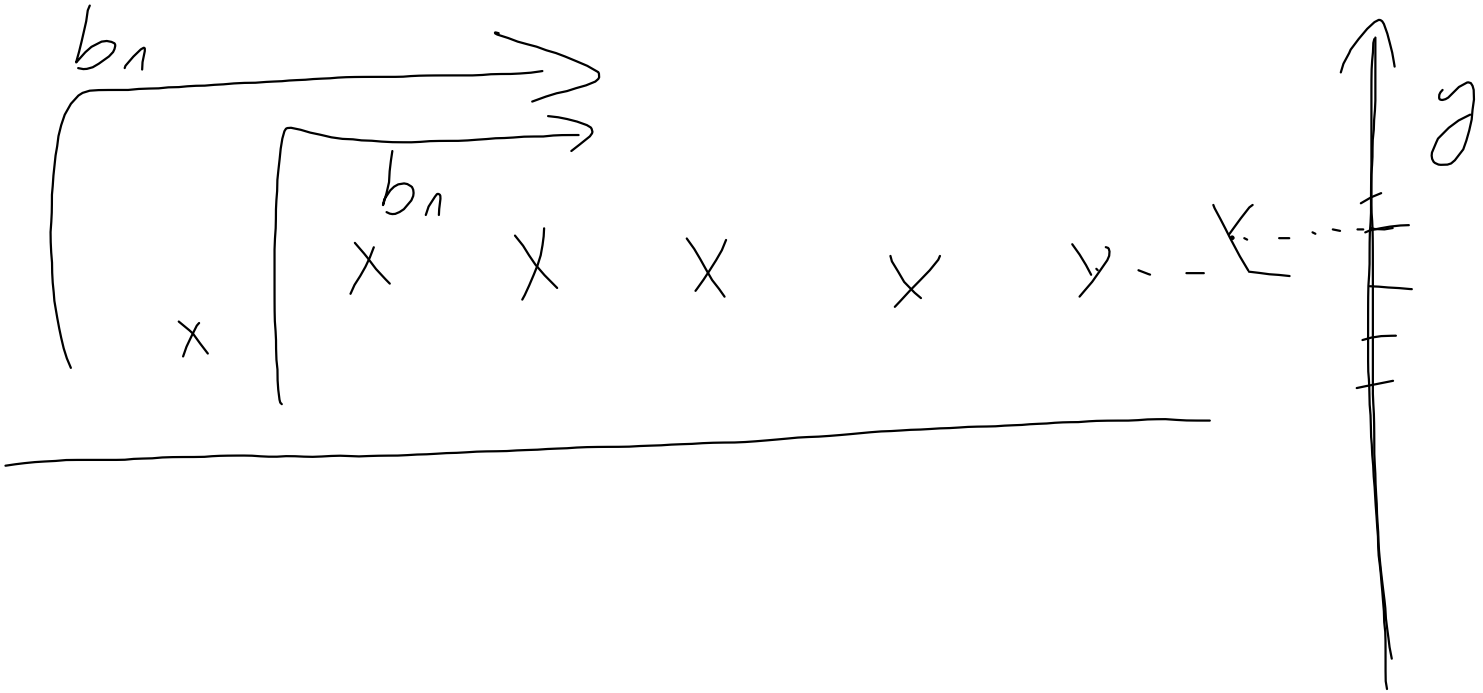
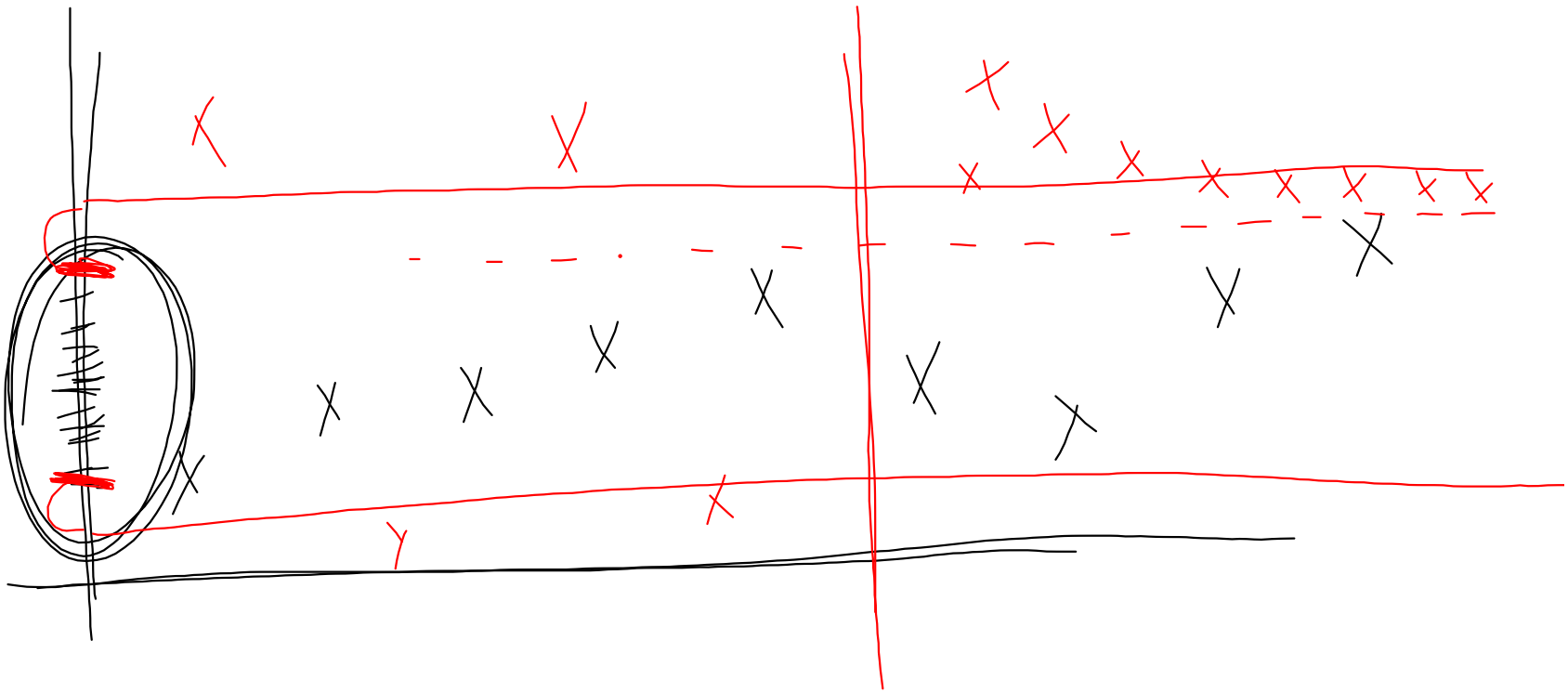
