Logarithms- Practice

NON CALCULATOR PROBLEMS:

1) Write $\log_2 64 = 6$ in exponential form.

2) Write $3^4 = 81$ in logarithmic form.

3) Solve the following. $\log_4(2x-5) = 4$

Expand each logarithm.

4) $log_6\left(\frac{\sqrt[3]{x}}{36y^4}\right)$

5) $log_b x^4(y-3)$

Condense each logarithm.

6) $4log_b x - 2log_b 6 - \frac{1}{2}log_b y$

7) $3ln(x+7) - lnx$

Evaluate the following

8) $\log_5 125$

9) $\log_4 \frac{1}{64}$

10) $\log_7 \sqrt{7}$

11) $\log_3 \sqrt[3]{3}$

12) $\log_2(-16)$

13) $\ln(e)$

Practice Worksheet:
Exponential and Logarithmic Functions **[Round answers to three decimal places.]**

1. Find the unknown in each of the following equations. Show all your work.

a. $\log_2 3 = x$ b. $\log_7 x = -1$ c. $3(\log_x 8) = 6$

2. For each of the following:
* Write the expression as a single logarithm using the rules of logarithms.
* Evaluate to a single number or estimate the value of the expression.

a. $\log_3 \frac{1}{9} + \log_3 \frac{1}{27}$

b. $\log_5 50.5 + \log_5 10 - \log_5 101$

3.Solve each equation. Show all your work

a. $3^x = 36$

b. $4^{(x+1)} = 3^x$

c. $\log x + \log 4 = \log 24$

d. $2\log_3 3 - \frac{1}{3}\log_3 27 = \log_3 x$

e. $\log_5 x + \log_5 (x-5) = \frac{1}{2}\log_5 36$

4. Simplify each of the following:

a. $2\log_2 x + \frac{1}{3}\log_2 (x-2) - 5\log_2 (2x+3)$ b. $\left(\frac{x^3 y^{-2} z}{x^{-2} y^3 z^{-1}}\right)^{-2}$