

diseguazioni logaritmiche risolubili mediante definizione ed applicazione dei teoremi sui logaritmi		
1	$\ln x > 0$	$x > 1$
2	$\log_{\frac{1}{3}} x > 2$	$0 < x < \frac{1}{9}$
3	$\ln(x+1) < 0$	$-1 < x < 0$
4	$\log_6(x^2 - x) \leq 1$	$-2 \leq x < 0 \cup 1 < x \leq 3$
5	$\ln(x^2 - 4) \leq \ln(x+2) + 1$	$2 < x \leq 2+e$
6	$\log_{\frac{1}{5}}(2x+2) < \log_{\frac{1}{5}} x$	$x > 0$
7	$\log_2(x^2 + x + 1) > \log_2 7 - \log_2(x-1)$	$x > 2$
8	$\ln(x^2 - x) > 1$	$x < \frac{1-\sqrt{1+4e}}{2} \cup x > \frac{1+\sqrt{1+4e}}{2}$
9	$\ln(x-2) > \ln(x+3)$	<i>impossibile</i>
10	$\log_{\frac{1}{3}} \sqrt{x^2 - 1} < 0$	$x < -\sqrt{2} \cup x > \sqrt{2}$
11	$\ln(3x+3) \leq \ln(x^2 - 4x - 5)$	$x \geq 8$
12	$\log_2(2x^2 + 3) < \log_2(x+4)$	$\frac{1-\sqrt{5}}{4} < x < \frac{1+\sqrt{5}}{4}$
13	$\ln 5^x + \ln 5^{-2x} < 0$	$x > 0$
14	$\log \sqrt{x-3} + \log \sqrt{x+3} > \log 4$	$x > 5$
15	$\log_9 x \leq 10$	$0 < x \leq 9^{10}$
16	$\log_{\frac{1}{3}}(x^2 - x) > \log_{\frac{1}{3}} 6$	$-2 < x < 0 \cup 1 < x < 3$
17	$\log_5(x^2 - 5x + 6) < \log_5(x+4)$	$3 - \sqrt{7} < x < 2 \cup 3 < x < 3 + \sqrt{7}$
18	$\log_{\frac{1}{4}}(3-x) > \log_{\frac{1}{4}}(2x+6)$	$-1 < x < 3$
19	$2\log_{\frac{1}{2}}(x-1) - \log_{\frac{1}{2}} x^2 \geq 0$	$x > 1$
20	$2 \ln x - 2 \ln(x+2) > 0$	<i>impossibile</i>
21	$\ln(x-1) \geq 2$	$x \geq 1+e^2$

22	$\ln x^2 < 1$	$-\sqrt{e} < x < \sqrt{e}$
23	$\log_2(3x + 1) - 1 > 0$	$x > \frac{1}{3}$
24	$\log_3(1 - 2x) \leq 2$	$-4 \leq x < \frac{1}{2}$
25	$\log_5(x^2 - 11) - 2 < 0$	$-6 \leq x < -\sqrt{11} \cup \sqrt{11} < x \leq 6$
26	$\log_2 2x > \frac{1}{2}$	$x > \frac{\sqrt{2}}{2}$
27	$\log_3(1 - x^2) \leq -1$	$-1 < x \leq -\sqrt{\frac{2}{3}} \cup \sqrt{\frac{2}{3}} \leq x < 1$
28	$\log_{\frac{1}{2}} x > -1$	$0 < x < 2$
29	$\log_{\frac{2}{3}} 2x^2 \leq 2$	$x \leq -\frac{\sqrt{2}}{3} \cup x \geq \frac{\sqrt{2}}{3}$
30	$\log_{\frac{4}{3}}(1 - 7x) > -2$	$x < \frac{1}{16}$
31	$\log_2(3x - 1) + \log_2 2 > 1$	$x > \frac{2}{3}$
32	$2 \log_2(x + 1) - 1 \leq 0$	$-1 < x \leq \sqrt{2} - 1$
33	$\ln x + \ln 3 < \ln x^2$	$x > 3$
34	$\text{Log } 4 + \text{Log } x - \text{Log } 7 \leq 0$	$0 < x \leq \frac{7}{4}$
35	$2 \ln 2 - \ln(x + 1) < 0$	$x > 3$
36	$\log_{\frac{1}{2}} x + \log_2 3 - \log_2 x \geq 0$	$0 < x \leq \sqrt{3}$
37	$\frac{\ln 4 + \ln 3x - \ln 2}{\log_{\frac{1}{3}} x - 2} > 0$	$\frac{1}{9} < x < \frac{1}{6}$
38	$\frac{1}{\log_{\frac{1}{2}}(3x + 2)} \leq 1$	$-\frac{2}{3} < x \leq -\frac{1}{2} \cup x > -\frac{1}{3}$
39	$\frac{\log_4(x + 1) + \log_2 3}{1 + \ln x(x + 1)} \geq 0$	$x > \frac{1}{2} \left( \sqrt{\frac{4+e}{e}} - 1 \right)$
40	$\left( \log_2(x^2 - 1) + \log_{\frac{1}{2}}(x^2 + 1) \right) (1 - 2 \log_3 x) \leq 0$	$1 < x \leq \sqrt{3}$
41	$\frac{3 \ln x \left( 2 \log_2 x - \log_{\frac{1}{2}} x - \log_{\frac{1}{2}} 3 \right)}{\log_{\frac{1}{3}}(2 - x) + \log_9(x + 1)} > 0$	$\frac{1}{\sqrt[3]{3}} < x < \frac{1}{2} (5 - \sqrt{13})$ $\cup 1 < x < 2$

