Equazioni e disequazioni logaritmiche

	equazioni logaritmiche	
1	$3log_8^2[x(x-2)] = 1 - 2log_{\frac{1}{16}}[x(x-2)]$	$x = 1 \pm \sqrt{1 + 2^{\frac{3 \pm \sqrt{57}}{4}}}$
2	$2\, log_2 x = log_{\frac{1}{4}} 3x$	$x = \sqrt[5]{\frac{1}{3}}$
3	$log(x-1) - log(x+1) + log(1-2x) = 0$	$impossibile$
4	$\frac{1}{2} log(3x-1) + log\, 3 = -log\, 0.1$	$x = \frac{109}{27}$
5	$log_{x+2} 4 + log_4(x+2) = 2$	$x = 2$
6	$log_3(3x-1) + log_{3x-1} 9 = 3$	$x = \frac{4}{3} \cup x = \frac{10}{3}$
7	$log_x(2x+3) = 2$	$x = 3$
8	$log_2(x-2) - log_2(3-2x) = log_{\frac{1}{2}} 4x$	$impossibile$
9	$\frac{5}{ln\, x + 4} - \frac{3}{ln\, x - 2} = 4$	$x = e \cup x = e^{-\frac{5}{2}}$
10	$(x-4)\, log\, 3 = \frac{7}{x} log\, 27$	$x = 7 \cup x = -3$
11	$\frac{3x-4}{3} log\, 8 = \frac{1}{2x} log\, 4$	$x = \frac{2 \pm \sqrt{7}}{3}$
12	$\frac{log_a x}{log_a x - 1} - 1 = \frac{2}{1 + log_a x}$	$x = a^3$
13	$2\, log_{3x-1} 4 = 1$	$x = \frac{17}{3}$
14	$log_2(x-1)\,(3\, ln\, x - 2) = 0$	$x = 2 \cup x = \sqrt[3]{e^2}$

	disequazioni logaritmiche	
15	$2x\, log\, 5 - log\, 5 > 1 + x\, log\, 25$	$impossibile$
16	$\frac{3}{ln\, 4^x} \leq 4 + x\, log_{\frac{1}{2}} 4$	$x < 0$
17	$3log_3^2 x - log_3 x^2 - log_3 3 \geq 0$	$0 < x < \frac{\sqrt[3]{9}}{3} \cup x > 3$
18	$\frac{1}{ln\, x - 2} - \frac{1}{2 + ln\, x} \geq 1$	$e^{-2\sqrt{2}} \leq x < e^{-2}$ $\cup\ e^2 < x < e^{2\sqrt{2}}$
19	$\frac{(1 + \|x\|\, ln\, 2)(log_3 x - log_x 9)}{log^2(x-1) + log(x-1) - Log\, 10^6} < 0$	$1 < x < \frac{1+e^3}{e^3} \cup$ $3^{\sqrt{2}} < x < 1 + e^2$

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20	$\frac{\ln x-1}{\ln x+1}-\frac{1}{\ln x-1}<\frac{4}{1-\ln^2 x}$	$\frac{1}{e}<x<e$
21	$\frac{2}{1-2\ln\lvert x\rvert}+\frac{1}{\ln x+\ln 2}\leq\frac{1}{2\ln 2x}$	$\frac{1}{4\sqrt{e}}\leq x<\frac{1}{2}\cup x>\sqrt{e}$
22	$\frac{(x-1)\log_2 5+2\log_5 2}{4-\log^2 5^x}>0$	$x<-\frac{2}{\ln 5}\cup$ $\frac{\ln^2 5-2\ln^2 2}{\ln^2 5}<x<\frac{2}{\ln 5}$
23	$\frac{2\log_x x-1}{\ln 2+x\ln 3-\ln 9^x}>0$	$0<x<\frac{\ln 2}{\ln 3}$
24	$\frac{\log_{\frac{1}{2}}(x-\lvert x\rvert)+\log_4(x-1)+\log_{\frac{1}{4}}(x+1)}{1+2x\ln a}\geq 0$	*impossibile*