

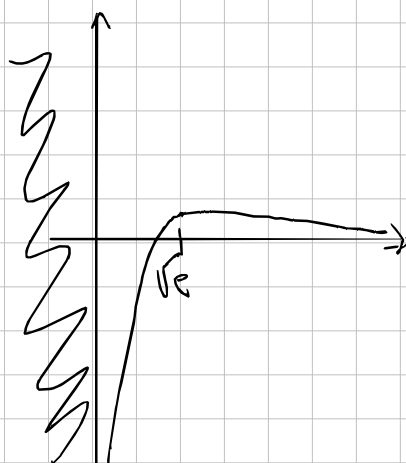
$$f(x) = \frac{\log(x)}{x^2}$$

DOMINIO  $(0, +\infty)$

ASINTOTI:

$$\lim_{x \rightarrow 0^+} \frac{\log(0^+)}{0^+} = \frac{-\infty}{0^+} = -\infty$$

$$\lim_{x \rightarrow +\infty} \frac{\log(\infty)}{\infty^2} = 0 \quad (\text{RELANCIA INFINITI})$$



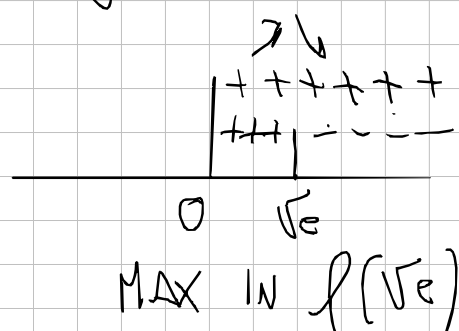
MAX/MIN (DERIVATA):

$$f'(x) = \frac{\frac{1}{x} \cdot x^2 - \log x \cdot 2x}{x^4} = \frac{x - 2x \log x}{x^4}$$

$$\frac{x(1 - 2 \log x)}{x^4} > 0$$

$$x > 0$$

$$1 - 2 \log x > 0 \quad \frac{2 \log x}{2} < \frac{1}{2} \Rightarrow x < \sqrt{e}$$



$$f(\sqrt{e}) = \frac{1}{2e}$$

FLESSI (DERIVATA SECONDA)

$$f'(x) = \frac{1 - 2 \log x}{x^3}$$

$$f''(x) = \frac{-\frac{2}{x} \cdot x^3 - (1 - 2 \log x) \cdot 3x^2}{x^6} = \frac{-2x^2 - 3x^2 + 6x^2 \log x}{x^6}$$

$$= \frac{x^2 - 2 - 3 + 6 \log x}{x^4} = \frac{-5 + 6 \log x}{x^4} > 0$$

$x^4$   
sempre  $> 0$

$$N: \log x > \frac{5}{6}$$

$$x > \sqrt[6]{e^5}$$



IN  $x = \sqrt[6]{e^5}$  LA FUNZIONE PASSA DA CONCAVA A CONVESSA

$$f(\sqrt[6]{e^5}) \approx 2,3$$