42	$\log_2 \sqrt{x-2} - \frac{1}{2} \log_{\frac{1}{2}}(2+x) \leq \log_4 x$	$2 < x \leq \frac{1+\sqrt{17}}{2}$
43	$\frac{2 \operatorname{Log}(x-2)}{\ln x -4} \leq 0$	$3 \leq x < e^4$
44	$\left  \frac{\ln 2x - \ln 3}{3 - 2 \log_3 x} \right  > 0$	$\forall x \in \mathbb{R}^+ - \left\{ \frac{3}{2}, 3\sqrt{3} \right\}$

## disequazioni logaritmiche risolubili mediante una posizione

45	$2 \log^2 x - 3 \log x + 1 > 0$	$0 < x < \sqrt{10} \cup x > 10$
46	$\log_2^2 x - 6 \log_2 x + 8 > 0$	$0 < x < 4 \cup x > 16$
47	$\ln^2 x - 3 \ln x - 4 \geq 0$	$0 < x \leq \frac{1}{e} \cup x \geq e^4$
48	$\log^2 x + 3 \log x + 2 < 0$	$10^{-2} < x < 10^{-1}$
49	$2 \log_2 x - 3 < 0$	$0 < x < 2^{\frac{3}{2}}$
50	$4 \log^2 x \geq 1$	$0 < x < 10^{-\frac{1}{2}} \cup x \geq 10^{\frac{1}{2}}$
51	$3 \log_2^2 x + 5 \log_2 x < 8$	$2^{-\frac{8}{3}} < x < 2$
52	$\log^2 x - 4 \log x > 0$	$0 < x < 1 \cup x > 10^4$
53	$2 - 4 \log^2 x \geq 0$	$10^{-\frac{\sqrt{2}}{2}} \leq x \leq 10^{\frac{\sqrt{2}}{2}}$
54	$2 \log^2 x - 5 \log x > 7$	$0 < x < \frac{1}{10} \cup x > 10^{\frac{7}{2}}$
55	$\frac{8}{\log_3 x} - 2 \log_3 x \geq 6$	$0 < x \leq 3^{-4} \cup 1 < x \leq 3$
56	$2 \log^2 x + 9 \log x + 4 < 0$	$10^{-4} < x < 10^{-\frac{1}{2}}$
57	$\ln^2 x^2 - \ln x^2 + 3 < 0$	<i>impossibile</i>
58	$\log^4 x - 10 \log^2 x > -9$	$0 < x < 10^{-3}$ $\cup 10^{-1} < x < 10 \cup x > 10^3$
59	$4 \log^2 x + 3 \log x > 1$	$0 < x < 10^{-1} \cup x > 10^{\frac{1}{4}}$
60	$4 \log_2^2 x + 3 \log_2 x < 1$	$\frac{1}{2} < x < \sqrt[4]{2}$
61	$\log_2^2 x + \log_2 x - 2 > 0$	$0 < x < \frac{1}{4} \cup x > 2$