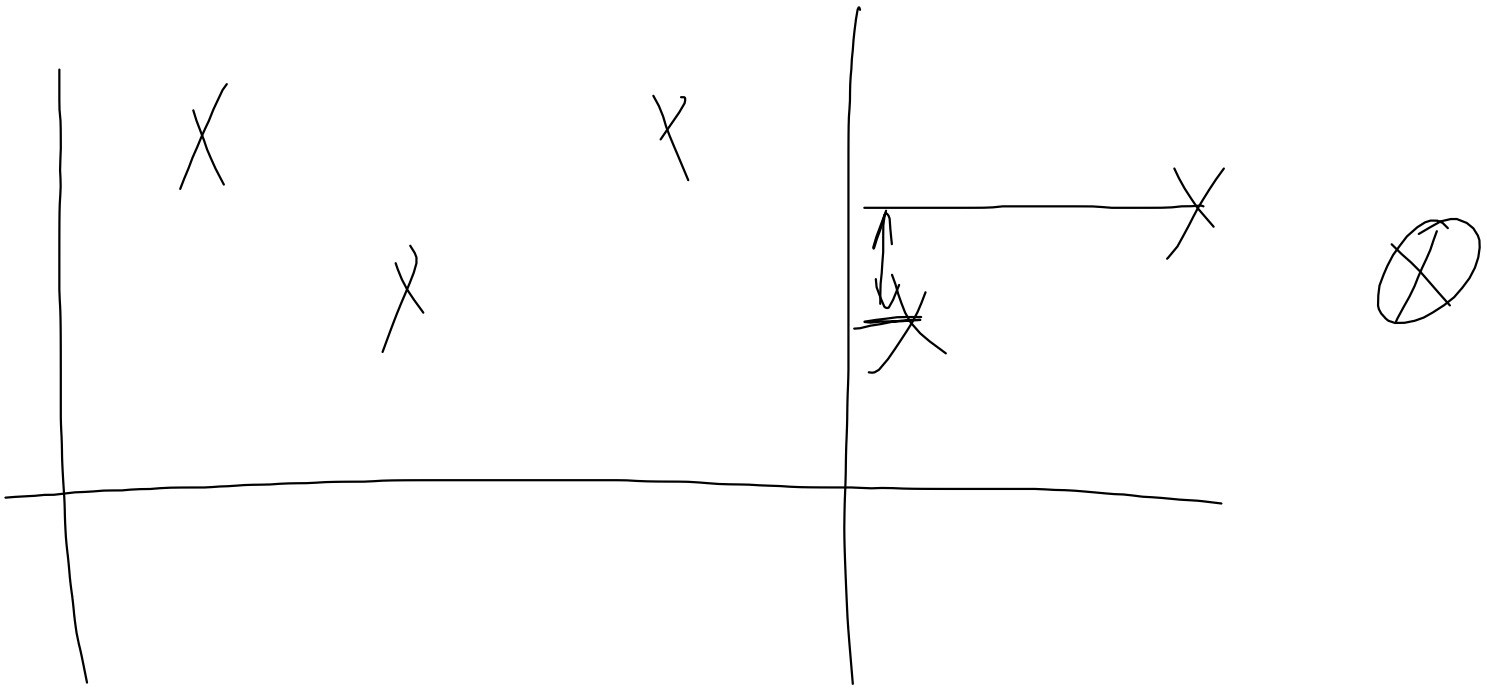
$$e = \lim_{n \to \infty} \left(1 + \frac{1}{n}\right)^n$$

