

Honors Math 3: Logarithm Practice

8.4 Practice

Write the logarithmic equation in exponential form.

1. $\log_4 16 = 2$
2. $\log_9 3 = \frac{1}{2}$
3. $\log_2 1 = 0$
4. $\log_5 \frac{1}{5} = -1$

Write the exponential equation in logarithmic form.

5. $2^3 = 8$
6. $10^{-2} = 0.01$
7. $5^0 = 1$
8. $9^{3/2} = 27$

Evaluate the logarithm without using a calculator.

9. $\log_2 4$
10. $\log_4 1$
11. $\log_3 3$
12. $\log_4 (64)$
13. $\log_5 5^{2/3}$

Sketch the graph of the function. Give the domain, range, x-intercept, and equation of asymptote.

14. $f(x) = \log_6 x$

15. $f(x) = \ln x$

8.5 Practice

Expand the expression.

1. $\log_6 3x$
2. $\ln \frac{x}{y}$
3. $\log_{10} xy^2$
4. $\ln \frac{4y^2}{x}$
5. $\log_3 x^{1/2} yz$
6. $\log_5 2\sqrt{x}$
7. $\ln x^3 y^{-2}$

Condense the expression.

8. $\log_3 7 - \log_3 x$
9. $2\log_5 x + \log_5 3$
10. $\ln x + \ln 4$
11. $3\ln x + 2\ln y$
12. $\log_4 5 + \log_4 x + \log_4 y$
13. $\frac{1}{2}\log_{10} x - \log_{10} 4$
14. $\frac{2}{3}\log_2 x - 3\log_2 y$
15. $\ln 4 - (\ln x + \ln y)$
16. $\log_3 4 - (2\log_3 x + \log_3 5)$