62	$\log_3^2 x - 3\log_3 x + 2 \leq 0$	$3 \leq x \leq 9$
63	$\log_{\frac{1}{2}}^2(x+1) > 1$	$-1 < x < -\frac{1}{2} \cup x > 1$
64	$\log_{\frac{2}{4}}^2(x-2) - 2\log_{\frac{3}{4}}(x-2) - 3 \geq 0$	$2 < x \leq \frac{155}{64} \cup x \geq \frac{10}{3}$
65	$\log_{\frac{4}{3}}^2 2x - 2\log_{\frac{4}{3}} 2x - 8 < 0$	$\frac{9}{32} < x < \frac{128}{81}$
66	$2\log_2^2(2x+1) + \log_2(2x+1) - 1 < 0$	$-\frac{1}{4} < x < \frac{1}{2}(\sqrt{2}-1)$
67	$2\log_{\frac{1}{2}}^2(1-x) - 5\log_{\frac{1}{2}}(1-x) + 3 \geq 0$	$x \leq \frac{1}{2} \cup \frac{1}{4}(4-\sqrt{2}) \leq x < 1$
68	$2\log_3^2(x^2) - 3\log_3(x^2) - 2 \leq 0$	$-3 \leq x \leq -\frac{1}{\sqrt[4]{3}} \cup \frac{1}{\sqrt[4]{3}} \leq x \leq 3$
69	$4\log_{\frac{1}{3}}^2(x^2+1) - 4\log_{\frac{1}{3}}(x^2+1) + 1 > 0$	$\forall x \in \mathbb{R}$
70	$3\log_3^2 \frac{x+1}{x-1} + 7\log_3 \frac{x-1}{x+1} + 2 < 0$	$\frac{5}{4} < x < \frac{1+\sqrt[3]{3}}{\sqrt[3]{3}-1}$
71	$\log_2^2 x + 5\log_{\frac{1}{2}} x + 6 \geq 0$	$0 < x \leq 4 \cup x \geq 8$
72	$\log_3^2(2x-1) + 2\log_{\frac{1}{3}}(2x-1) - 3 < 0$	$\frac{2}{3} < x < 14$
73	$\log_{\frac{1}{3}}^2(x^2-1) + \log_3(x^2-1) - \log_3 9 \geq 0$	$x \leq -2 \cup -\frac{\sqrt{10}}{3} \leq x < -1 \cup$ $1 < x \leq \frac{\sqrt{10}}{3} \cup x \geq 2$
74	$2\log_{\frac{2}{4}}^2 3x + \log_{\frac{1}{4}} 3x - \log_3 3 > 0$	$0 < x < \frac{1}{6} \cup x > \frac{4}{3}$
75	$\log_2^4(3x+1) + 5\log_{\frac{1}{2}}^2(3x+1) - 36 < 0$	$-\frac{1}{4} < x < 1$
76	$\log_2^2 x - \log_2 x^3 + 2 \geq 0$	$0 < x \leq 2 \cup x \geq 4$
77	$\log_{\frac{1}{3}}^2 x - \log_3 \frac{1}{x} - 6 \leq 0$	$\frac{1}{27} \leq x \leq 9$
78	$\log_2^2(x-1) + \log_{\sqrt{2}}(x-1) - 8 > 0$	$1 < x < \frac{17}{16} \cup x > 5$
79	$\log_{\frac{1}{4}}^2 x  + \log_2 x  - 3 \leq 0$	$-4 \leq x \leq -\frac{1}{64} \cup \frac{1}{64} \leq x \leq 4$
80	$\log_3^2(x-1) + \log_{\frac{1}{3}}(x^2-2x+1) - 8 > 0$	$1 < x < \frac{10}{9} \cup x > 82$
81	$\frac{1}{\log_2( x +1)} + \log_{\frac{1}{2}}( x +1) + \frac{3}{2} < 0$	$x < -3 \cup x > 3$
82	$\log_4^2 x  - \log_{ x } 4 \leq 0$	$-4 \leq x < -1 \cup 1 < x \leq 4$

