Name _____ Class _____ Date _____

Practice 7-3

Example Exercises

Example 1

Write each equation in logarithmic form.

1. $2^3 = 8$ **2.** $3^4 = 81$ **3.** $4^3 = 64$ 4. $5^4 = 625$

5. $10^4 = 10{,}000$ **6.** $2^{-3} = \frac{1}{8}$ **7.** $27^{\frac{2}{3}} = 9$ 8. $16^{\frac{3}{4}} = 8$

Write each equation in exponential form.

9. $\log_2 16 = 4$ **10.** $\log_3 \frac{1}{27} = -3$ **11.** $\log 100 = 2$ **12.** $\log_5 125 = 3$

13. $\log_8 64 = 2$ **14.** $\log_9 9 = 1$ **15.** $\log_{12} 1 = 0$ **16.** $\log_{23} 1 = 0$

17. $\log_5 \frac{1}{5} = -1$ **18.** $\log_7 7 = 1$ **19.** $\log_2 64 = 6$ **20.** $\log_6 36 = 2$

Example 2

Evaluate each logarithm.

21. $\log_4 16$ **22.** $\log_4 4$ **23.** $\log_4 1$ **24.** $\log_{16} 256$

25. $\log_{16} 16$ **26.** $\log_{16} 1$ **27.** $\log_{16} 4$ **28.** $\log_{16} 2$

29. $\log 0.01$ **30.** $\log 0.001$ **31.** $\log 100$ **32.** $\log_3 243$

Example 3

The $[H^+]$ is given. Find the pH. Use the formula pH = –log$[H^+]$.

33. 1.5×10^{-3} **34.** 3.1×10^{-6} **35.** 1.3×10^{-5} **36.** 6.3×10^{-5}

The pH is given. Find the $[H^+]$. Use the formula pH = –log$[H^+]$.

37. 1.4 **38.** 3.0 **39.** 4.6 **40.** 8.0

41. 5.1 **42.** 5.9 **43.** 6 **44.** 7

Example 4

Graph each logarithmic function.

45. $y = \log x$ **46.** $y = \log_3 x$ **47.** $y = \log_6 x$ **48.** $y = \log_{\frac{1}{2}} x$