

Name \_\_\_\_\_ Period \_\_\_\_\_

**Review Sections 6-3 & 6-4**

1. Write the equation  $\log_2 \frac{1}{4} = -2$  in exponential form.

- [A]  $2^{-2} = \frac{1}{4}$       [B]  $2^2 = -\frac{1}{4}$       [C]  $2^{-2} = 4$       [D]  $2^2 = -4$

[1] \_\_\_\_\_

2. Write the equation in logarithmic form.

$$4^{-3} = \frac{1}{64}$$

- [A]  $\log_4 \frac{1}{64} = -3$       [B]  $\log_{-3} \frac{1}{64} = -4$       [C]  $\log_{-3} \frac{1}{64} = 4$       [D]  $\log_4 \frac{1}{64} = 3$

[2] \_\_\_\_\_

Solve the equation for  $x$ .

3.  $10^x = 0.011$       [A] -1.96      [B] 2.46      [C] -2.19      [D] -1.76

[3] \_\_\_\_\_

4.  $x = \log_3 81$       [A] 4      [B]  $-\frac{1}{4}$       [C]  $\frac{1}{4}$       [D] 5

[4] \_\_\_\_\_

5. Evaluate  $6^{\log_6 7}$ .      [A] 7      [B] 42      [C] 13      [D] 6

[5] \_\_\_\_\_

6. Write the expression as a single logarithm, and simplify if possible.

$$\log_a 6x + 4(\log_a x - \log_a y)$$

[A]  $\log_a \frac{6x^5}{y^4}$

[B]  $\log_a \frac{10x^2}{y}$

[C]  $\log_a \frac{10x}{4y}$

[D]  $\log_a \frac{24x^2}{y}$

[6] \_\_\_\_\_

7. Solve  $\log_6 4 + 6 \log_6 x = \log_6 3$ , for  $x$ .

[A]  $\left(\frac{3}{4}\right)^{\frac{1}{6}}$

[B]  $\left(\frac{4}{3}\right)^{\frac{1}{6}}$

[C] 1

[D]  $\left(\frac{3}{4}\right)^{-6}$

[7] \_\_\_\_\_

8. Solve  $\log_6(x+3) - \log_6(x+1) = \log_6 3$  for  $x$ .      [A] 0      [B] 1      [C]  $\frac{3}{2}$       [D] -4

[8] \_\_\_\_\_