

Sistemi di equazioni logaritmiche

1	$\begin{cases} x + y = 8 \\ \log x + \log y - \log 12 = 0 \end{cases}$	(2,6); (6,2)
2	$\begin{cases} x - y = 3 \\ \log x + \log y = \log 4 \end{cases}$	(4,1)
3	$\begin{cases} x + y = 9 \\ \ln x + \ln y = \ln 8 \end{cases}$	(8,1); (1,8)
4	$\begin{cases} \log x + \log y = 1 \\ x - 14y = 4 \end{cases}$	$\left(14, \frac{5}{7}\right)$
5	$\begin{cases} \log x - \log y = 0 \\ \log x + \log y = 4 \end{cases}$	(100,100)
6	$\begin{cases} \log_3 x - \log_3 y = 2 \\ x - 2y = 14 \end{cases}$	(18,2)
7	$\begin{cases} x + y = 4 \\ \log_{16} x + \log_{16} y = \frac{1}{2} \end{cases}$	(2,2)
8	$\begin{cases} \log_2 x + \log_2 y = 3 \\ \ln x - \ln y = \ln 4 \end{cases}$	$(4\sqrt{2}, \sqrt{2})$
9	$\begin{cases} \log_3 x - \log_3 y = 3 \\ \log_3 x - 2 \log_3 y = 4 \end{cases}$	$\left(9, \frac{1}{3}\right)$
10	$\begin{cases} \ln(x + y) = \ln 3 + \ln 5 \\ \ln x + \ln y = 2 \ln(5\sqrt{2}) \end{cases}$	(5,10); (10,5)
11	$\begin{cases} \log_3(xy) = \log_3 8 \\ 2 \log_2 x - \log_2 y = 0 \end{cases}$	(2,4)
12	$\begin{cases} \ln(x - y) = 0 \\ \ln x - \ln y = 0 \end{cases}$	\emptyset
13	$\begin{cases} \ln x - \ln(2y) = 0 \\ \log_2 x + \log_2 y = \log_2 3 - 1 \end{cases}$	$\left(\sqrt{3}, \frac{\sqrt{3}}{2}\right)$
14	$\begin{cases} \log_3 x + \log_3 y = 1 \\ \log_2(x + y) = 2 \end{cases}$	(1,3); (3,1)
15	$\begin{cases} \log_2(x + 2y) = 3 \\ \log_2 2x + \log_3 y = 1 \end{cases}$	(2,3)
16	$\begin{cases} \log(x - 2y) = 1 \\ \log_3(x - 9) = 4 \log_3 3 - 2 \end{cases}$	(18,4)

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17	$\begin{cases} x^2 + y^2 = 2 \\ \log_3 x - \log_3 y = \log_3 4 - 1 \end{cases}$	$\left(-\frac{4\sqrt{2}}{5}, -\frac{3\sqrt{2}}{5}\right); \left(\frac{4\sqrt{2}}{5}, \frac{3\sqrt{2}}{5}\right)$
18	$\begin{cases} \log x + \log y = \log \sqrt{3} - 2 \log 2 \\ 2x - 1 = \sqrt{3} - 2y \end{cases}$	$\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right); \left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
19	$\begin{cases} (x+y)^2 + 2xy = 425 \\ \log_2 x + \log_2 y = \log_2 100 \end{cases}$	$(5,20); (20,5)$
20	$\begin{cases} \log_3(2y-x) = 0 \\ 3^x + 3^y = \frac{4}{3} \end{cases}$	$(-1,0)$
21	$\begin{cases} 2\log_4 x + 4\log_3 y = 16 \\ 4\log_4 x - 5\log_3 y = -7 \end{cases}$	$(16,27)$
22	$\begin{cases} 2\ln x + 2\ln y = 1 \\ \log_{\frac{1}{3}} x + \log_{\frac{1}{3}} y = -1 \end{cases}$	\emptyset
23	$\begin{cases} \log_8 xy = 1 \\ \log_3(x+y) = 2 \end{cases}$	$(1,8); (8,1)$
24	$\begin{cases} \log_6 10x = \log_6 y \\ 3\log x + 2\log y = 3 \end{cases}$	$(\sqrt[5]{10}, 10\sqrt[5]{10})$
25	$\begin{cases} 2\log_2 x^2 - 2\log_2 y = 4 \\ \log_2(xy) = 4 \end{cases}$	$(4,4)$
26	$\begin{cases} 6^x = 8(2^{y-4} \cdot 3^{y-1}) \\ \log_{xy} 12 = 1 \end{cases}$	$(3,4); (-4, -3)$
27	$\begin{cases} \log_{x+1} y = 1 \\ \log_4 y + 1 = \log_4(x+1)^2 \end{cases}$	$(3,4)$
28	$\begin{cases} \log(\sqrt{x-y}) = \log(y-2) \\ 2^x \cdot 2^y = 8 \end{cases}$	\emptyset
29	$\begin{cases} \frac{3^y}{3^{2x}} = 27 \\ \log_2(\sqrt{y-x}) = \log_4 y \end{cases}$	$(0,3)$
30	$\begin{cases} 5^{\log_5 x} + 2x = \frac{9}{10} \\ \log_5(x-y) - 2\log_5 x = 1 \end{cases}$	$\left(\frac{3}{10}, -\frac{3}{20}\right)$
31	$\begin{cases} xy = 100 \\ y^{\log x} = 1 \end{cases}$	$(1,100); (100,1)$

