

equazioni esponenziali risolubili mediante applicazione delle proprietà delle potenze		
1	$6^x = 36$	$x = 2$
2	$49^x = \frac{1}{7}$	$x = -\frac{1}{2}$
3	$\left(\frac{1}{3}\right)^{x+1} = 9$	$x = -3$
4	$5^{x^2} = \frac{1}{25}$	<i>impossibile</i>
5	$8^{x^2-3x} = 1$	$x = 0 \cup x = 3$
6	$7^{x^2+4x+3} = \frac{1}{7}$	$x = -2$
7	$a^x = -2$	<i>impossibile</i>
8	$\left(\frac{2}{3}\right)^{-3x} = \frac{27}{8}$	$x = 1$
9	$3^{3x} = \frac{1}{27}$	$Rx = -1$
10	$\left(\frac{7}{3}\right)^{-2x} = \frac{9}{49}$	$x = 1$
11	$4^{x+8} = \frac{1}{4^{2x-5}}$	$x = -1$
12	$243^{\frac{2}{x}-1} = 27^{2(x+1)}$	$x = -\frac{5}{2} \cup x = \frac{2}{3}$
13	$7^{x^2-4x} - 1 = 0$	$x = 0 \cup x = 4$
14	$2^{x^2+x-20} = 1$	$x = -5 \cup x = 4$
15	$3^{x^2-3x+6} = 1$	<i>impossibile</i>
16	$4^x = 8$	$x = \frac{3}{2}$
17	$4^{\sqrt{x+1}} = 16$	$x = 3$
18	$3^{x+2} = 81$	$x = 2$
19	$10^x = 0,01$	$x = -2$
20	$5^x = \left(\frac{1}{5}\right)^5$	$x = -5$
21	$7^{x+1} = \left(\frac{1}{7}\right)^{5+x}$	$x = -3$

22	$3^{2x+3} = \frac{1}{3}$	$x = -2$
23	$2^{x+2} + 2^x = 640$	$x = 7$
24	$7^{\sqrt{x^2-1}} = 49$	$x = \sqrt{5} \quad x = -\sqrt{5}$
25	$a^{6x} = a^{x^2}$	$x = 0 \quad x = 6$
26	$3^x - 3 = 0$	$x = 1$
27	$2^{2x} = 8$	$x = \frac{3}{2}$
28	$\left(\frac{1}{2}\right)^x - 4 = 0$	$x = -2$
29	$3^{2x} + 9 = 0$	<i>impossibile</i>
30	$4\left(\frac{1}{2}\right)^{3x} = 1$	$x = \frac{2}{3}$
31	$(3^x - 1)\left(5^{2x} - \frac{1}{5}\right) = 0$	$x = 0, x = -\frac{1}{2}$
32	$3(3^x - 1) = -2$	$x = -1$
33	$7^{x^2-1} - 343 = 0$	$x = \pm 2$

equazioni esponenziali risolubili mediante una posizione

34	$2^{2x} + 2^{x+1} - 1 = 0$	$x = \log_2(\sqrt{2} - 1)$
35	$10^{2x} + 3 \cdot 10^x + \frac{5}{4} = 0$	<i>impossibile</i>
36	$2e^{2x} + 5e^x = 3$	$x = \ln \frac{1}{2}$
37	$3^{2x} - 3^{x+1} = -2$	$x = 0 \cup x = \frac{\ln 2}{\ln 3}$
38	$20^{2x+1} + 2 = 9 \cdot 20^x$	<i>impossibile</i>
39	$\frac{3^{2x} - 3^{x+1}}{2} = -1$	$x = 0 \cup x = \frac{\ln 2}{\ln 3}$
40	$9^x - 3^{x+1} + 2 = 0$	$x = 0 \cup x = \frac{\ln 2}{\ln 3}$
41	$5^{2\sqrt{x}} - 5^{\sqrt{x}+1} + 4 = 0$	$x = 0 \cup x = \log_5^2 4$

