

## Properties of Logarithms

Evaluate each expression.

1.  $n^{\log_n 3}$

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

Use  $\log_{10} 5 = .6990$  and  $\log_{10} 7 = .8451$  to evaluate each expression.

3.  $\log_{10} 35$

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

5.  $\log_{10} 25$

6.  $\log_{10} 490$

7.  $\log_{10} 1\frac{3}{7}$

8.  $\log_{10} .05$

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