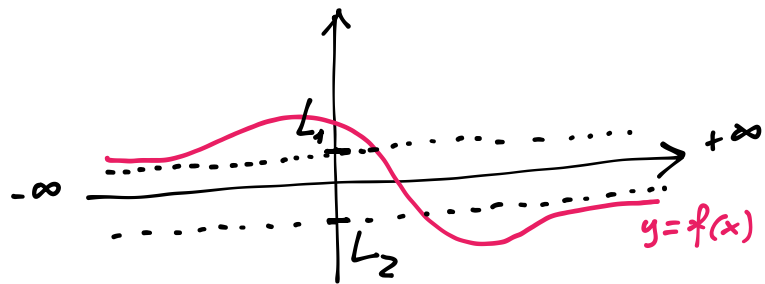


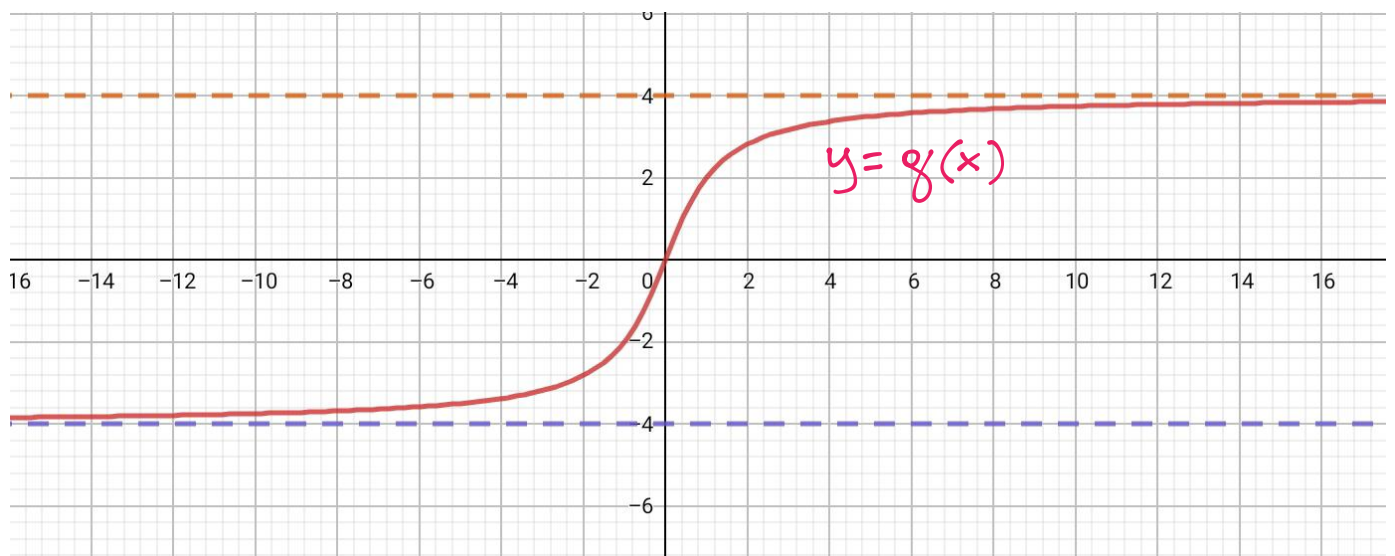
8/11/2018

LIMITI DI FUNZIONI REALI DI VARIABILE REALE

$$f: \mathbb{R} \rightarrow \mathbb{R}$$



$$\lim_{x \rightarrow +\infty} f(x) = L_2 \quad \lim_{x \rightarrow -\infty} f(x) = L_1$$



$$\lim_{x \rightarrow +\infty} g(x) = 4 \quad \lim_{x \rightarrow -\infty} g(x) = -4$$

$$\lim_{x \rightarrow +\infty} (3x - \sqrt{9x^2 + 1}) =$$

$$= +\infty - \infty \text{ F.I.}$$

Significa andare a vedere
cosa succede a $3x - \sqrt{9x^2 + 1}$
 quando x diventa grande ($x \rightarrow +\infty$)

(a quale numero si avvicina)

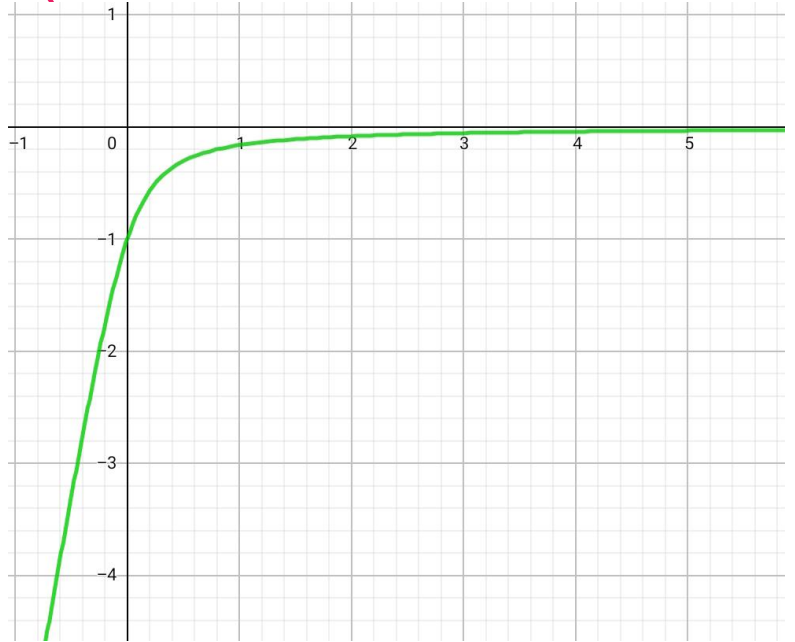
$$(3x - \sqrt{9x^2 + 1}) \frac{3x + \sqrt{9x^2 + 1}}{3x + \sqrt{9x^2 + 1}} =$$

$$= \frac{9x^2 - (9x^2 + 1)}{3x + \sqrt{9x^2 + 1}} =$$

$$= \frac{\cancel{9x^2} - \cancel{9x^2} - 1}{3x + \sqrt{9x^2 + 1}} =$$

$$= \frac{-1}{3x + \sqrt{9x^2 + 1}} \xrightarrow{x \rightarrow +\infty} \frac{-1}{+\infty + \infty} = \frac{-1}{+\infty} = 0^-$$

← VOGL DIRE
 ARRIVA A
 0 "DAL BASSO",
 CIOÈ DA VALORI
 NEGATIVI



$$\begin{aligned} \lim_{x \rightarrow -\infty} (3x - \sqrt{9x^2 + 1}) &= 3(-\infty) - \sqrt{9(-\infty)^2 + 1} = \\ &= -\infty - \sqrt{9(+\infty) + 1} = \\ &= -\infty - \sqrt{+\infty} = -\infty - \infty = -\infty \end{aligned}$$