



Name _____ Date _____ Period _____

EVALUATING LOGARITHMIC FUNCTIONS WORKSHEET

Review: Let b and x be positive numbers, $b \neq 1$. The logarithm of x with base b is denoted $\log_b x$. Suppose $b > 0$ and $b \neq 1$. For $x > 0$, there is a number y such that: $\log_b x = y$ if and only if $b^y = x$.

Rewrite the equation in exponential form.

1. $\log_7 49 = 2$ 2. $\log_{16} 4 = \frac{1}{2}$ 3. $\log_3 \frac{1}{9} = -2$ 4. $\log_2 16 = 4$

Write each equation in logarithmic form.

5. $13^2 = 169$ 6. $4^{-3} = \frac{1}{64}$ 7. $9^{\frac{3}{2}} = 27$ 8. $10^{-2} = 0.01$

Evaluate each expression without using a calculator.

9. $\log_9 81$ 10. $\log_4 2$ 11. $\log_8 1$ 12. $\log_{27} 3$

13. $\log_3 \frac{1}{3}$ 14. $\log_4 4^{2/3}$ 15. $\log 10$ 16. $\log_8 4$

17. $\log_{\frac{1}{6}} \frac{1}{216}$ 18. $\log_{16} \frac{1}{2}$ 19. $\log_{25} 125$ 20. $\log_{\frac{1}{5}} 3125$