NAME _____ DATE _____ PERIOD _____

7-5 Skills Practice

Properties of Logarithms

Use $\log_2 3 \approx 1.5850$ and $\log_2 5 \approx 2.3219$ to approximate the value of each expression.

1. $\log_2 25$ **4.6438**

2. $\log_2 27$ **4.755**

3. $\log_2 \frac{3}{5}$ **−0.7369**

4. $\log_2 \frac{5}{3}$ **0.7369**

5. $\log_2 15$ **3.9069**

6. $\log_2 45$ **5.4919**

7. $\log_2 75$ **6.2288**

8. $\log_2 0.6$ **−0.7369**

9. $\log_2 \frac{1}{3}$ **−1.5850**

10. $\log_2 \frac{9}{5}$ **0.8481**

Solve each equation. Check your solutions.

11. $\log_{10} 27 = 3 \log_{10} x$ **3**

12. $3 \log_7 4 = 2 \log_7 b$ **8**

13. $\log_4 5 + \log_4 x = \log_4 60$ **12**

14. $\log_6 2c + \log_6 8 = \log_6 80$ **5**

15. $\log_5 y - \log_5 8 = \log_5 1$ **8**

16. $\log_2 q - \log_2 3 = \log_2 7$ **21**

17. $\log_9 4 + 2 \log_9 5 = \log_9 w$ **100**

18. $3 \log_8 2 - \log_8 4 = \log_8 b$ **2**

19. $\log_{10} x + \log_{10} (3x - 5) = \log_{10} 2$ **2**

20. $\log_4 x + \log_4 (2x - 3) = \log_4 2$ **2**

21. $\log_3 d + \log_3 3 = 3$ **9**

22. $\log_{10} y - \log_{10} (2 - y) = 0$ **1**

23. $\log_2 r + 2 \log_2 5 = 0$ $\frac{1}{25}$

24. $\log_2 (x + 4) - \log_2 (x - 3) = 3$ **4**

25. $\log_4 (n + 1) - \log_4 (n - 2) = 1$ **3**

26. $\log_5 10 + \log_5 12 = 3 \log_5 2 + \log_5 a$ **15**