Name_____ Date _____

6.3 & 6.4 DAY TWO CYU

☑ *Use when you get it right all by yourself*

S *Use when you did it all by yourself, but made a silly mistake*

H *Use when you could do it alone with a little help from teacher or peer*

G *Use when you completed the problem in a group*

X *Use when a question was attempted but wrong (get help)*

N *Use when a question was not even attempted*

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Converting between the inverses	1 - 6	19 - 24	25
Evaluating logarithms	8, 9, 12 - 15	7, 10	11
Simplifying logarithmic/exponential expression	16 - 18		
Finding the inverse function		19 - 24	25
Real-world application			25
Describing transformations with exponential & logarithms			26 – 27
Sketching exponential/logarithms			26 – 27
Writing rules from transformations		28 - 29	

Rewrite the equation in exponential form. "I heart logs"

1. $\log_9 1 = 0$ **2.** $\log_6 216 = 3$ **3.** $\log_2 \frac{1}{4} = -2$

Rewrite the equation in logarithmic form. "I heart logs"

4. $13^{-2} = \frac{1}{169}$ **5.** $4^{3/2} = 8$ **6.** $81^{1/2} = 9$

Evaluate the logarithm. "I heart logs" with a ?; no x =.

7. $\log_8 64$ **8.** $\log_2 32$ **9.** $\log_{10} 1$

10. $\log_3 \frac{1}{81}$ **11.** $\log_2 0.125$ **12.** $\log_{10} 0.01$

Evaluate the logarithm using a calculator. Round your answer to three decimal places.

13. $\log\left(\frac{1}{5}\right)$ **14.** $2\ln(1.4)$ **15.** $\ln(0.4) - 2$

Simply the expression. Show all work for full credit. Remember square root and quadratics are inverses, so they cancel each other.

16. $e^{\ln 7x}$ **17.** $10^{\log 18}$ **18.** $\log\left(10^{3x}\right)$

Find the inverse of the function. Show all work for full credit. "I heart logs"

19. $y = 0.75^x$

20. $y = \log_{3/4} x$

21. $y = \log\left(\frac{x}{2}\right)$

22. $y = \ln(x + 2)$

23. $y = e^{x-3}$

24. $y = 6^x + 2$

25. The length ℓ (in inches) of an alligator and its weight w (in pounds) are related by the function $\ell = 27.1 \ln w - 32.8$.

a. Estimate the length (in inches) of an alligator that weighs 250 pounds. What is its length in feet?

b. Find the inverse of the given function. Use the inverse function to find the weight of a 14-foot alligator. (*Hint*: Convert to inches first.)

Describe the transformation of f, the parent function, represented by g. Then sketch each function. Think about t-charts, PP's, and asymptotes.

26. $f(x) = e^{-x}, g(x) = e^{-x} - 5$

27. $f(x) = e^x, g(x) = -e^{x+2}$

Write a rule for g that represents the indicated transformation of the graph of f.

28. $f(x) = \left(\frac{2}{5}\right)^x$; reflection in the y-axis, followed by a horizontal compression by a factor of 2 and a translation 4 units down

29. $f(x) = e^{-x}$; translation 2 units left and 3 units up, followed by a vertical stretch by a factor of 2

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.