$$\left(1 + \frac{1}{n}\right)^1 \qquad \left(1 + \frac{1}{3}\right)^3$$

$$\left(1 + \frac{1}{2}\right) \cdot \left(1 + \frac{1}{2}\right)$$


b_1
b_1
y





$$\lim_{n\to\infty} \frac{3n^5 - 4n^3 + 8}{7n^7 - 4n^5 - 15} = \lim_{n\to\infty} \frac{\frac{3}{n^2} - \frac{4}{n^4} + \frac{8}{n^7}}{7 + \frac{4}{n^2} - \frac{15}{n^7}}$$

$$= \frac{0}{7} = 0$$

$$\lim_{n\to\infty} \frac{-4n^3 + 7n^2 + 15}{2n^2 - 7} = \lim_{n\to\infty} \frac{-4n^3}{2n^2} =$$

$$= \lim_{n\to\infty} -2n = -\infty$$

$$\left(n+\sqrt{n^2+n}\right)\cdot\frac{1}{n}=1+\sqrt{\left(n^2+n\right)\cdot\frac{1}{n^2}}=$$

$$=1+\sqrt{1+\frac{1}{n}}$$

$$\sqrt[3]{n^5+4n^3-2n+1} = \sqrt[3]{n^3\left(\frac{n^5}{n^3}+\frac{4n^3}{n^3}-\frac{2n}{n^3}+\frac{1}{n^3}\right)} = n\sqrt[3]{\frac{1}{n^3}\left(\dots\right)}$$