83	$\log_3 2x^2 - \log_3 9 > 1 - 2 \log_{2x^2} 3$	$x < -\frac{3}{\sqrt{2}} \cup -\sqrt{\frac{3}{2}} < x < -\frac{1}{\sqrt{2}} \cup$ $\frac{1}{\sqrt{2}} < x < \sqrt{\frac{3}{2}} \cup x > \frac{3}{\sqrt{2}}$
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## diseguazioni logaritmiche con argomento esponenziale

84	$\ln 3^x < 0$	$x < 0$
85	$\ln(3 \cdot 2^x) > 0$	$x > \log_2 \frac{1}{3}$
86	$\log_2(3^x - 1) \leq 1$	$0 < x \leq 1$
87	$\log(25^x + 5) < \log 6$	$x < 0$
88	$\log(2^{x+1} + 3) > \log 4^x$	$x < \log_2 3$
89	$\ln(e^x + 1) > 0$	$\forall x \in \mathcal{R}$
90	$\ln(7^x - 1) \ln(7^{x+1} - 7) > 0$	$0 < x < \frac{\ln 8}{\ln 7} - 1 \cup x > \frac{\ln 2}{\ln 7}$
91	$\log_{\frac{1}{4}}(e^{2x} + 1) > \log_{\frac{1}{4}} e^x$	impossibile
92	$\ln(9^x - 3^x) \geq 0$	$x > \frac{\ln(\sqrt{5} + 1) - \ln 2}{\ln 3}$
93	$\log_3(5^{x^2-4x}) \geq 0$	$x \leq 0 \cup x \geq 4$
94	$\ln\left(2^{\frac{x^2-x}{x+1}}\right) \leq 0$	$x < -1 \cup 0 \leq x \leq 1$
95	$\log_{\frac{1}{6}}\left(2\left(\frac{1}{2}\right)^x - 2^x\right) \leq 0$	$x \leq 0$
97	$\log_2 3^x < \log_2 1$	$x < 0$
98	$\log_4 7^{-x} > \log_4 7 + \log_4 1$	$x < -1$
99	$\log_2 3^{x+1} - \log_2 3^{2x} \geq 0$	$x \leq 1$
100	$\log_{\frac{1}{2}} 3^{2x-1} > \log_2 1 - \log_2 3$	$x < 1$
101	$\text{Log } 5^{1-x} - \text{Log } 4 > 1$	$x < -\log_5 8$
102	$\ln 2^{3x-1} + \ln 4^x \leq 0$	$x \leq \frac{1}{5}$

