NAME _____ DATE _____ PERIOD _____

7-3 Practice
Logarithms and Logarithmic Functions

Write each equation in exponential form.

1. $\log_6 216 = 3$

2. $\log_2 64 = 6$

3. $\log_3 \frac{1}{81} = -4$

4. $\log_{10} 0.00001 = -5$

5. $\log_{25} 5 = \frac{1}{2}$

6. $\log_{32} 8 = \frac{3}{5}$

Write each equation in logarithmic form.

7. $5^3 = 125$

8. $7^0 = 1$

9. $3^4 = 81$

10. $3^{-4} = \frac{1}{81}$

11. $\left(\frac{1}{4}\right)^3 = \frac{1}{64}$

12. $7776^{\frac{1}{5}} = 6$

Evaluate each expression.

13. $\log_3 81$

14. $\log_{10} 0.0001$

15. $\log_2 \frac{1}{16}$

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

17. $\log_9 1$

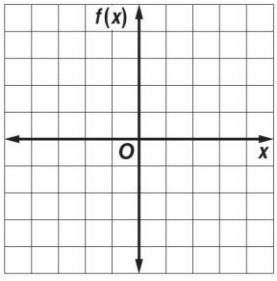
18. $\log_8 4$

19. $\log_7 \frac{1}{49}$

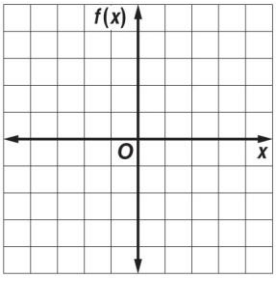
20. $\log_6 6^4$

Graph each function.

21. $f(x) = \log_2 (x - 2)$



22. $f(x) = -2 \log_4 x$



23. SOUND An equation for loudness, in decibels, is $L = 10 \log_{10} R$, where R is the relative intensity of the sound. Sounds that reach levels of 120 decibels or more are painful to humans. What is the relative intensity of 120 decibels?

24. INVESTING Maria invests $1000 in a savings account that pays 4% interest compounded annually. The value of the account A at the end of five years can be determined from the equation $\log_{10} A = \log_{10} [1000(1 + 0.04)^5]$. Write this equation in exponential form.