

# EQUAZIONI LOGARITMICHE

$$\log_3(x-4) = 2$$

$$\text{P.E.} = \{x \in \mathbb{R} / x-4 > 0\} = \{x \in \mathbb{R} / x > 4\} = (4, +\infty)$$

$$\text{P.E.} \begin{cases} \log_3(x-4) = 2 \\ x > 4 \end{cases}$$

$$\log_a b = c \iff a^c = b$$

$$\begin{cases} x-4 = 3^2 \\ x > 4 \end{cases}$$

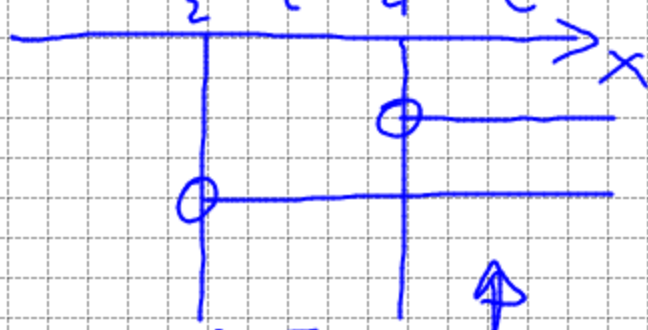
$$\begin{cases} x-4 = 9 \\ x > 4 \end{cases} \Rightarrow \begin{cases} x = 13 \\ x > 4 \end{cases}$$

$$\text{Soluz. } x = 13$$

$$\log_3(x-4) - \log_3(2x-1) = -1$$

$$= \{x \in \mathbb{R} / \begin{cases} x > 4 \\ x > \frac{1}{2} \end{cases}\}$$

$$\text{P.E.} = \{x \in \mathbb{R} / \begin{cases} x-4 > 0 \\ 2x-1 > 0 \end{cases}\} =$$



$$\text{P.E.: } x > 4$$

$$\begin{cases} x > 4 \\ \log_3(x-4) - \log_3(2x-1) = -1 \end{cases}$$

$$\begin{cases} x > 4 \end{cases}$$

$$\log_3 \frac{x-4}{2x-1} = -1$$

$$\begin{cases} x > 4 \\ \frac{x-4}{2x-1} = (3)^{-1} \end{cases}$$

$$\begin{cases} x > 4 \\ \frac{(x-4)3 - (2x-1)}{3(2x-1)} = 0 \end{cases}$$

$$\begin{cases} x > 4 \\ x \neq \frac{1}{2} \\ 3x-12-2x+1 = 0 \end{cases}$$

$$\begin{cases} x > 4 \\ x \neq \frac{1}{2} \\ x = 11 \end{cases} \quad \text{Sol.: } x = 11$$

$$\log_{\frac{1}{2}}(x+3) - \log_3(2x-1) = 1$$

$$P.E = \left\{ x \in \mathbb{R} / \begin{cases} x+3 > 0 \\ 2x-1 > 0 \end{cases} \right\} = \left\{ x \in \mathbb{R} / \begin{cases} x > -3 \\ x > \frac{1}{2} \end{cases} \right\}$$

$$P.E: x > \frac{1}{2}$$

$$P.E \begin{cases} x > \frac{1}{2} \\ \log_{\frac{1}{2}}(x+3) - \log_3(2x-1) = 1 \end{cases} \begin{cases} x > \frac{1}{2} \\ \frac{\log_3(x+3)}{\log_3 \frac{1}{2}} - \log_3(2x-1) = 1 \end{cases}$$

$$\log_3(2)^{-1} = -\log_3 2$$

$$\begin{cases} x > \frac{1}{2} \\ 1 \cdot \frac{\log_3(x+3)}{\log_3 2} - \log_3(2x-1) = 1 \end{cases}$$

$$\begin{cases} x > \frac{1}{2} \\ -\frac{1}{\log_3 2} \cdot \log_3(x+3) - \log_3(2x-1) = 1 \end{cases}$$

$$\begin{cases} x > \frac{1}{2} \\ \log_3(x+3)^k - \log_3(2x-1) = 1 \end{cases} \begin{cases} x > \frac{1}{2} \\ \log_3 \frac{(x+3)^k}{2x-1} = 1 \end{cases}$$

$$\begin{cases} x > \frac{1}{2} \\ \frac{(x+3)^k}{2x-1} = 3 \end{cases} \dots \text{difficile!!!}$$