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32	$\begin{cases} y^{\log x} = \frac{1}{100} \\ xy = 10 \end{cases}$	$\left(100, \frac{1}{10}\right); \left(\frac{1}{10}, 100\right)$
33	$\begin{cases} \log x + \log y = 1 \\ z + y = 11 \\ \log_3 x = \log_3 z \end{cases}$	$(10, 1, 10); (1, 10, 1)$
34	$\begin{cases} x + y + z = 7 \\ \ln x + \ln y = \ln 6 \\ \ln z - \ln y = 0 \end{cases}$	$(3, 2, 2); \left(4, \frac{3}{2}, \frac{3}{2}\right)$
35	$\begin{cases} \log_a x + \log y = a \\ x - y = a - 1 \end{cases}$	$(a, 1)$
36	$\begin{cases} \ln(3a) = \ln(x + y) \\ \ln(xy) = \ln(2a^2) \end{cases}$	$(a, 2a); (2a, a)$
37	$\begin{cases} \log_2 xy = \log_2(b - 1) \\ x + y = b \end{cases}$	$(b - 1, 1); (1, b - 1)$
38	$\begin{cases} x^y = b^4 \\ x^{\frac{1}{y}} = b \end{cases}$	$(b^2, 2); \left(\frac{1}{b^2}, -2\right)$
39	$\begin{cases} \frac{1}{\sqrt{m^y}} = m \cdot m^x \\ \ln x - \ln y = \ln(1 - y) - \ln(x + y + 1) \end{cases}$	\emptyset
40	$\begin{cases} x + y = 13 \\ \ln x + \ln y = \log 36 \end{cases}$	$x = 4, y = 9; x = 9, y = 4$
41	$\begin{cases} x + y = 29 \\ \log x + \log y = 2 \end{cases}$	$x = 25, y = 4;$ $x = 4, y = 25$
42	$\begin{cases} \log x + \log y = 3 \\ \log x - \log y = 1 \end{cases}$	$x = 100, y = 10$
43	$\begin{cases} \log x - \log y = 1 \\ 3\log x + 2\log y = 3 \end{cases}$	$x = 10, y = 1$
44	$\begin{cases} x + \log y^2 = 3 \\ y^x = 10 \end{cases}$	$x = 1, y = 10;$ $x = 2, y = \pm\sqrt{10}$

