$$y = \frac{3^{2x} + 3^{x} - 6}{\left(\frac{1}{3}\right)^{2x} - 3}$$

Dominio:

$\frac{1}{3}^{2x} - 3 \neq 0 \Rightarrow \frac{1}{3}^{2x} \neq 3$

$3^{-2x} \neq 3$

$-2x \neq 1 \rightarrow x \neq -1/2$

Segno:

$\frac{3^{2x} + 3^{x} - 6}{\left(\frac{1}{3}\right)^{2x} - 3} \geq 0 \rightarrow$ $N \geq 0$ $3^{2x} + 3^{x} - 6 \geq 0$

$(3^{x})^{2} + 3^{x} - 6 \geq 0$ $\quad 3^{x} = t$

$t^{2} + t - 6 \geq 0$ $\quad S = 1 \; P = -6$

$(t+3)(t-2) \geq 0$

$t \geq -3 \quad t \geq 2$

$3^{x} \geq -3 \quad 3^{x} \geq 2$

$3^{x} \geq$

$D > 0 \quad \left(\frac{1}{3}\right)^{2x} > 3$

$3^{-2x} > 3$

$-2x > 1$

$x > -1/2$

sono gli
↓ estremi del
dominio

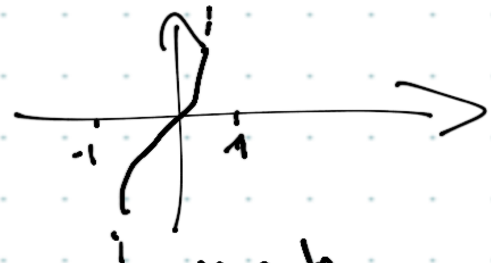
$\lim_{x \to -\infty}$

$\lim_{x \to \frac{1}{2}^{-}}$

$\lim_{x \to -\frac{1}{2}^{+}}$

lim →

$y = \arcsin \dfrac{2^x}{2^{x+1} - 1}$



[illegible]

Dominio:

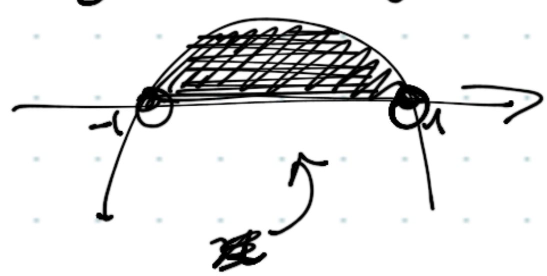
$$-1 \leq \frac{2^x}{2^{x+1} - 1} \leq 1$$

fare x casa il sistema

$y = \log(1 - tg^2 x)$

Dominio

$$\begin{cases} 1 - tg^2 x > 0 \\ x \neq \frac{\pi}{2} + k\pi \end{cases} \rightarrow \begin{array}{l} (1 - tg\, x)(1 + tg\, x) > 0 \\ tg\, x > -1 \quad tg\, x < 1 \end{array}$$



I limiti fondamentali:

Limiti che andiamo a calcolare solamente sostituendo il valore

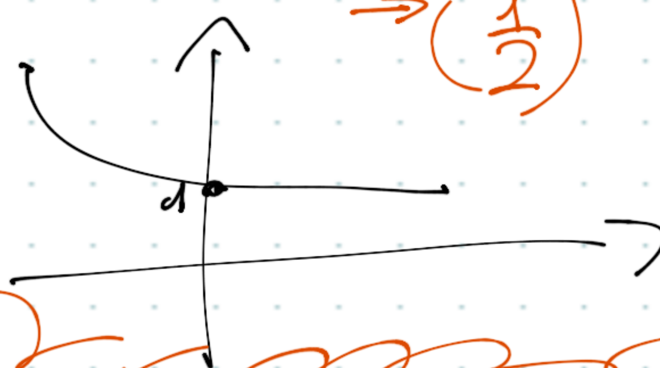
$$\lim_{x\to-\infty} e^{x} = e^{-\infty} = 0^{+}$$

$$\lim_{x\to5^{+}} \left(\frac{1}{2}\right)^{\frac{1}{x-5}}$$

Teoricamente sostituisco

$$\left(\frac{1}{2}\right)^{\frac{1}{5-5}} \to \left(\frac{1}{2}\right)^{\frac{1}{0^{+}}} \to +\infty$$

$$\to \left(\frac{1}{2}\right)^{+\infty}$$

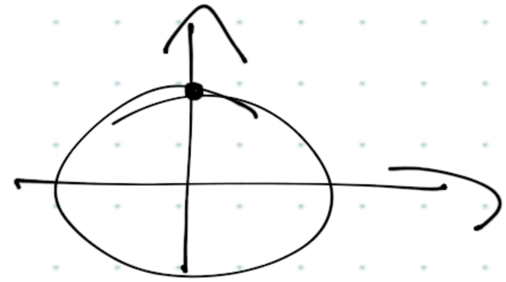


$$\lim_{x\to0^{-}}\left(\frac{e^{1/x}-1}{e^{1/x}+2}\right) \Rightarrow \cancel{\lim_{x\to0}}$$

$$\frac{e^{\frac{1}{0^{-}}}-1}{e^{1/0^{-}}+2} = \frac{e^{-\infty}-1}{e^{-\infty}+2} = \frac{0^{+}-1}{0^{+}+2}$$

$$= -\frac{1}{2}$$

$$\lim_{x \to \frac{\pi}{2}^+} \left(e^{\operatorname{sen} x}\right) = e^{\operatorname{sen} \frac{\pi}{2}^+}$$



$\downarrow$

$x \to \frac{\pi}{2}^-$ se fosse stato questo sarebbe stato sempre e

xké c'è un limite destro e anche sinistro