

Disequazioni esponenziali

1. $5^x > 25$
2. $\left(\frac{\sqrt{3}}{3}\right)^x < \frac{1}{9}$
3. $\left(\frac{1}{7}\right)^x \geq 343$
4. $(2\sqrt{2})^x < 1$
5. $\left(\frac{1}{3}\right)^x < 0$
6. $\left(\frac{1}{2}\right)^x < 0,5$
7. $5^x \geq 0,04$
8. $(0,1)^x \leq 100$
9. $10^x > 0,001$
10. $16^x \leq 64$
11. $5^x < \frac{1}{25}$
12. $8^{3x} < 1$
13. $e^{2x} > -4$
14. $e^{7x-2} > -8$
15. $4^{5x+8} < -12$
16. $4^{7x-2} > 16$
17. $-e^{-x+2} \leq 1$
18. $4^{x+5} > 2$
19. $2^{-x} - \frac{1}{2} < 0$
20. $e^{-x} + e^x < 0$
21. $1 - 7^{1+x} \geq 0$
22. $3^x + 3^{x+2} < 3^{x-1} + 87$
23. $\frac{2^x}{2^{2x-1}} - 8\sqrt{2^{x^2-3}} < 0$
24. $\left[\left(\frac{2}{3}\right)^x - 1\right](5 - x^2) \geq 0$
25. $2^{\frac{x^2-x}{x+1}} \leq 1$
26. $\frac{2^x - 1}{8 - 2^x} \leq 0$
27. $3^{\sqrt{3+x-2x^2}} < 3^{2-x}$
28. $\frac{5^{x^2-4x} - 1}{x - 2} \geq 0$
29. $\left|\frac{5^{2x} - 1}{5^{2x} + 1}\right| < 1$
30. $4^x - 3 \cdot 2^x + 2 < 0$
31. $\left(\frac{1}{3}\right)^x - 3^{x+1} \geq 0$
32. $\left(\frac{1}{2}\right)^x - \left(\frac{1}{2}\right)^{-x} \geq 0$
33. $5^{x+2} + 25^{x+1} > 750$
34. $2^{x+1} + \frac{8}{2^x} \geq 17$
35. $2\left(\frac{1}{2}\right)^x - 2^x \leq 1$
36. $\frac{7^{2x} - 7^x}{7^{2x} + 7^x} \geq 0$
37. $\frac{e^{2x}}{e^x - 1} < 0$
38. $\frac{8 - 2^x}{2^{x+1}} \leq 0$
39. $\frac{4^x - 1}{x - 1} \leq 0$
40. $\frac{e^{x+1} - e^x}{e^{5x} - 1} \leq 0$
41. $\frac{9^x + 3^x}{3^{2x} - 1} < 0$
42. $(2^x - 8)(2^{2x} - 3 \cdot 2^{x+1} + 8) \geq 0$
43. $(5^{3x} - 5^{2x})\left(e^{\frac{1}{x}} - e^2\right) \leq 0$
44. $4^{\frac{2}{x}} - 4^{\frac{1}{x}} + 1 > 0$
45. $30\left(\frac{2}{3}\right)^{\frac{x}{2}} - 27\left(\frac{2}{3}\right)^x - 8 \leq 0$
46. $\frac{5^{|x+2|} - 5}{e^x - \sqrt{e}} \leq 0$

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$$47. \left[\left(\frac{2}{3} \right)^x - \sqrt[3]{\frac{2}{3}} \right] \left(3 \cdot 3^x - \frac{1}{3} \right) \geq 0$$

$$48. 2^{3x-1} + (2^{x-1})^3 \geq 5 \cdot 2^x$$

$$49. \frac{3^{-x} - 81}{5^{\frac{x+2}{x}} - 25} \leq 0$$

$$50. \sqrt{2^{x^2} - \frac{1}{3}} \geq \frac{2}{3}$$

$$51. \begin{cases} 3^{1-x} + 3^{1+x} > 6 \\ \left(\frac{1}{9} \right)^x - 8 \left(\frac{1}{3} \right)^x \geq 9 \end{cases}$$

$$52. 3^{4x} - 3^{3x} - 7 \cdot 3^{2x} + 3^x + 6 < 0$$

$$53. 4^{2x+1} - \frac{7}{3} \cdot 9^x > 7 \cdot 3^{2x} + 16^{x-1}$$

$$54. \frac{3 \cdot 2^x}{2^x - 2} + \frac{4}{2^x + 2} + \frac{3 \cdot 4^x - 8}{4 - 4^x} < 0$$

$$55. 3^{2x+1} - 10 \cdot 3^x + 3 \leq 0$$

$$56. \frac{\left(\frac{2}{3} \right)^{x-1} - 1}{\sqrt{2} - \sqrt[3]{2^{x-1}}} < 0$$