42	$3^{4\sqrt{x}} - 4 \cdot 3^{2\sqrt{x}} + 3 = 0$	$x = 0 \cup x = \frac{1}{4}$
43	$16^x - \frac{3}{2}4^x + \frac{1}{2} = 0$	$x = -\frac{1}{2} \cup x = 0$
44	$\left(\frac{1}{3}\right)^{x-1} + \left(\frac{1}{3}\right)^{1-x} = 2$	$x = 1$
45	$2^{3x-2} - 2^{3x-3} - 2^{3x-4} = 4$	$x = 2$
46	$3^{2-x} + 3^{x+1} = 12$	$x = 0 \cup x = 1$
47	$\frac{1}{7^{2x}} - \frac{1}{(7^x - 1)^2} = -\frac{2}{7^x - 7^{2x}}$	$x = -\frac{\ln 2}{\ln 49}$
48	$4^{x+8} = \frac{1}{4^{2x-5}}$	$x = -1$
49	$3^{x+1} = 2^{1-x}$	$x = \frac{\log 2 - \log 3}{\log 3 + \log 2}$
50	$2^{x+3} + 4^{x+1} = 320$	$x = 3$
51	$4^x + 2^x - 2 = 0$	$x = 0$
52	$25^x - 2 \cdot 5^{x+1} + 25 = 0$	$x = 1$
53	$3^{x+2} + 3^{2-x} = 82$	$x = 2 \quad x = -2$
54	$e^{2x} + e^x - 2 = 0$	$x = 0$
55	$\frac{5^{2x} - 125}{5^x - 1} = 0$	$x = \frac{3}{2}$
56	$-2 \cdot 5^{x+2} + 25^{x+1} = 375$	$x = 1$
57	$5^{x+2} - 4 \cdot 5^{1-x} - 30 = -5^{2-x}$	$x = 0, x = -1$
58	$3^{2x} - 4 \cdot 3^x + 3 = 0$	$x = 0 \cup x = 1$
59	$4^x - 6 \cdot 2^x - 16 = 0$	$x = 3$
60	$3^{x+1} - 4 \cdot 3^{\frac{x}{2}} + 1 = 0$	$x = -2 \cup x = 0$
61	$\left(\frac{1}{2}\right)^{2x} - 5\left(\frac{1}{2}\right)^x + 4 = 0$	$x = -2 \cup x = 0$
62	$3^{2x+1} - 28 \cdot 3^x + 9 = 0$	$x = -1 \cup x = 2$

63	$9^x - 2 \cdot 3^x + 1 = 0$	$x = 0$
64	$4^{x-1} - 3 \cdot 2^{x-1} - 4 = 0$	$x = 3$
65	$\left(\frac{1}{4}\right)^{\frac{x+1}{3}} - 5 \left(\frac{1}{2}\right)^{\frac{x+1}{3}} + 4 = 0$	$x = -7 \cup x = -1$
66	$\left(\frac{1}{4}\right)^{x^2-2x} - \left(\frac{1}{2}\right)^{\frac{2x^2-4x-1}{2}} = 0$	$x = \frac{2 \pm \sqrt{2}}{2}$
67	$\frac{4^x + 2^{x+1} + 11}{7} = 2^x + 1$	$x = 0 \cup x = 2$

equazioni esponenziali con basi diverse risolvibili mediante logaritmi

68	$3^x = 5^{3(x+1)}$	$x = \frac{3 \ln 5}{\ln 3 - \ln 5}$
69	$3^x = 5^{x-2}$	$x = \frac{2 \ln 5}{\ln 5 - \ln 3}$
70	$\frac{5^{2x}}{7^x} = 3$	$x = -\frac{\ln 3}{\ln 7 - \ln 25}$
71	$20 \cdot 7^x - 3 \cdot 2^x = 4 \cdot 7^x + 2^x$	$x = -2 \frac{\ln 2}{\ln 7 - \ln 2}$
72	$10^{x+3} - 2^{x+4} = 10^{x+2} - 2^x$	$x = -\frac{\ln 60}{\ln 5}$
73	$2^x \cdot 3^x = 10$	$x = \frac{1}{\log_{10} 6}$
74	$25^x \cdot 7^{x-1} = 2$	$x = \frac{\ln 14}{\ln 175}$
75	$\frac{3}{4} \cdot 5^x + 7 \cdot 3^x = \frac{2}{3} \cdot 5^x + 10 \cdot 3^x$	$x = \frac{2 \ln 6}{\ln 5 - \ln 3}$
76	$3^{2x-1} + 3^{2x-1} = 2 \cdot 5^{2x-1}$	$x = \frac{1}{2}$
77	$3 \cdot 7^x + 4 \cdot 3^x = 7^x + 10 \cdot 3^x$	$x = \frac{\ln 6 - \ln 2}{\ln 7 - \ln 3}$
78	$5^{x+1} + 2^{x+1} = 3 \cdot 5^x + 5 \cdot 2^x$	$x = \frac{\ln 3 - \ln 2}{\ln 5 - \ln 2}$
79	$\frac{2}{3^{x-1}} = 5^{3(x+1)}$	$x = \pm \frac{\sqrt{3}}{3} \sqrt{\frac{\ln 1125}{\ln 5}}$
80	$3^x - 4 = 0$	$x = \log_3 4$
81	$2^{\frac{x}{2}} - 3 = 0$	$x = 2 \log_2 3$
82	$3 \left(\frac{1}{3}\right)^{4x} = 2$	$x = \frac{1 - \log_3 2}{4}$

