Unit 9.1 Introduction to Logarithms

1. Write each equation in log form

   a. $7^2 = 49$

   b. $4^k = 11.6$

   c. $10^3 = 1000$

   d. $\left(\frac{3}{4}\right)^4 = \frac{81}{256}$

   e. $10^k = x$

2. Express each log as an exponent

   a. $\log_3 (9) = 2$

   b. $\log_b (39) = 10$

   c. $\log_b (4) = \frac{2}{3}$

   d. $\log_n (y^2) = x$

e. $\log(1000) = 3$

f. $\log(10) = 1$

3. Evaluate the following and round to the nearest ten-thousandths

   a. $\log(176)$

   b. $\log(0.0061)$

4. Solve for x (round each answer to the nearest hundredth)

   a. $\log_4(x) = 2$

   b. $\log_5\left(\frac{1}{125}\right) = x$

   c. $\log_x(32) = 5$

   d. $\log_5(5^{\log_5(25)}) = x$

   e. $\log x = -1.7$

f. $5 \log x = 9.4$

g. $2^{x+3} = 6$

h. $4^x = 24$

i. $9 + 3^x = 31$

j. $5^{3x} = 18^{(x-2)}$

k. $12^{8x} = 13^{(x+5)}$

5. Use the change of base formula to find exact answers (round to the nearest hundredth)

a. $\log_3 (346)$

b. $\log_5 (200)$

c. $2 \log_6 (33)$

d. $4 \log_5 (413)$