103	$2 \log_4 3^x > -\log_2 9$	$x > -2$
104	$\log_2 e^{3x-1} > \log_{\frac{1}{2}} 3$	$x > \frac{1}{3}(1 - \ln 3)$
105	$\text{Log } 5^{x+1} - \text{Log } 3^{2x} \leq 0$	$x \geq \frac{\ln 5}{\ln 9 - \ln 5}$
106	$\text{Log } 2^{3x^2-2x} > \frac{1}{3} \text{Log } 2$	$x < \frac{1}{3}(1 - \sqrt{2}) \cup x > \frac{1}{3}(1 + \sqrt{2})$
107	$\log_3 2^{x-2} + \log_3 4 > 3$	$x > \frac{3 \ln 3}{\ln 2}$
108	$\ln 3^{\frac{x-2}{x+1}} - \ln 9 \leq 0$	$x \leq -4 \cup x > -1$
109	$x \ln 3 < \ln 1 - x \ln 9$	$x < 0$
110	$(x-2) \ln 4 - \ln 8 > \ln 2 - \ln 7$	$x > \frac{\ln 256 - \ln 7}{\ln 4}$
111	$x^2 \log_3 2^{\frac{1}{x}} - 3 \log_{\frac{1}{3}} 2 \geq 0$	$x \geq -3$
112	$\frac{ x-2  \ln 3^{-x} - 2 \ln 9}{1 + 2x \log_2 3} \leq 0$	$x \leq 1 - \sqrt{5} \cup x > -\frac{\ln 2}{\ln 9}$
113	$\frac{x \text{Log } 4^{2x-1} - \text{Log } 16 + \text{Log } 2^x}{\ln 10^{-x} - \ln 5^x + \ln 5} > 0$	$x < \frac{1}{8}(1 - \sqrt{65}) \cup \frac{\ln 5}{\ln 2 + 2 \ln 5} < x < \frac{1}{8}(1 + \sqrt{65})$
114	$\frac{( x -1) \text{Log } 2 - \text{Log } 8^{x+1}}{(\ln 3^{-(x+2)} + 2x \ln 9)(1 + \log_2 7^x)} \geq 0$	$x < -1 \cup -\frac{\ln 2}{\ln 7} < x < \frac{2}{3}$
115	$\frac{\log_2 3^{2x} - \log_{\frac{1}{2}} 9 + \log_2 5^x}{1 - 2x \text{Log } 4} \geq 0$	$-\frac{2 \ln 3}{2 \ln 3 + \ln 5} \leq x < \frac{\ln 10}{4 \ln 2}$
116	$\frac{(x+1) \ln 3^{-2} + \ln 9 - \ln 3}{x \ln 4} + 1 > 0$	$\frac{\ln 3}{2(\ln 2 - \ln 3)} < x < 0$
117	$\frac{1}{\log_2 5^{x-2}} > -\frac{1}{x \log_4 3}$	$0 < x < \frac{4 \ln 5}{\ln 3 + 2 \ln 5} \cup x > 2$
118	$\frac{2 \log_3 e^{2x}}{5} - 1 > \log_9 4$	$x > \frac{5}{4} \ln 6$
119	$\frac{2 x  \text{Log } e^{3-x} + \text{Log } \sqrt{e} - \frac{1}{3} \text{Log } e}{1 + 2\sqrt{x} \ln 10} \leq 0$	$x \geq \frac{3}{2} + \sqrt{\frac{7}{3}}$
120	$\frac{2}{3} x \log_3 2^x + \frac{3}{2} \log_9 3^x < 0$	$-\frac{9 \ln 3}{8 \ln 2} < x < 0$
121	$\frac{ x }{2 \ln 3^{-x} + \ln 4} > 2$	$\frac{4 \ln 2}{1 + 4 \ln 3} < x < \frac{\ln 2}{\ln 3}$

diseguazioni logaritmiche di riepilogo

122	$\log_2 x \leq \sqrt{\log_2 x + 1}$	$\frac{1}{2} \leq x \leq 2^{\frac{1+\sqrt{5}}{2}}$
123	$\log_{\frac{1}{3}}(2-x) > \log_{\frac{1}{3}}(1-2x)$	$x < -1$
124	$\ln(x^2 - x) < \ln 6$	$-2 < x < 0 \cup 1 < x < 3$
125	$2 \ln^3 x - 4 \ln^2 x + \ln x - 2 < 0$	$0 < x < e^2$
126	$\ln(7 - 2^x) > \ln(4^x + 5) - \ln 7$	$x < 2$
127	$\ln(e^x - 1) + \ln(2e^{2x} - 5e^x + 3) \leq \ln 1$	$\ln \frac{3}{2} < x \leq \ln 2$
128	$\frac{-\log x^4 - 7}{2 \log^2 x - 5 \log x + 2} \geq 0$	$0 < x \leq 10^{-\frac{7}{4}} \cup \sqrt{10} < x < 100$
129	$\log_8 \left( 4^{\frac{1}{x}} + 3 \cdot 2^{\frac{1}{x}} \right) \leq 0$	$\frac{\ln 2}{\ln(\sqrt{13} - 3) - \ln 2} \leq x < 0$
130	$\ln \frac{x}{x+7} + \ln(x+7) > \ln x$	<i>impossibile</i>
131	$\log_3 \sqrt{x} \geq \frac{1}{2} \log_3 x$	$x > 0$
132	$\frac{6}{2 \log_2 x - 1} \geq \frac{5}{\log_2 x - 2}$	$0 < x \leq 2^{\frac{7}{4}} \cup \sqrt{2} < x < 4$
133	$\log_2(x-1) > \log_{\frac{1}{2}}(3-x) - 1$	$2 - \frac{\sqrt{2}}{2} < x < 2 + \frac{\sqrt{2}}{2}$
134	$\ln(x+1) \geq 1 + 2 \ln x$	$0 < x \leq \frac{1 + \sqrt{1+4e}}{2e}$
135	$7 \ln \sqrt[3]{x} + \ln x^2 \leq 5$	$0 < x \leq e^{\frac{15}{13}}$
136	$\log_{\frac{1}{2}} \sqrt{4x-4} > \log_{\frac{1}{2}} 4 - \log_{\frac{1}{2}} \sqrt{5x+4}$	$x \leq -\frac{4}{5} \cup 1 \leq x < \frac{1 + \sqrt{161}}{10}$
137	$\frac{\log(x^3 + 19)}{\log(1+x)} \leq 3$	$-1 < x < 0 \cup x \geq 2$
138	$\log_x \frac{x}{x-2} < 2$	$x > 1 + \sqrt{2}$
139	$\log_{\frac{1}{2}}  x+2  < 3$	$x < -\frac{17}{8} \cup x > -\frac{15}{8}$
140	$\log_3  x  \geq -1$	$x \leq -\frac{1}{3} \cup x \geq \frac{1}{3}$
141	$\log_5 \frac{1+ x }{1- x } > \log_5 2$	$-1 < x < -\frac{1}{3} \cup \frac{1}{3} < x < 1$
142	$\frac{\log_2^2 x - 5 \log_2 x + 6}{1 - \log_2^2 x} \geq 0$	$\frac{1}{2} < x < 2 \cup 4 \leq x \leq 8$

