NAME _____ DATE _____

Practice

Student Edition
Pages 605–610

Logarithms and Logarithmic Functions

Write each equation in logarithmic form.

1. $5^3 = 125$

2. $27^{\frac{4}{3}} = 81$

Write each equation in exponential form.

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

4. $\log_{\frac{3}{2}} \frac{\sqrt{6}}{3} = -\frac{1}{2}$

Evaluate each expression.

5. $\log_3 81$

6. $\log_{10} 0.0001$

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

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

9. $\log_9 1$

10. $\log_8 4$

Solve each equation.

11. $\log_4 x = \frac{3}{2}$

12. $\log_y 16 = -4$

13. $\log_a \frac{1}{8} = -3$

14. $\log_7 n = -\frac{1}{2}$

15. $\log_{\sqrt{5}} y = \frac{4}{3}$

16. $\log_x \sqrt[3]{9} = \frac{1}{6}$

17. $\log_8(3x + 7) = \log_8(7x + 4)$

18. $\log_7(8x + 20) = \log_7(x + 6)$

19. $\log_3(9x - 1) = \log_3(4x - 16)$

20. $\log_{12}(x - 9) = \log_{12}(3x - 13)$

21. $\log_5(x^2 - 30) = \log_5 6$

22. $\log_4(x^2 + 6) = \log_4 5x$