Name: _____

Score: _____ /15

Worksheet 13 (Due Thurs, May 22)

Math 1060Q – Summer 2014

Professor Hohn

Three questions will be chosen randomly to be graded. You must show all of your work to receive full credit!

1. Evaluate the following expressions.
   (a) $\log_4 64 - \log_4 16$

   (b) $\log_5 125 + \log_5 5$

   (c) $\log_3 81 + \log_5 125$

   (d) $\dfrac{\log_2 32}{\log_2 16}$

(e) $2\log_6 36 - \log_6 \frac{1}{36}$

2. Rewrite the following expressions as logarithms of one quantity with coefficient 1.

(a) $\dfrac{1}{2}\ln x + \ln 5$

(b) $\log_2 x + 4\log_2(x+1) - \dfrac{1}{3}\log_2(x-1)$

(c) $5\ln x + 2\ln 3 - 3\ln\left(\dfrac{1}{y}\right)$

3. Use the rules of logarithms to expand the following expressions so that there are no logarithms of products, quotients, or powers.

(a) $\ln \sqrt[3]{x^3 y}$

(b) $\log_{10} \dfrac{10}{4x^2}$

(c) $\ln \left(\dfrac{x\sqrt{y}}{(1+x)^3} \right)$

4. Suppose $\ln(x) = 2$, $\ln(y) = 3$, and $\ln(z) = 6$. Evaluate the following expressions.

(a) $\ln(xyz)$

(b) $\ln(x^2y)$

(c) $\ln\left(\dfrac{x^3}{\sqrt{z}}\right)$