Name: Key Date: _____ Period: _____

6.3 Logarithmic Functions DAY ONE 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 Logarithmic to Exponential	1 – 4		
Changing Exponential to Logarithmic	5 - 8		
Evaluating Logarithmic Expressions		9 - 14	
Solving Logarithmic equations			15 – 18
Graphing Exponentials & Logarithms		19 - 20	

Change the given equation from its current form to the form of its inverse.

1. $\log_5 x = y$ → $5^y = x$
2. $\log_8 x = y$ → $8^y = x$
3. $\log_a 4 = 5$ → $a^5 = 4$
4. $\log_x b = -3$ → $x^{-3} = b$
5. $1.2^3 = m$ → $\log_{1.2} m = 3$
6. $e^b = 9$ → $\ln 9 = b$
7. $a^4 = 24$ → $\log_a 24 = 4$
8. $c = 10^k$ → $\log c = k$

Evaluate the following logarithmic expressions. If necessary, use your calculator and round to the thousandths place.

9. $\log_2 1$ → 0
10. $\log_8 8$ → 1
11. $\log_2 8$ → 3
12. $\log\sqrt{10}$ → $\frac{1}{2}$
13. $\log_{\frac{1}{3}} 9$ → -2
14. $\log 1000$ → 3

Solve for x in the following logarithmic equations. Leave your answer in fraction form. Remember "I HEART LOGS!"

15. $\log_{81} \frac{1}{27} = x$ → $x = -\frac{3}{4}$
16. $\log_{16} 64 = x$ → $x = \frac{3}{2}$
17. $\log_5 x = -3$ → $x = \frac{1}{125}$
18. $\log_{100} x = \frac{3}{2}$ → $x = 1000$

Graph the following exponential functions and their inverses. Create a t-chart for both functions. Do not forget to label your functions and to graph your asymptotes. HINT: Those are inverses too.

19. $f(x) = \frac{1}{3}^x$

20. $g(x) = 4^x$

x	f(x)
-5	243
-4	81
-3	27
-2	9
-1	3
0	1
1	$\frac{1}{3}$

Graph

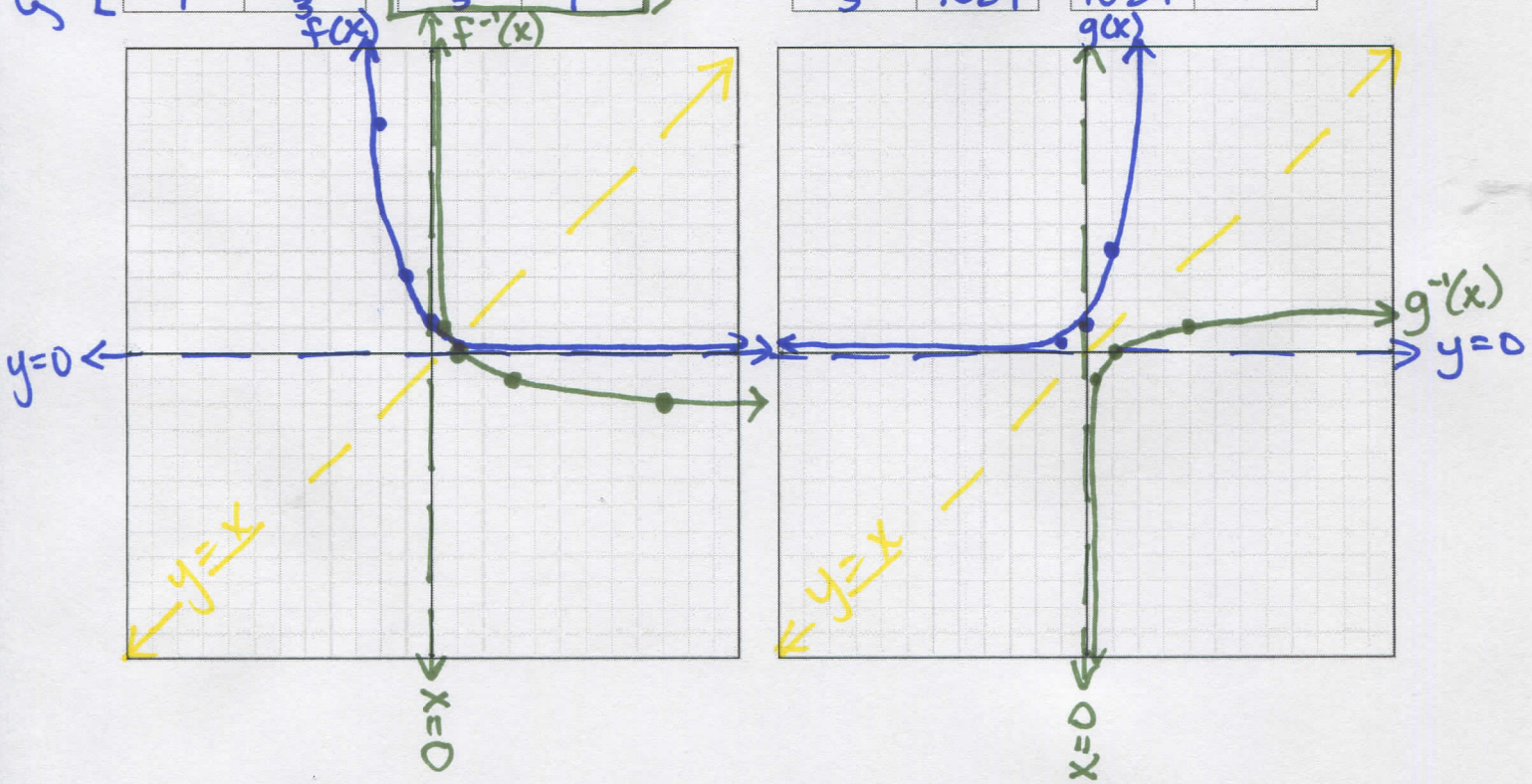
x	$f^{-1}(x)$
243	-5
81	-4
27	-3
9	-2
3	-1
1	0
$\frac{1}{3}$	1

Graph

x	g(x)
-1	$\frac{1}{4}$
0	1
1	4
2	16
3	64
4	256
5	1024

Graph

x	$g^{-1}(x)$
$\frac{1}{4}$	-1
1	0
4	1
16	2
64	3
256	4
1024	5



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.