot g(x) - f(x)\cdot g(x_0) - f(x_0)\,g(x) + f(x_0)g(x)}{(x-x_0)^2}$$

$$\lim_{x \to x_0} \frac{f(x) \cdot g(x) - f(x_0) \cdot g(x_0)}{x - x_0} = (f \cdot g)'(x_0)$$


t
f
O
$y = f'(v_0)\,x$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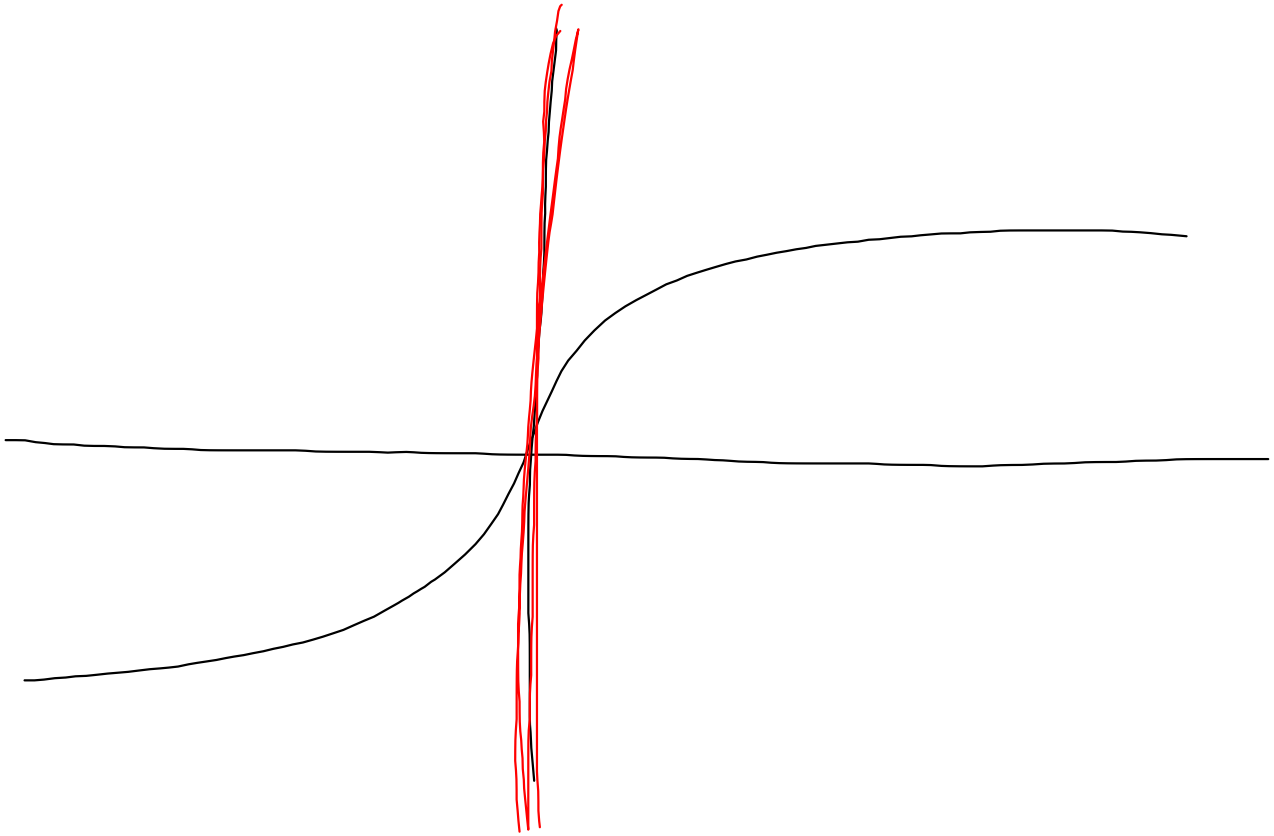

$$(f \cdot g)' = f' \cdot g + f \cdot g'$$