

Practice

Properties of Logarithms*Evaluate each expression.*

1. $n^{\log_n 3}$

2. $14^{\log_{14} 6}$

Use $\log_{10} 5 = 0.6990$ and $\log_{10} 7 = 0.8451$ to evaluate each expression.

3. $\log_{10} 35$

4. $\log_{10} \frac{7}{5}$

5. $\log_{10} 25$

6. $\log_{10} 490$

7. $\log_{10} \left(1\frac{3}{7}\right)$

8. $\log_{10} 0.05$

Solve each equation.

9. $\log_6 x + \log_6 9 = \log_6 54$

10. $\log_8 48 - \log_8 w = \log_8 4$

11. $\log_7 n = \frac{2}{3} \log_7 8$

12. $\log_3 y = \frac{1}{4} \log_3 16 + \frac{1}{3} \log_3 64$

13. $\log_9 (3u + 14) - \log_9 5 = \log_9 2u$

14. $\log_7 x + \log_7 x - \log_7 3 = \log_7 12$

15. $4 \log_2 x + \log_2 5 = \log_2 405$

16. $\log_6 (2x - 5) + 1 = \log_6 (7x + 10)$

17. $\log_{16} (9x + 5) - \log_{16} (x^2 - 1) = \frac{1}{2}$

18. $\log_8 (n - 3) + \log_8 (n + 4) = 1$

19. $\log_6 (3m + 7) - \log_6 (m + 4) = 2 \log_6 6 - 3 \log_6 3$

20. $\log_2 (2x + 8) - \log_2 (2x^2 + 21x + 61) = -3$