15/11/2018

271 $\lim_{x \to -\infty} \frac{1}{\sqrt{1+x^2}+x} = \frac{1}{\sqrt{1+(-\infty)^2}+(-\infty)} =$

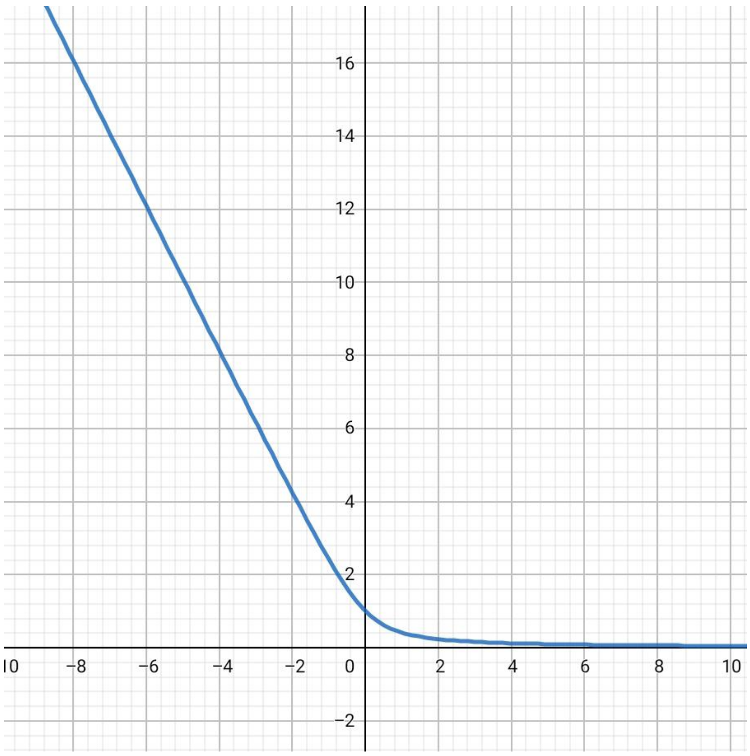
$$= \frac{1}{+\infty - \infty} \quad \text{F. I.}$$

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

$$= \sqrt{1+x^2}-x \xrightarrow[x \to -\infty]{} \sqrt{1+(-\infty)^2}-(-\infty) =$$

$$= +\infty + \infty = \boxed{+\infty}$$

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



$$\lim_{x \to +\infty} \frac{1}{\sqrt{1+x^2}+x} = \frac{1}{\sqrt{1+(+\infty)^2}+\infty} =$$

$$= \frac{1}{+\infty} = 0^+$$

ARRIVA A 0

DALL'ALTO, CIOÉ PER VALORI SEMPRE POSITIVI

273 $\displaystyle\lim_{x\to+\infty} \frac{x}{x^2+\sqrt{3+x^4}} = \frac{+\infty}{+\infty}$ F.I.

1° TENTATIVO

$$\lim_{x\to+\infty} \frac{x}{x^2+\sqrt{3+x^4}}\cdot\frac{x^2-\sqrt{3+x^4}}{x^2-\sqrt{3+x^4}} = \lim_{x\to+\infty} \frac{x\left(x^2-\sqrt{3+x^4}\right)}{x^4-\left(3+x^4\right)} =$$

$$= \lim_{x\to+\infty} \frac{x\left(x^2-\sqrt{3+x^4}\right)}{\cancel{x^4}-3-\cancel{x^4}}$$

$\to +\infty-\infty$ F.I.

TENTATIVO FALLITO

2° TENTATIVO

$$\lim_{x\to+\infty} \frac{x}{x^2+\sqrt{3+x^4}} = \lim_{x\to+\infty} \frac{x}{x^2+\sqrt{x^4\left(\frac{3}{x^4}+1\right)}} =$$

$$= \lim_{x\to+\infty} \frac{x}{x^2+x^2\sqrt{\frac{3}{x^4}+1}} = \lim_{x\to+\infty} \frac{\cancel{x}}{x^{\cancel{2}}\left[1+\sqrt{\frac{3}{x^4}+1}\right]} =$$

IN REALTÀ $|x^2|$

$$= \lim_{x\to+\infty} \frac{1}{\underbrace{x}_{+\infty}\underbrace{\left[1+\sqrt{\frac{3}{x^4}+1}\right]}_{2}} = \frac{1}{+\infty\cdot 2} = \frac{1}{+\infty} = 0^+$$

$\frac{3}{x^4}\to 0$