2.10 Inverses of Exponential Functions

AP Precalculus   Name: _____

Directions: Describe the function, f(x) (exponential, logarithmic, or neither), how you know why it is that function and then find points for its inverse, g(x).

1)

X	f(x)
8	3
16	4
32	5
64	6

X	G(x)

2)

X	f(x)
-3	1/8
-2	1/4
-1	1/2
0	1

X	G(x)

Directions: Determine if f(x) and g(x) are inverses.

3. $f(x) = 3 \cdot \log_5 x$

$g(x) = 5^{3x}$

4. $f(x) = 10^{5x}$

$g(x) = \dfrac{1}{5} \cdot \log x$

Directions: Find the inverse of the given function.

5. $h(x) = 3^{\frac{x}{10}}$

6. $m(x) = 6 \cdot \log_5 x$

1. Logarithmic because the x-values are changing multiplicatively.

X	f(x)
3	8
4	16
5	32
6	64

2. Exponential because the y-values are changing multiplicatively.

X	f(x)
1/8	-3
¼	-2
½	-1
1	0

3. Not inverses

4. Inverses

5. $h^{-1}(x) = 10 \cdot log_3 x$

6. $m^{-1}(x) = 5^{\frac{x}{6}} = 5^{\frac{1}{6}x}$