

p 1734 n 106

$$y = \sqrt[3]{x^2} - x$$

N.B.

C.E. $\forall x \in \mathbb{R}$

PARI o DISPARI NO

LIMITI

$$\lim_{x \rightarrow -\infty} = +\infty \text{ NO AS ORIZZ.}$$

$$\lim_{x \rightarrow +\infty} = x \left(\sqrt[3]{x} - 1 \right) = x \left(\frac{1}{\sqrt[3]{x}} - 1 \right) = -\infty$$

INTERSEZIONI

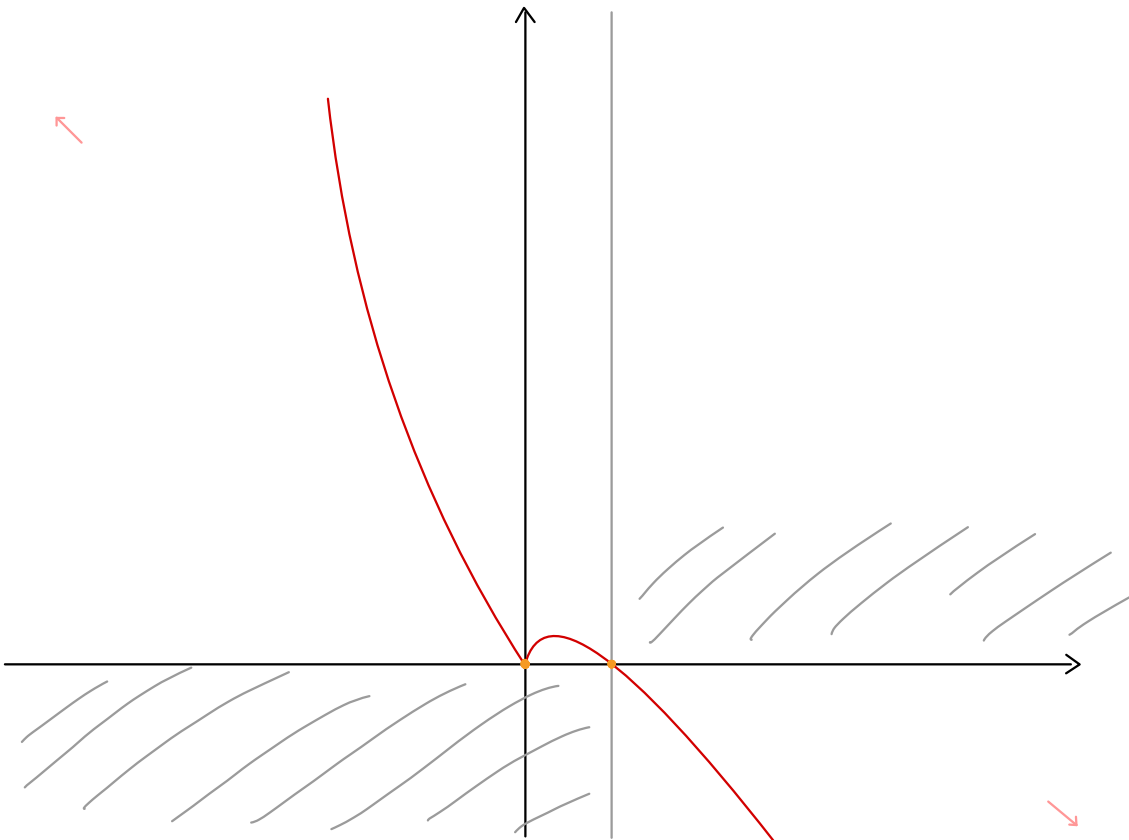
$$y=0 \quad \sqrt[3]{x^2} - x = 0$$

$$\sqrt[3]{x^2} = x \rightarrow x^2 = x^3$$

$$x(x-1)=0 \quad \begin{matrix} x=0 \\ x=1 \end{matrix} \text{ DOPPIO (pt tangenza)}$$

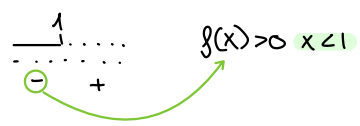
$$(0; 0)$$

$$(-1; 0)$$



SEGNO

$$\sqrt[3]{x^2} > x \quad x^2 > x^3 \quad x^3 - x^2 < 0 \quad x^2(x-1) \leq 0 \quad x^2 < 0 \quad x < 1$$



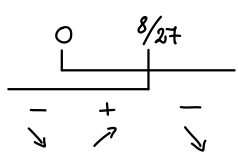
DERIVATA

$$f'(x) = \frac{2}{3\sqrt[3]{x}} - 1 \quad \text{C.E. } x \neq 0 \quad f'_-(0) = -\infty \quad f'_+(0) = +\infty \quad \text{CUSPIDE}$$

$$f'(x) = 0 \quad 2 - 3\sqrt[3]{x} = 0 \quad \sqrt[3]{x} = 2/3 \quad x = 8/27$$

SEGNO

$$\frac{2}{3\sqrt[3]{x}} - 1 > 0 \quad 3\sqrt[3]{x} < 2 \quad x < \frac{8}{27} \quad x > 0$$



$x=0$ pt MIN $(0,0)$
 $x=8/27$ pt MAX $(8/27, 4/27)$

DERIVATA''

$$y'' = \frac{-2}{9x\sqrt[3]{x}} \quad y'' = 0 \quad \emptyset \quad y'' > 0 \quad \emptyset \rightarrow y'' < 0 \text{ nel tutto C.E.}$$