NAME _____ DATE _____ PERIOD ____

9-2 Skills Practice

Logarithms and Logarithmic Functions

Write each equation in logarithmic form.

1. $2^3 = 8$

2. $3^2 = 9$

3. $8^{-2} = \frac{1}{64}$

4. $\left(\frac{1}{3}\right)^2 = \frac{1}{9}$

Write each equation in exponential form.

5. $\log_3 243 = 5$

6. $\log_4 64 = 3$

7. $\log_9 3 = \frac{1}{2}$

8. $\log_5 \frac{1}{25} = -2$

Evaluate each expression.

9. $\log_5 25$

10. $\log_9 3$

11. $\log_{10} 1000$

12. $\log_{125} 5$

13. $\log_4 \frac{1}{64}$

14. $\log_5 \frac{1}{625}$

15. $\log_8 8^3$

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

Solve each equation or inequality. Check your solutions.

17. $\log_3 x = 5$

18. $\log_2 x = 3$

19. $\log_4 y < 0$

20. $\log_{\frac{1}{4}} x = 3$

21. $\log_2 n > -2$

22. $\log_b 3 = \frac{1}{2}$

23. $\log_6 (4x + 12) = 2$

24. $\log_2 (4x - 4) > 5$

25. $\log_3 (x + 2) = \log_3 (3x)$

26. $\log_6 (3y - 5) \geq \log_6 (2y + 3)$