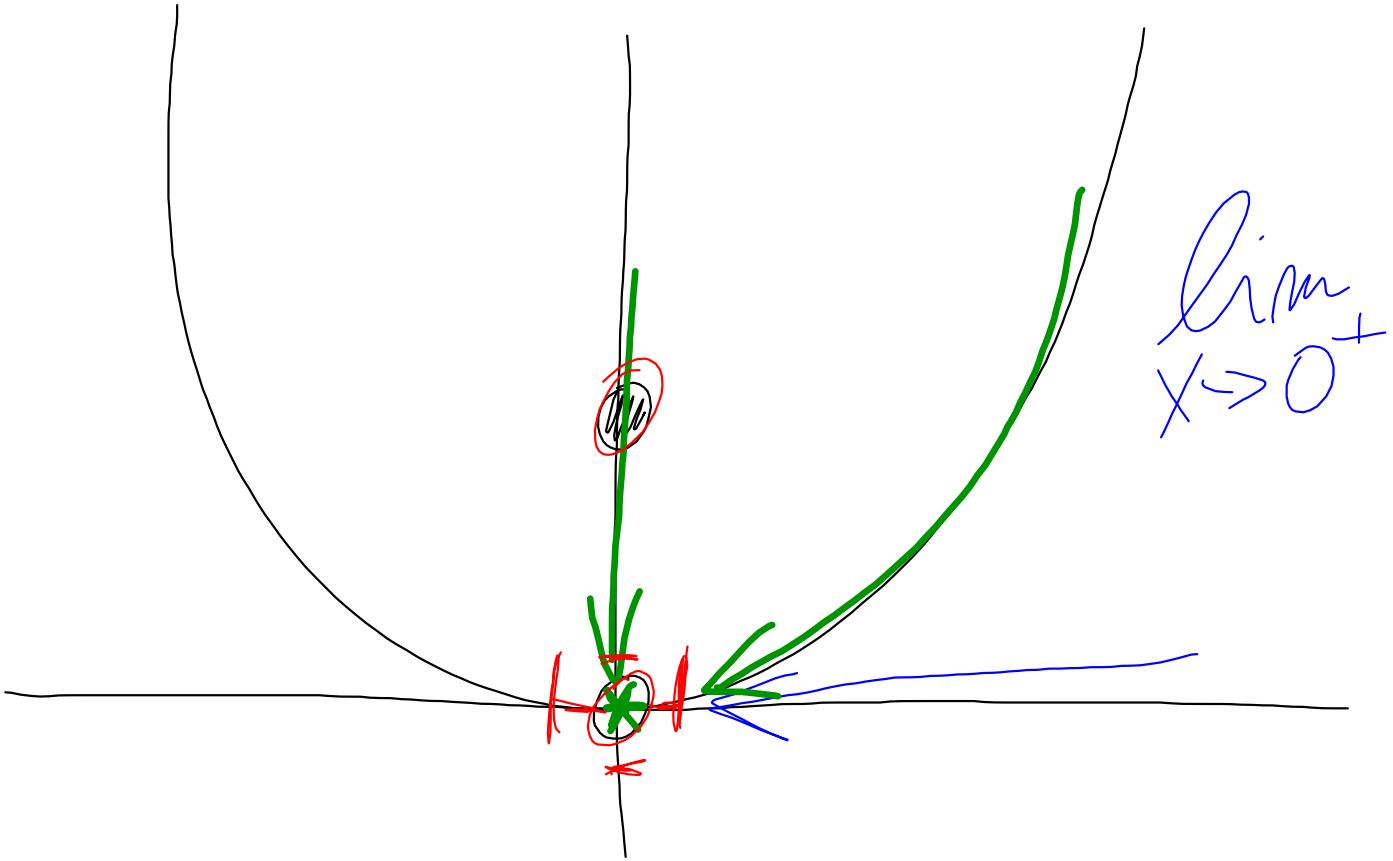
$$a^3 - b^3 = (a - b) \cdot (a^2 + ab + b^2)$$

