UNIT 5 WORKSHEET 8
Logarithm Review Worksheet

Evaluate

1. $\log_3 \frac{1}{27}$
2. $\log_4 8$
3. $\log_{81} 3$
4. $\log_{\frac{2}{3}} \frac{9}{4}$
5. $\log_2 0$
6. $\log_{16} \frac{1}{2}$
7. $\log_7 1$
8. $\log_9 27$
9. $\log_4 \frac{1}{64}$
10. $\log_4 32$
11. $\log_5 -25$
12. $\log_4 4^{2x}$

Write in Exponential Form

13. $\log_5 125 = 3$
14. $\log_{36} 6 = \frac{1}{2}$
15. $\log_4 8 = \frac{3}{2}$

Write in Logarithmic Form

16. $5^2 = 25$
17. $49^{\frac{1}{2}} = 7$
18. $3^4 = 81$

Expand the following and write as the sum or difference of logs.

19. $\log_2 x^5 y^2$
20. $\log_3 \frac{\sqrt{x^7}}{y^5}$
21. $\log_5 \sqrt{\frac{a^3 b}{c}}$
22. $\log \sqrt[3]{xyz^2}$
23. $\log_3 3x^3 y^5$
24. $\log_3 \frac{\sqrt{a} \cdot b^3}{\sqrt[3]{c^2}}$

Condense the following and rewrite using a single log when possible.

25. $\log_2 3 + 4\log_2 x - 2\log_2 y$
26. $\log_5 a - \log_5 b + 2\log_5 c$
27. $3\log_6 x + 2\log_6 y - \frac{1}{2}\log_6 z$
28. $\frac{1}{2}\left(2\log_a x - \log_a y - 3\log_a z\right)$
29. $\frac{2}{3}\log_7 x - \log_7 y - 3\log_7 z + \log_2 x$