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45	$\begin{cases} \log x - \log y = 1 \\ \frac{100}{x} + \frac{2y}{5} = 5 \end{cases}$	$x = 25, y = \frac{5}{2};$ $x = 100, y = 10$
46	$\begin{cases} x^3 + y^3 = 1001 \\ \log x - \log y = 1 \end{cases}$	$x = 10, y = 1$
47	$\begin{cases} \log x + \log y = 1 \\ x + y = 7 \end{cases}$	$x = 5, y = 2; x = 2, y = 5$
48	$\begin{cases} 5(\log_y x + \log_x y) = 26 \\ xy = 64 \end{cases}$	$x = 2, y = 32;$ $x = 32, y = 2$
49	$\begin{cases} xy = 40 \\ x^{\log y - \log 2} = 2 \end{cases}$	$x = 10, y = 4$
50	$\begin{cases} xy = 40 \\ x^{\log y} = 4 \end{cases}$	$x = 10, y = 4;$ $x = 4, y = 10$
51	$\begin{cases} x^{\log y} = 2 \\ xy = 20 \end{cases}$	$x = 10, y = 2;$ $x = 2, y = 10$
52	$\begin{cases} \log_x \log_2 \log_x y = 0 \\ \log_y 9 = 1 \end{cases}$	$x = 3, y = 9$
53	$\begin{cases} \log x + \log y = 1 \\ \log x - \log y = 3 \end{cases}$	$x = 100, y = \frac{1}{10};$
54	$\begin{cases} x^2 + y^2 = 13 \\ \ln x + \ln y = \ln 6 \end{cases}$	$x = 2, y = 3; x = 3, y = 2$
55	$\begin{cases} \log x + \log y = 1 \\ x^4 + y^4 = 641 \end{cases}$	$x = 5, y = 2; x = 2, y = 5$
56	$\begin{cases} \log \sqrt{x} - \log \sqrt{y} = \frac{1}{2} \\ 3\log x + 2\log y = 8 \end{cases}$	$x = 100, y = 10$

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57	$\begin{cases} x^x + y^y = 31 \\ x \ln x + y \ln y = \ln 108 \end{cases}$	$x = 2, y = 3; x = 3, y = 2$
58	$\begin{cases} xy = 100 \\ x^{\log x} = 10 \end{cases}$	$x = 10, y = 10;$ $x = \frac{1}{10}, y = 1000$
59	$\begin{cases} \log_2 x + 2 \log_4 y = 3 \\ x + y = 6 \end{cases}$	$x = 2, y = 4; x = 4, y = 2$
60	$\begin{cases} y \log x = 4 \\ x^{\frac{1}{y}} = 10 \end{cases}$	$x = 100, y = 2;$ $x = \frac{1}{100}, y = -2$
61	$\begin{cases} \log 100 + \log y = 4 \\ \log x + \log_y 100 = 2 \end{cases}$	$x = 10, y = 100$
62	$\begin{cases} \log_2 xy = 5 \\ \log_{\frac{1}{2}} \frac{x}{y} = 1 \end{cases}$	$x = 4, y = 8; x = -4, y = -8$
63	$\begin{cases} \log(x^2 + y^2) - 1 = \log 13 \\ \log(x+y) + \log(x-y) = 3 \log 2 \end{cases}$	$x = \sqrt{69}, y = \pm\sqrt{61}$
64	$\begin{cases} x^y = 5x - 4 \\ \log_x 16 = 2 \end{cases}$	$x = 4, y = 2$
65	$\begin{cases} \log_4 x - \log_2 y = 0 \\ x^2 - 5y^2 + 4 = 0 \end{cases}$	$x = 1, y = 1; x = 4, y = 2$
66	$\begin{cases} 3 \log_y x - \log_x y = 2 \\ x^2 + y = 12 \end{cases}$	$x = 3, y = 3$
67	$\begin{cases} 2^x 4^y = 32 \\ \ln(x-y)^2 = 2 \ln 2 \end{cases}$	$x = 3, y = 1; x = \frac{1}{3}, y = \frac{7}{3}$
68	$\begin{cases} \log x - \log y = \log \sqrt{10} \\ 2 \log x + \log y = \frac{5}{2} \end{cases}$	$x = 10, y = \sqrt{10}$

