Name: _____

MATH 101
Spring 2022
HW 13: Due 05/03

"You have no idea, how much poetry there is in the calculation of a table of logarithms!"

–Carl Friedrich Gauss

Problem 1. (10pt) Compute the following:

(a) $\log_7(1)$

(b) $\log_2(128)$

(c) $\log_4\left(\frac{1}{16}\right)$

(d) $\ln(e)$

(e) $\ln(e^{2/3})$

Problem 2. (10pt) Write the following in terms of $\ln x$, $\ln y$, and $\ln z$:

$$\ln\left(\frac{x^2y}{z^6}\right)$$

Problem 3. (10pt) Write the following as a single logarithm involving no negative powers:

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

Problem 4. (10pt) Solve the following equations:

(a) $15\left(\frac{1}{2}\right)^{x} = 45$

(b) $3^{2-x} + 5 = 15$

(c) $e^{x/3} - 12 = 28$