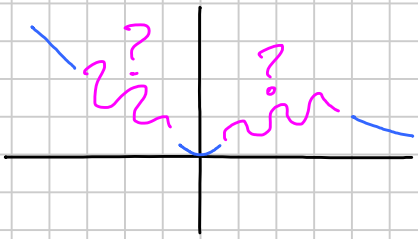
BY GIMUSI 10/09/16

Come si risolve la seguente equazione: $x^2 = 2^x$

$$x^2 = 2^x \iff \frac{x^2}{2^x} = 1$$

STUDIAMO $f(x) = \frac{x^2}{2^x} \geq 0$ $\quad f(x) = 0 \iff x = 0$

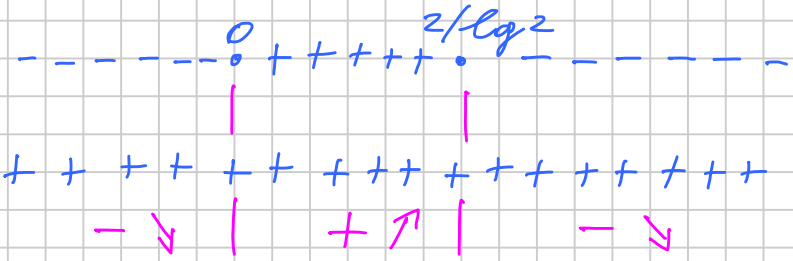
$\begin{cases} x \to +\infty & f(x) \to 0 \\ x \to -\infty & f(x) \to +\infty \end{cases}$



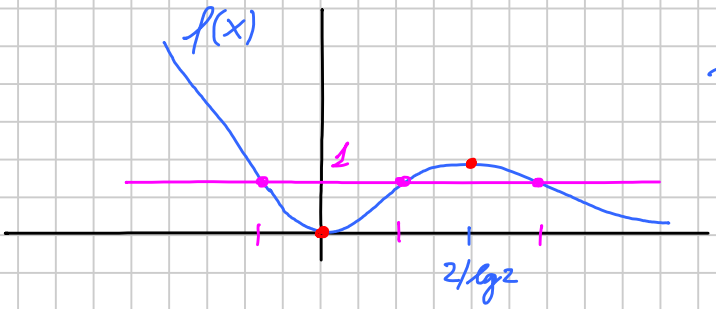
$$f'(x) = \frac{2x \cdot 2^x - 2^x \log 2 \cdot x^2}{(2^x)^2} = \frac{2x - \log 2 \cdot x^2}{2^x} = \frac{x(2 - x\log 2)}{2^x}$$

$x(2 - x\log 2)$

2^x

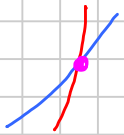


$f(0) = 0$ $\quad f(2/\log 2) = f(2\log_2 e) = \frac{4(\log_2 e)^2}{e^2} \simeq 1{,}13$



$\rightsquigarrow$ 3 SOLUZIONI

INT. GRAFICA



$x > 0$ $\quad$ 2 SOLUZIONI

$\begin{cases} \text{SOL. "BANALE"} & x = 2 \\ \text{ALTRA SOL.} & x > 2/\log 2 \ (x = 4) \end{cases}$

$x < 0$ $\quad$ 1 SOLUZIONE