143	$\log(\log(x^2 - 6)) < 0$	$-4 < x \leq -\sqrt{7} \cup \sqrt{7} < x < 4$
144	$\ln 5 - \ln(x - 1) > 2 \ln 4$	$1 < x < \frac{21}{16}$
145	$\log_2(x^2 - 1) \geq -\log_{\frac{1}{2}} 4 + 2 \log_4 x$	$x \geq 2 + \sqrt{5}$
146	$\frac{1}{2} \log 4 - \log 3 + \log(x - 1) \leq 2 + \log 3x$	$x > 1$
147	$2 \log_3(2x + 1) + \log_{\frac{1}{3}} x < 3 - 2 \log_9 x$	$0 < x < \frac{1}{2}(3\sqrt{3} - 1)$
147	$\frac{1}{\log_2(x + 1)} - \log_4(x + 1) < \frac{1}{2}$	$-\frac{3}{4} < x < 0 \cup x > 1$
148	$\log_3 x - 2 \log_x 9 \geq 3$	$\frac{1}{3} \leq x < 1 \cup x \geq 81$
149	$\frac{2x \log 4 - x \log 2}{1 + \ln 3^{ x -1}} > 0$	$\frac{1 - \ln 3}{\ln 3} < x < 0 \cup x > 1 - \frac{1}{\ln 3}$
150	$\frac{1 - x \ln 7 + x \ln 14}{\ln^2 \frac{x-2}{x+1} - 1} \geq 0$	$x < \frac{2+e}{1-e} \cup -\frac{1}{\ln 2} \leq x < -1$ $2 < x < \frac{1+2e}{e-1}$
151	$\frac{3 \ln^2( x  - 1) - \ln( x  - 1)^5 - 2}{\log_4 x - 2 + \log_{\frac{1}{2}} x} < 0$	$1 < x < \frac{1 + \sqrt[3]{e}}{\sqrt[3]{e}} \cup x > 1 + e^2$
152	$\ln 7 - \ln 4x + 2 \ln x < 1 - \ln x + \ln 2$	$0 < x < 2 \sqrt{\frac{2e}{7}}$
153	$\frac{1}{2} \log(x + \sqrt{2}) < \log(2 - x^2) - \frac{1}{2} \log(\sqrt{2} - x)$	$-1 < x < 1$
154	$\log_2 x - \log_{\frac{1}{2}} x \geq \log_4 9 + \log_2(x + 2)$	$x \geq \frac{1}{2}(3 + \sqrt{33})$
155	$\log_2^2  x  - \log_{\frac{1}{2}}  x ^3 - 4 < 0$	$-2 < x < -\frac{1}{16} \cup \frac{1}{16} < x < 2$
156	$x \ln 4 + \ln 3 < 2x \ln 3$	$x > \frac{\ln 3}{2(\ln 3 - \ln 2)}$