

EXERCISES

Solve each equation. Round your answer to three decimal places.

1. $3^x = 81$
2. $3^{2x} = 81$
3. $3^{4x} = 81$
4. $3^{x+1} = 81$
5. $3^{x-1} = 3^{4x+1}$
6. $3^{4x+1} = 9^{x-1}$
7. $3^{4x+1} = \left(\frac{1}{9}\right)^{x-1}$
8. $x^{\frac{2}{3}} = 16$
9. $x^{\frac{3}{2}} = 27$
10. $3^x = 40$
11. $3^{x-1} = 40$
12. $2^{2x+1} = 8$
13. $4^x = 15$
14. $\left(\frac{1}{4}\right)^x = 15$
15. $3^{1-2x} = 9^x$
16. $3^{1-2x} = 4^x$
17. $4^{1-2x} = \frac{1}{4}$
18. $2^{x+1} = 5^{1-2x}$
19. $2.5^x = 4^{-x}$
20. $e^{x+2} = 4$
21. $e^{x+3} = \pi$
22. $e^{x+5} = \pi^x$
23. $e^x = \pi^{2-x}$
24. $8^{x^2-2x} = \frac{1}{2}$
25. $3^{2x} + 3^x - 2 = 0$
26. $3^{2x} - 2 \cdot 3^x - 3 = 0$
27. $x^{\frac{1}{2}} - 6x^{-\frac{1}{2}} - 5 = 0$
28. $e^{\ln(2x-1)} = 4$
29. $e^{2x-1} = 4$
30. $\log_x 5 = -\frac{1}{2}$
31. $\log_{\frac{1}{4}} x = -2$
32. $\log_{\frac{1}{2}} 16 = x$
33. $\log_2(3x-1) = 3$
34. $\log_5(4x-1) = 2$
35. $\log_4(x^2 + 4x + 11) = 2$
36. $\log_5(x^2 + 1) = 2$
37. $\log_4(x+4)^3 = 3$
38. $\log_3(x^2 + x + 4) = 2$
39. $e^{3x+5} = 40$
40. $e^x - 3e^{-x} - 2 = 0$
41. $e^x - e^{-x} - 10 = 0$
42. $\ln(x+1) = 0$
43. $e^{\ln(1+x)} = 3x$
44. $\ln e^{\sqrt{x+1}} = 8$
45. $\ln x^2 = (\ln x)^2$
46. $\ln e^{x^2} = 4$
47. $\log(x-6) + \log(x+6) = 1$
48. $\log_2 x = 2\log_2 5 + \log_2 6$
49. $\log_5 3x - \log_5(x+4) = 0$
50. $\log 5 - \log x = 1$
51. $\log_{11}(x-5) + \log_{11}(x-5) = 2$
52. $\log x + \log(x-3) = 1$
53. $\log(x+21) + \log x = 2$
54. $\log_4 x - 1 = -\log_4(x-3)$
55. $\log_4(x^2 - 9) - \log_4(x+3) = 2$
56. $3\log_3 x + \log_9 x = 7$
57. $\log_2(x^2 + 1) - \log_4 x^2 = 1$
58. $\log(x^2 - 4) - \log(x-2) = \log x^2$
59. $\log(x+5) = \log(x-1) - \log(x+1)$
60. $\ln(x+2) = 1 + \ln x$
61. $\ln(2x+2) + \ln(x-3) = 2\ln x$
62. $\ln(x-2) + \ln(2x-3) = 2\ln x$