

Determinare il campo di esistenza delle seguenti espressioni

$$\frac{\sqrt{1 - \ln(1+x)}}{e^{2x} - 1} \quad \begin{cases} \ln(1+x) \leq 1 \\ x+1 > 0 \\ e^{2x} - 1 \neq 0 \end{cases} \quad]-1; 0[\cup]0; e-1[$$

$$\log[\log(2x+1) - 2 \log|x|] \quad \begin{cases} 2x+1 > 0 \\ |x| > 0 \\ \log(2x+1) - 2 \log|x| > 0 \end{cases} \\]-\sqrt{2}-1; 0[\cup]0; \sqrt{2}+1[$$

$$\log(|x| - \sqrt{2-x^2}) \quad \begin{cases} 2-x^2 \geq 0 \\ \sqrt{2-x^2} < |x| \end{cases} \quad [-\sqrt{2}; -1[\cup]1; \sqrt{2}]$$

$$\frac{\sqrt{2e^x + 1} - e^{-x}}{\ln(3-x)} \quad \begin{cases} 2e^x + 1 - e^{-x} \geq 0 \\ 3-x > 0 \\ \ln(3-x) \neq 0 \end{cases} \quad [-\ln 2; 2[\cup]2; 3[$$

$$\sqrt{4 \ln^2 x - 1} \quad \begin{cases} x > 0 \\ 4 \ln^2 x - 1 \geq 0 \end{cases} \quad]0; \frac{\sqrt{e}}{e}] \cup]\sqrt{e}; +\infty[$$

$$\frac{\sqrt{x^2 + 2x - 3}}{\ln(3 - e^x)} \quad \begin{cases} x^2 + 2x - 3 \geq 0 \\ 3 - e^x > 0 \\ \ln(3 - e^x) \neq 0 \end{cases} \quad]-\infty; -3] \cup [1; \ln 3[$$

$$\frac{\sqrt{(x - \sqrt{x^2 - 1})}}{(x^2 + 1) \ln x} \quad \begin{cases} x^2 - 1 \geq 0 \\ \sqrt{x^2 - 1} \leq x \\ x^2 + 1 \neq 0 \\ x > 0 \\ \ln x \neq 0 \end{cases} \quad]1; +\infty[$$

$$\frac{\log(\sqrt{3x+4} - x)}{\sqrt{1+2\ln|x|}}$$

$$\begin{cases} 3x+4 \geq 0 \\ \sqrt{3x+4} > x \\ |x| > 0 \\ 1+2\ln|x| > 0 \end{cases}$$

$$\left[-\frac{4}{3}; -\frac{\sqrt{e}}{e} \cup \left[\frac{\sqrt{e}}{e}; 4\right]\right]$$

$$\frac{\log[\sqrt{1+\log x} - \sqrt{2} \log x]}{x^2 - 1}$$

$$\left[\frac{1}{e}; 1 \cup \right] 1; e \left[$$

Determinare ~~l'insieme~~ ^{sotto forma di} ~~l'insieme~~ di unione di intervalli i seguenti insiemi

$$\{x \in \mathbb{R} : 1 - \ln^2 x > 0\} \cap \{x \in \mathbb{R} : 4^x < 32 \cdot 2^x\}$$

$$\left]0; \frac{1}{e}\right] \cup \left[2; 5\right[$$

$$\{x \in \mathbb{R} : \frac{\ln x + 2}{\ln x - 1} > 0\} \cap \{x \in \mathbb{R} : 3 - \frac{1}{|x|} \leq 1\}$$

$$\left]0; \frac{1}{e^2}\right[$$

$$\{x \in \mathbb{R} : \frac{2 - e^{-x}}{2 + e^{-x}} > 0\} \cup \{x \in \mathbb{R} : \sqrt{2 - |x|} - 1 < 0\}$$

$$\left[-2; -1 \cup \right] \ln 2; +\infty \left[$$

$$\{x \in \mathbb{R} : \frac{\ln x + 1}{\ln x} > 0\} \cup \{x \in \mathbb{R} : \frac{\ln x - 1}{\ln x} < 0\}$$

$$\left]0; \frac{1}{e}\right[\cup \left]1; +\infty\right[$$

$$\{x \in \mathbb{R} : 2 - \sqrt{x^2} > 0\} \cup \{x \in \mathbb{R} : x \log x > 2 \log x\}$$

$$\left]-2; 2\right[\cup \left]2; +\infty\right[$$