$\infty - \infty$

$$(a^n - b^n) = (a - b) \cdot (\dots)$$

$$\sqrt[3]{n} - \sqrt[5]{n}$$

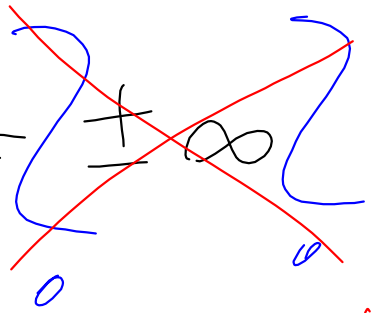
$$a^n - b^n = (a-b)\cdot(\dots)$$


lim
x->0+

(A, ∞)

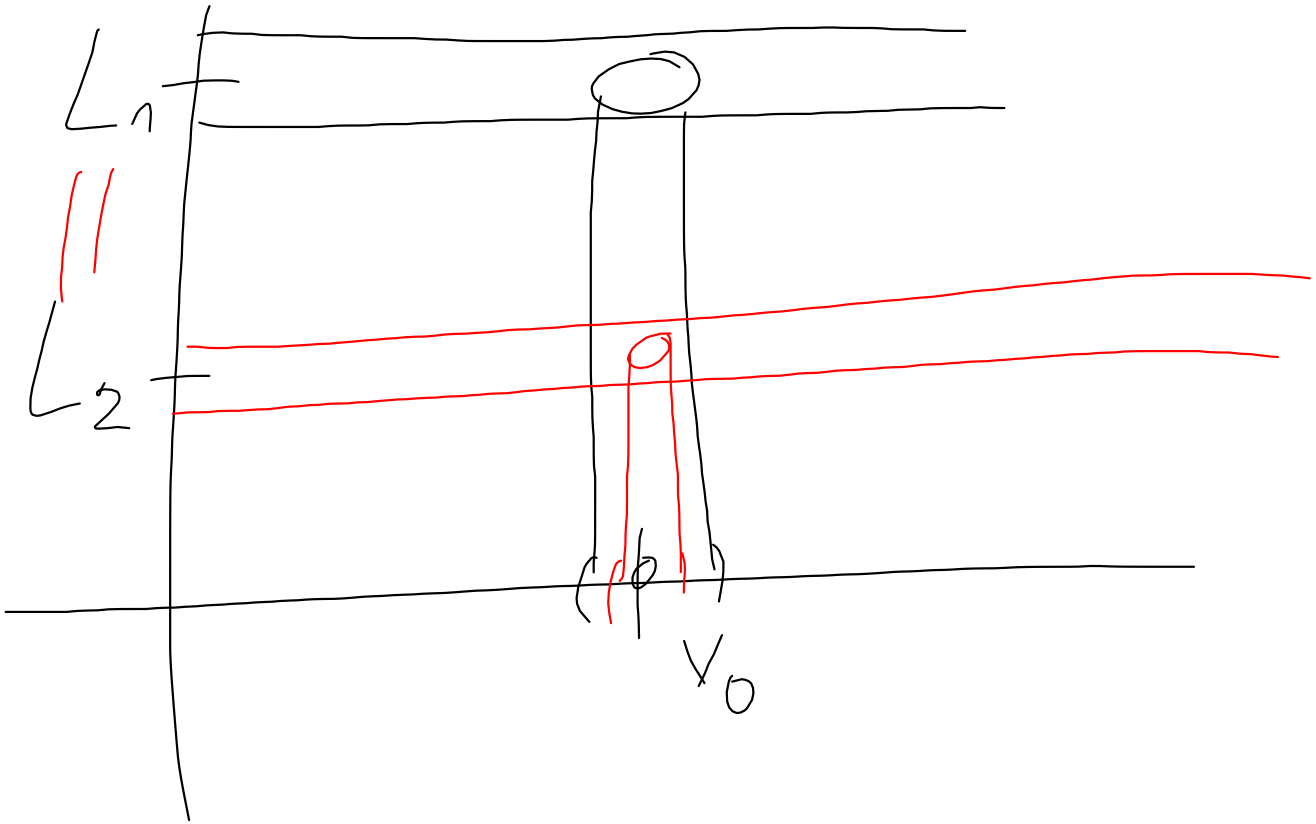
$$\lim_{x \to x_0} f(x) = L$$

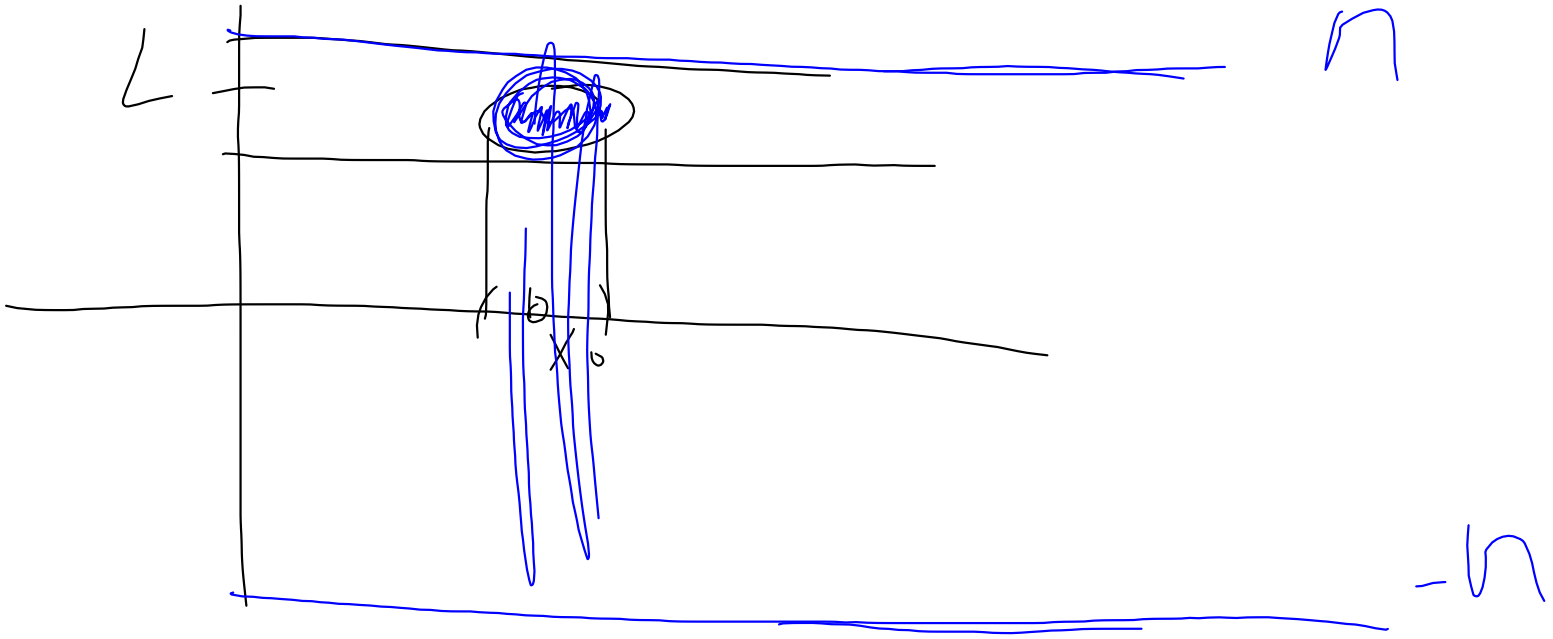
$$\frac{1}{x-2} \xrightarrow{x \to 2} \frac{1}{0} = \pm\infty$$