83	$5^{\frac{x+1}{2}} - 4 = 0$	$x = 2 \log_5 4 - 1$
84	$\left(\frac{3}{4}\right)^{3x} = 2$	$x = \frac{\log_3 2}{\frac{4}{3}}$
85	$2^{x+1} = 3^x$	$x = \frac{\ln 2}{\ln 3 - \ln 2}$
86	$7^{2x-1} - 14^{2x} = 0$	$x = -\frac{\ln 7}{\ln 4}$
87	$3^{2x} = 5 \cdot 2^x$	$x = \frac{\ln 5}{\ln 9 - \ln 2}$
88	$5^{3x+1} - 2 \cdot 3^x = 0$	$x = \frac{\ln 2 - \ln 5}{\ln 125 - \ln 3}$
89	$7 \cdot 2^{x-1} + 2^x = 3^x - 7 \cdot 3^{x+1}$	<i>impossibile</i>
90	$\left(\frac{1}{2}\right)^{-x} = 10^x - 2^{x+1}$	$x = \log_5 3$
91	$2 + 4^{\frac{x}{2}} = 3^{-x} + 2^x$	$x = -\frac{\ln 2}{\ln 3}$
92	$\left(\frac{3}{2}\right)^{x+1} = 2^x$	$x = \frac{\ln 3 - \ln 2}{\ln 4 - \ln 3}$
93	$3^{2x} \left(\frac{1}{2}\right)^x = 7$	$x = \frac{\ln 7}{\ln 9 - \ln 2}$
94	$4^{\frac{x}{2}} + 4^{2x} = 9^{x+1} + 2^x$	$x = \frac{\ln 9}{\ln 16 - \ln 9}$
95	$\left(\frac{2}{3}\right)^{-x+1} = 3$	$x = 1 - \frac{\ln 3}{\ln 2 - \ln 3}$
96	$2^{1-x} = \frac{1}{\sqrt[3]{5}}$	$x = 1 + \frac{\ln 5}{3 \ln 2}$
97	$\frac{3^{x+1}}{2} = 7^x 4^{-x}$	$x = \frac{\ln 3 - \ln 2}{\ln 7 - \ln 12}$
98	$\frac{2^{2x-3}}{4^{3x}} = \frac{3^x}{2}$	$x = -\frac{\ln 4}{\ln 48}$
99	$\frac{\sqrt[3]{2^x}}{\sqrt{3^{x+1}}} = 7$	$x = -\frac{3 \ln 147}{\ln 27 - \ln 4}$
100	$3(2^x + 1)^2 - 2(2^{2x} - 1) = 5(2^x - 1)^2$	$x = 2$

equazioni esponenziali di riepilogo

101	$\sqrt[x]{25} = \left(\frac{1}{5}\right)^{x-4}$	$x = 2 \pm \sqrt{2}$
102	$2^{5x} \cdot 4^x = 1$	$x = 0$

