PROBLEM SET 8-3
(Logarithmic Functions as Inverses)

Write each equation in logarithmic form.

1. $49 = 7^2$ **2.** $625 = 5^4$ **3.** $8^2 = 64$

4. $\frac{1}{10} = 10^{-1}$ **5.** $4 = \left(\frac{1}{2}\right)^{-2}$ **6.** $\left(\frac{1}{3}\right)^3 = \frac{1}{27}$

Write each equation in exponential form.

7. $\log_2 128 = 7$ **8.** $\log_6 6 = 1$ **9.** $\log 10 = 1$

10. $\log_3 \frac{1}{9} = -2$ **11.** $\log_2 \frac{1}{2} = -1$ **12.** $\log_{\frac{1}{2}} 2 = -1$

Evaluate each logarithm.

13. $\log_2 16$ **14.** $\log_8 8$ **15.** $\log_4 8$

16. $\log_{49} 7$ **17.** $\log_2 2^5$ **18.** $\log 10{,}000$

Graph each logarithmic function.

19. $y = \log_5 x$ **20.** $y = \log_2 x$

21. $y = \log_2 x + 1$ **22.** $y = \log_2 (x - 3)$