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69	$\begin{cases} x + y = 25 \\ \log x + \log y = 2 \end{cases}$	$x = 20, y = 5; x = 5, y = 20$
70	$\begin{cases} \log_3 x + \log_3 y = -0,5 \\ \log_3 x - \log_3 y = -1,5 \end{cases}$	$x = \frac{1}{3}, y = \sqrt{3}$
71	$\begin{cases} \log(x+y) = 2(\log\sqrt{x} + \log\sqrt{y}) \\ 2^x = 8^y \end{cases}$	$x = 4, y = \frac{4}{3}$
72	$\begin{cases} \log x - \log y = 1 \\ 2^x : 2^y = 8^{30} \end{cases}$	$x = 100, y = 10$
73	$\begin{cases} \frac{\log x}{\log y} = 2 \\ 3^x : 3^y = 9^3 \end{cases}$	$x = 9, y = 3$
74	$\begin{cases} x^2 + y^2 = 29 \\ \log \sqrt{x} + \log \sqrt{y} = \frac{1}{2} \end{cases}$	$x = 2, y = 5; x = 5, y = 2$
75	$\begin{cases} \log x - \log y = 2 \\ x + xy = 11 \end{cases}$	$x = 10, y = \frac{1}{10};$ $x = -110, y = -\frac{11}{10}$
76	$\begin{cases} x^y = 0,01 \\ \log x^2 + y = 0 \end{cases}$	$x = 10, y = -2;$ $x = \frac{1}{10}, y = 2$
77	$\begin{cases} 5\log_2(2x - 3y) - 3\log_2(6x - 5y) = 3 \\ 12\log_2(2x - 3y) - 5\log_2(6x - 5y) = 16 \end{cases}$	$x = 1, y = -2$
78	$\begin{cases} \log_3 y + \log_3 z = 2a \\ \log_3 z + \log_3 x = 2b \\ \log_3 x + \log_3 y = 2c \end{cases}$	$x = 3^{b+c-a}, y = 3^{c+a-b},$ $z = 3^{a+b-c}$
79	$\begin{cases} \log_4 x + \log_4 y = \frac{7}{2} \\ x^2 + y^2 = 320 \end{cases}$	$x = 8, y = 16;$ $x = 16, y = 8$
80	$\begin{cases} x^{\log y} = 1 \\ \log x + \log y = 1 \end{cases}$	$x = 1, y = 10;$ $x = 10, y = 1$

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81	$\begin{cases} \log_2(x^2 + x + 4) - 3 \log_4(y^2 + y + 4) = -2 \\ (\log_2(x^2 + x + 4))^2 - 2 \log_{16}(y^2 + y + 4) = 6 \end{cases}$	$x = 3, y = 3;$ $x = -4, y = -4$ $x = 3, y = -4;$ $x = -4, y = 3$
82	$\begin{cases} \log x \cdot \log y = \frac{3}{16} \\ xy = 10 \end{cases}$	$x = \sqrt[4]{1000}, y = \sqrt[4]{10};$ $x = \sqrt[4]{10}, y = \sqrt[4]{1000}$
83	$\begin{cases} \log(x^2y) + \log(xy^2) = 9 \\ x + y = 110 \end{cases}$	$x = 100, y = 10;$ $x = 10, y = 100$
84	$\begin{cases} \log(xy) + \log\left(\frac{x}{y} + \frac{y}{x}\right) = 2 \\ \log(8x + 6y) = 2 \end{cases}$	$x = 8, y = 6$
85	$\begin{cases} \log_a x - \log_a y = b \\ x + y = a \end{cases}$	$x = \frac{a^{b+1}}{a^b + 1}, y = \frac{a}{a^b + 1}$
86	$\begin{cases} x^{\log y} = 100 \\ (\log x)^2 + (\log y)^2 = 5 \end{cases}$	$x = 10, y = 100;$ $x = 100, y = 10$ $x = \frac{1}{10}, y = \frac{1}{100};$ $x = \frac{1}{100}, y = \frac{1}{10}$
87	$\begin{cases} \frac{1}{5} \log x - \frac{1}{2} \log y = 0 \\ \frac{1}{3} \log x - \frac{1}{2} \log z = 1 \\ \frac{1}{2} \log z - \frac{1}{3} \log y = 2 \end{cases}$	$x = 10^{15}, y = 10^6, z = 10^8$
88	$\begin{cases} \log x - \log y = 1 \\ x^2 + y^2 = 10100 \end{cases}$	$x = 100, y = 10;$ $x = -100, y = -10$
89	$\begin{cases} 2 \log x + \log y = 5 \\ \log x - \log y = 1 \end{cases}$	$x = 100, y = 10$
90	$\begin{cases} \log x + \log y = 2 \\ x - y = 21 \end{cases}$	$x = 25, y = 4$
91	$\begin{cases} \log x + \log y = 4 \\ \log x - \log y = 2 \end{cases}$	$x = 1000, y = 10$
92	$\begin{cases} xy = 300 \\ x^{\log y} = 9 \end{cases}$	$x = 3, y = 100$
93	$\begin{cases} x^3 + y^3 = 1001 \\ \log x + \log y = 1 \end{cases}$	$x = 10, y = 1;$ $x = 1, y = 10$