

Solve the equation for x .

1. $x = \log_{10} \frac{1}{100}$ [A] $\frac{1}{2}$ [B] -3 [C] $-\frac{1}{2}$ [D] -2
2. $x = \log_4 256$ [A] $\frac{1}{4}$ [B] 5 [C] 4 [D] $-\frac{1}{4}$
3. $-2 = \log_x \frac{1}{25}$ [A] $\frac{1}{6}$ [B] 5 [C] $\frac{1}{5}$ [D] 6
4. $2 = \log_x 81$ [A] 11 [B] 10 [C] 8 [D] 9
5. $x = \log_{11} 14,641$ [A] 4 [B] $\frac{1}{4}$ [C] $-\frac{1}{4}$ [D] 5
6. $3 = \log_7 x$ [A] 21 [B] 147 [C] 50 [D] 49
7. $-3 = \log_3 x$ [A] $\frac{1}{27}$ [B] $\frac{1}{81}$ [C] $\frac{1}{9}$ [D] -1
8. $2 = \log_x 144$ [A] 14 [B] 12 [C] 13 [D] 11
9. $x = \log_3 9$ [A] $-\frac{1}{2}$ [B] $\frac{1}{2}$ [C] 2 [D] 3
10. $x = \log_4 16$
11. $-2 = \log_x \frac{1}{121}$
12. $\frac{1}{3} = \log_8 x$
13. $x = \log_7 343$

Solve the equation for x .

14. $-3 = \log_4 x$

15. $x = \log_8 \frac{1}{64}$

16. $\frac{1}{3} = \log_{27} x$

17. $2 = \log_x 100$

18. $3 = \log_2 x$

19. $2 = \log_x 81$

20. Evaluate $2^{\log_2 7}$. [A] 7 [B] 9 [C] 14 [D] 2

21. Evaluate $(2^2)^{\log_4 5}$. [A] 1 [B] 2 [C] 5 [D] 4

22. Evaluate $8^{\log_8 9}$. [A] 8 [B] 72 [C] 9 [D] 17

23. Evaluate $(3^3)^{\log_{27} 2}$. [A] 1 [B] 3 [C] 2 [D] 27

24. Evaluate $5^{\log_5 4}$. [A] 20 [B] 9 [C] 5 [D] 4

25. Evaluate $\log_5 125$.

26. Evaluate $3 \log_4 \sqrt[3]{4}$.

27. Evaluate $\log_6 36$.

28. Evaluate $\frac{3}{2} \log_3 \sqrt{3}$.

29. Evaluate $\log_2 16$.

30. Evaluate $2 \log_8 \sqrt{8}$.

31. Evaluate $\log_7 343$.

32. Evaluate $\frac{5}{2} \log_5 \sqrt[3]{5}$.

33. Evaluate $\log_4 256$.

34. Evaluate $4 \log_6 \sqrt[3]{6}$.

Evaluate the logarithmic expression to the nearest thousandth.

35. $\log_7 \frac{1}{2}$ [A] -1.349 [B] -0.099 [C] -4.852 [D] -0.356

36. $\log_9 \frac{1}{5}$ [A] -14.485 [B] -3.536 [C] -0.732 [D] -0.179

37. $\log_8 \frac{3}{5}$ [A] -0.246 [B] -0.064 [C] -4.087 [D] -1.062

38. $\log_6 \frac{1}{4}$ [A] -2.484 [B] -8.318 [C] -0.231 [D] -0.774

39. $\log_8 \frac{4}{3}$ [A] 0.138 [B] 2.301 [C] 0.036 [D] 0.598

Evaluate the logarithmic expression to the nearest thousandth.

40. $\log_9 \frac{3}{2}$ [A] 0.045 [B] 0.185 [C] 3.649 [D] 0.891
41. $\log_6 \frac{2}{3}$ [A] -0.068 [B] -0.226 [C] -2.433 [D] -0.726
42. $\log_7 \frac{2}{5}$ [A] -0.471 [B] -0.131 [C] -1.783 [D] -6.414
43. $\log_6 \frac{4}{5}$ [A] -0.4 [B] -0.125 [C] -0.037 [D] -1.339
44. $\log_7 \frac{1}{3}$ [A] -2.138 [B] -0.565 [C] -0.157 [D] -7.69
45. $\log_4 504$ [A] 4.489 [B] 1.556 [C] 24.89 [D] 3.259
46. $\log_5 656$ [A] 1.297 [B] 32.431 [C] 4.03 [D] 2.8
47. $\log_3 200$ [A] 3.593 [B] 1.766 [C] 4.823 [D] 15.895
48. $\log_2 757$ [A] 10.794 [B] 3.315 [C] 13.259 [D] 9.564
49. $\log_7 564$ [A] 44.345 [B] 0.905 [C] 3.256 [D] 4.486
50. $\log_6 466$ [A] 36.865 [B] 1.024 [C] 2.199 [D] 3.429
51. $\log_9 320$ [A] 3.855 [B] 2.625 [C] 51.915 [D] 0.641
52. $\log_8 878$ [A] 54.221 [B] 3.259 [C] 0.847 [D] 4.489
53. $\log_5 408$ [A] 3.735 [B] 2.505 [C] 30.056 [D] 1.202
54. $\log_8 105$ [A] 2.238 [B] 1.008 [C] 37.232 [D] 0.582

Evaluate the logarithmic expression to the nearest thousandth.

55. $\log_5 \frac{5}{4}$

56. $\log_3 \frac{2}{3}$

57. $\log_9 \frac{4}{5}$

58. $\log_4 \frac{9}{8}$

59. $\log_8 \frac{9}{4}$

60. $\log_6 \frac{7}{2}$

61. $\log_7 \frac{7}{3}$

62. $\log_2 \frac{6}{5}$

63. $\log_5 \frac{5}{2}$

64. $\log_3 \frac{3}{2}$

65. $\log_9 \frac{1}{2}$

Evaluate the logarithmic expression to the nearest thousandth.

66. $\log_4 \frac{5}{4}$

67. $\log_8 \frac{2}{3}$

68. $\log_6 \frac{4}{5}$

69. $\log_7 282$

70. $\log_3 112$

71. $\log_5 517$

72. $\log_4 613$

73. $\log_2 346$

74. $\log_9 564$

75. $\log_6 472$

76. $\log_8 243$

77. $\log_2 581$

78. $\log_8 134$