$$57. \frac{e^{\sqrt{x}} - e^{1-x}}{2^{x+1} - \sqrt{2}} \geq 0$$

$$58. \frac{3^{-x+4} (x^4 - 16)}{5^{1-x} - 5^{2x}} \leq 0$$

$$59. 5^{4-x} - \left(\frac{1}{5} \right)^{\sqrt{x+1}} \leq 0$$

$$60. (e^{2x} - e^{\sqrt{x+2}}) (2^{1-x} - 2^x) \leq 0$$

$$61. (e^{1-\sqrt{x}} - 1) \left[\left(\frac{1}{2} \right)^{\frac{4+x}{x}} - 4 \right] \leq 0$$

$$62. \frac{e^{\sqrt{1-x}} - e^{2-2x}}{(0,1)^{x^2-3} - 10^{2x}} \leq 0$$

$$63. \frac{2^{-2x} - 2^{x+1}}{2^{x^2} - 16} \geq 0$$

$$64. e^{4x} > 4$$

$$65. 2e^{x+3} > 5$$

$$66. 5^{2x} - 2 \cdot 5^x - 3 \geq 0$$

$$67. (e^x - 2)(-e^{-x} - 1) \geq 0$$

$$68. 2 \left(\frac{1}{9} \right)^{\frac{x+1}{2}} - \left(\frac{1}{9} \right)^x + \frac{5}{3} \geq 0$$

$$69. |3^{2x} - 3^x| < 2$$

$$70. \frac{3 \cdot 2^{2x+2} - 12}{2^x} \leq 2^x + 7 \cdot 2^{2x} - 7 - 2^{3x}$$

$$71. 2e^{3x} - 9e^{2x} + e^x + 12 \leq 0$$

$$72. \frac{3e^{2x}}{4 - e^x} \geq 1$$

$$73. \left(2^{x^2} - \frac{1}{3} \right) (5^{3x} - 6 \cdot 5^{2x} + 3 \cdot 5^x + 10) \leq 0$$

$$74. 3^{\sqrt{x+1}} - 9^{\sqrt{x}} + 4 \geq 0$$

$$75. \frac{2 - 5^x}{2 \cdot 5^x - 2} + \frac{2}{25^x - 5^x} \leq \frac{3 - 5^x}{5^x - 1}$$

$$76. (e^{\sqrt{2x+3}} - e^x)(e^{2x} - e^x - 2) \leq 0$$

$$77. 18^{2x^2-3x+1} > 1$$

$$78. (5^x)^x < 5$$

$$79. \left(\frac{1}{2} \right)^{-x-1} > \left(\frac{1}{2} \right)^{x+1}$$

$$80. 4^x - 5 \cdot 2^x + 4 > 0$$

$$81. 5^{x+1} < 25^{x-1}$$

$$82. \left(\frac{1}{3} \right)^{x+3} > 9$$

$$83. 4^{x^2-2x-3} > 2$$

$$84. 2^{x+2} + 4^{x+2} > 272$$

$$85. 2^{x+3} + 7^x \geq 9 \cdot 7^x - 20 \cdot 2^x$$

$$86. 3^x + \frac{1}{3^{x+1}} > \frac{28}{9}$$

$$87. 3^{2+x-2x^2} < 3^{(2-x)^2}$$

$$88. \frac{25^{1-x}}{(5^{x-2})^{3+x}} < \frac{25^{-2x} \cdot 5^{-9}}{(5^{2-x})^{2x-3}}$$

$$89. \sqrt{8} \cdot 2^x - 2^{2x+\frac{1}{2}} : 2 < (2+2^x) : \sqrt{2}$$

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90. $2^{x+1} + \frac{8}{2^x} \geq 17$
91. $\frac{\left(\frac{4}{3}\right)^x - \frac{16}{9}}{3^{2x} - 4 \cdot 3^x + 3} < 0$
92. $\frac{4^x + 2^{x+1} - 80}{8 \cdot 2^x - 2} < 0$
93. $\frac{\sqrt[4]{3^{x^2}}}{3^x} > \frac{\sqrt{3}}{9}$
94. $\frac{2^{5x+1} \cdot 16^{x-1}}{8^{x+1}} < 4^{2x-1}$
95. $(2 + 2^x)^2 - (2 - 2^x)^2 \leq 4$
96. $3 \cdot 3^{2x} + 4 \cdot 6^x + 2^{2x} < 0$
97. $4 \cdot \left(\frac{3}{2}\right)^{2x} + 15 \cdot \left(\frac{3}{2}\right)^x < 19$
98. $\frac{3^{2x} - 3^{x+1}}{9^x - 1} \leq 0$
99. $3^{2x} - 10 \cdot 3^x + 9 < 0$
100. $5^{x+1} + 5^{1-x} - 26 > 0$
101. $5^x (5^x + 1) > 5^{x+2} + 25$
102. $2^{2x+1} - 9 \cdot 2^x + 4 < 0$