103	$4^x \sqrt{3^{2-x}} = 3^x \sqrt{2^{4x-1}}$	$x = \frac{2 \ln 108}{3 \ln 3 + 16 \ln 2}$
104	$3^{4-x} = \sqrt[5]{81^{3x-1} \cdot 27^x}$	$x = \frac{6}{5}$
105	$\frac{5-5^x}{5+5^x} - \frac{5+5^x}{5^x-5} = -\frac{10}{3}$	$x = \frac{1}{\log 5}$
106	$a^{x-3} = \sqrt[x]{a^{10}}$	$x = -2 \cup x = 5$
107	$2^{3x+1} + 5^{2x+1} = 2^{3x+2} + 5^{2x}$	$x = \frac{\ln 2}{\ln 8 - 2 \ln 5}$
108	$\frac{5}{3} 3^x = 3 \frac{5^{2x-1}}{5^x}$	$x = 2$
109	$\frac{(2^x + 5)^2}{5} - 5 = 2^x(2^x - 4)$	$x = \log_2 \frac{15}{2}$
110	$5^{x^2-7x+12} = 1$	$x = 3 \cup x = 4$
111	$\frac{10^{\frac{2x+2}{x}}}{3^x} = 1$	$x = \frac{1 \pm \sqrt{1 + \log 9}}{\log 3}$
112	$(\sqrt{a})^{x-1} = (a^{-1})^{x^2-x}$	$x = -\frac{1}{2} \cup x = 1$
113	$3^{4x+2} - 37 \cdot 3^{2x} + 4 = 0$	$x = -1 \cup x = \frac{\ln 2}{\ln 3}$
114	$10^{2\sqrt{x}-1} \cdot 0.1^{\sqrt{x}} = 4$	$x = (1 + \log 4)^2$
115	$3^{1-2x} - \frac{13}{3^x} = 3^{x+1} - 13$	$x = 0 \cup x = \pm 1$
116	$\frac{5^{\sqrt{3x+10}}}{5^x} = 5^4$	$x = -3 \cup x = -2$
117	$25^{\sqrt{x+1}} = 5^{\sqrt{2x-5}}$	<i>impossibile</i>
118	$e^{\frac{x-1}{x^2}} = 1$	$x = 1$
119	$\left(\frac{3^x + 3}{3^x - 4}\right)^2 - 5 \left(\frac{3^x + 3}{3^x - 4}\right) = 0$	$x = \frac{\ln 23 - \ln 4}{\ln 3}$
120	$3^{1-x} = 16$	$x = 1 - \log_3 16$
121	$2^{\frac{x+4}{1-x}} = \frac{1}{4}$	$x = 6$
122	$\frac{1^{x+3}}{2} - 4 \cdot 64^x = 0$	$x = -\frac{5}{7}$
123	$2^{2x-1} \cdot 3^x = \frac{1}{2 \cdot 3^x}$	$x = 0$

124	$3^{2x} - 3^{2x+3} + 9^{x+2} = 165$	$x = \frac{1}{2}$
125	$\left(\left(\frac{1}{4}\right)^{-x} - 16\right)\left(7^x - \frac{1}{49}\right) = 0$	$x = \pm 2$
126	$\left(\frac{4}{5}\right)^{\frac{x-2}{3}} - \sqrt{\frac{5}{4}} = 0$	$x = \frac{1}{2}$
127	$(\sqrt[3]{5})^{2x+1} = 125$	$x = 4$
128	$\left(\frac{1}{2}\right)^{2x^2-3} - 8 = 0$	$x = 0$
129	$\left(2^{3x^2} - \frac{1}{4}\right)\left(3^{\frac{2x+3}{4}} - 9\right) = 0$	$x = \frac{5}{2}$
130	$(7 - 49^{x-1})(\sqrt{3} - 9^{2x-1}) = 0$	$x = \frac{3}{2} \cup x = \frac{5}{8}$
131	$\frac{1 + 2^{3x-1}}{2^x + \frac{1}{2}} = 2$	$x = 1$
132	$a^{2x} - \sqrt{a} = 0$	$x = \frac{1}{4}$
133	$a^{\frac{3x-1}{2x}} - \frac{1}{a^2} = 0$	$x = \frac{1}{7}$
134	$a^x(1 - a^{3x+4}) = 0$	$x = -\frac{4}{3}$
135	$\left(a^{\frac{4x^2-4x+1}{2x}} - 1\right)\left(\frac{1}{a} - a^{2x^2}\right) = 0$	$x = \frac{1}{2}$
136	$\left(\sqrt[3]{a^{-2x}} - \frac{1}{a^{2x}}\right)\left(\frac{1}{a^3} - \frac{1}{a^{2x^2+1}}\right) = 0$	$x = 0 \cup x = \pm 1$
137	$(9^{2x} - 3)\left(\left(\frac{1}{2}\right)^x - 6 \cdot \left(\frac{1}{2}\right)^{\frac{x}{2}} + 8\right) = 0$	$x = -4 \cup x = -2$ $\cup x = \frac{1}{4}$
138	$\frac{\left(3^x - \frac{\sqrt{3}}{3}\right)\left(\left(\frac{1}{4}\right)^{x+1} - \left(\frac{1}{2}\right)^x\right)}{9^{2x} - 12 \cdot 3^{2x} + 27} = 0$	$x = -2 \cup x = -\frac{1}{2}$
139	$\frac{4^{x+2} - 2 \cdot 4^{x+1}}{2} = 16^{x+1}$	$x = -1$
140	$2 - \left(\frac{1}{5}\right)^{3x-1} = \frac{3\left(\frac{1}{5}\right)^{3x-1} - 4\left(\frac{1}{5}\right)^{\frac{3x-1}{2}} + 3}{2}$	$x = \frac{1}{3}$