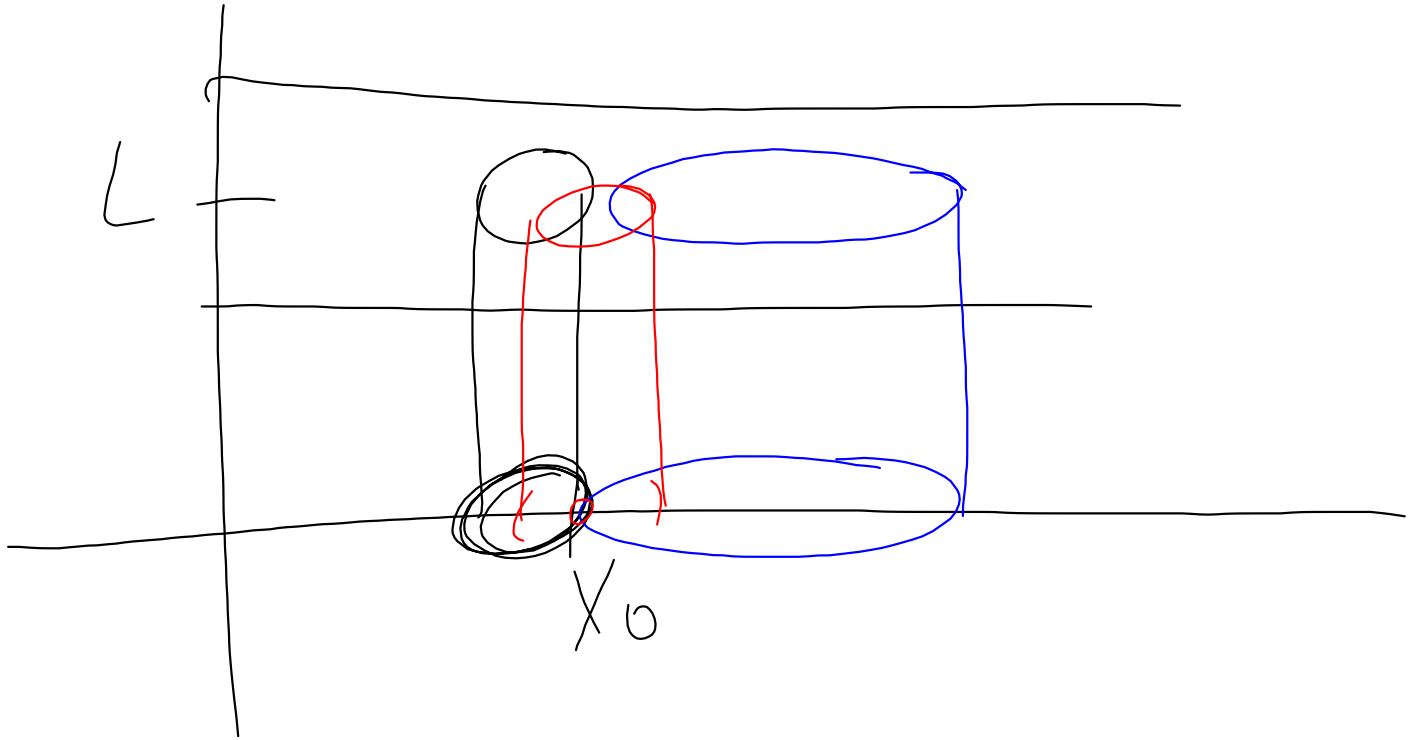


$$\lim_{x \to 2^+} \frac{1}{x-2} = \left| \frac{1}{2^+ - 2} = \frac{1}{0^+} \right| = +\infty$$

$$\lim_{x \to 2^-} \frac{1}{x-2} = \left| \frac{1}{2^- - 2} = \frac{1}{0^-} \right| = -\infty$$


L1
L2
V0


L
h
-h


L
X_0

$$\lim_{x \to 0} \frac{\sin x}{x} = 1$$

$$\lim_{x \to 0} \left[x \left(\sin \frac{1}{x} \right) \right] = 0 \cdot \text{огр.} = 0$$

$x \to 0$

$\downarrow 0$

огр.

$$-1 \leq \sin\frac{1}{x} \leq 1$$

$$x \cdot (-1) \leq x \cdot \sin\frac{1}{x} \leq x \cdot 1$$

$x \to 0$ $\quad$ $x \to 0$ $\quad$ $x \to 0$

0 $\quad$ 0 $\quad$ 0

$$\lim_{x \to \infty} \frac{\min x}{x} = \left| \frac{\text{огр.}}{\infty} \right| = 0$$

$$-1 \leq \min x \leq +1$$

$$-\frac{1}{x} \leq \frac{\min x}{x} \leq \frac{1}{x}$$

$x \to \infty$

0 $\qquad$ 0