Determinare il campo di esistenza delle seguenti espressioni

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

$$\log\left[\log(2x+1) - 2\log|x|\right] \qquad \begin{cases} 2x+1>0 \\ |x|>0 \\ \log(2x+1)-2\log|x|>0 \end{cases}$$

$$]-(\sqrt{2}-1);0[\cup]0;\sqrt{2}+1[$$

$$\log\left(|x|-\sqrt{2-x^2}\right) \qquad \begin{cases} 2-x^2 \ge 0 \\ \sqrt{2-x^2} < |x| \end{cases} \qquad [-\sqrt{2};-1[\cup]1;\sqrt{2}]$$

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

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

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

$$\frac{\sqrt{\left(x-\sqrt{x^2-1}\right)}}{(x^2+1)\ln x} \qquad \begin{cases} x^2-1 \ge 0 \\ \sqrt{x^2-1} \le x \\ x^2+1 \ne 0 \\ x>0 \\ \ln x \ne 0 \end{cases} \qquad]1;+\infty[$$

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

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

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

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

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

Descrivere ~~come~~ sotto forma ~~unione~~ di unione di intervalli i seguenti insiemi

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

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

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

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

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

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

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

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

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

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